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Calculated Sputtering, Reflection and Range Values

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Abstract

The Monte Carlo program TRIM.SP was applied to calculate sputtering yields, reflection coefficients and mean ranges. Tables of these values are produced in the energy range from 10 eV to 300 keV and for several angles of incidence. Li. Be. B, C. Mg. Al, Si, P, Ti. Fe. Ni. Cu. Ga. Ge, Nb. Mo, Ag, In, Cs. Sm, Ta, W, Pt, Au, Hg and U are chosen as one-component target materials, BeO, B_4C. B_2O_3, $B(OH)_3$, SiO_2, TiC, WO_3, WO_4. W_xO_y as more component targets. Some examples for layered structures are also given. //, H, D, T. ^{3}He. ^{4}He, C, N. O, Ne, Na, Mg, Al, P. Ar, K, Kr, Xe, Hg. Bi and Rn are selected as projectiles. Selfbombardment and an incident Maxwellian distribution is regarded for some cases, too.

0.1 **Introduction**

This report gives a collection of sputtering, reflection and range values calculated in the last decade (approximately), ft is also an extension of an earlier report [1]. Whereas [1] only data for Be. C. and W targets are presented, this report gives data for other targets, too. In contrast to [1]. the data in this report are given in exponential form to present more accurate values at low ion energies. Calculated sputtering yields from an earlier report are also included [2].

0.2 The model

The vectorized version of TRIM.SP [3. 4] and different versions of it were applied. The basis is a randomized target structure and the binary collision approximation. In most cases the KrC potential [5] is applied as interaction potential, but some examples are calculated with the Moliere [6], ZBL [8] and a special potential for Si [9]. The integration for getting the scattering angle is usually performed with the procedure 'magic' [7]. but in a few cases also with the Gauss-Mehler procedure [10. 2]. For the inelastic energy loss an equipartition of the Lindhard-Scharff (LS) [11] and the Oen-Robinson (OR) [12] models is chosen mostly, but at high energies the Andersen-Ziegler (AZ) tables for H [13] and the Ziegler tables (Z) for He [14] are used. Further details can be found in [2]. As surface binding energy the heat of sublimation is used (see table 6.1 in [2]). For the hydrogen isotopes and nitrogen a binding energy esb —1 eV is chosen for these projectiles which leads to an acceleration of the incoming species and to a decrease in the angle of incidence; it has further an influence on the backscattered species (deceleration and increase in exit angle) in the same way as the surface binding energy effects the sputtered atoms. The statistical errors in the sputtering yields and reflection coefficients are usually smaller than 3% (ler) for values larger than 10^{-5} and may reach 100% at the lowest values.

0.3 Data Representation

The calculated values are given in tables. The tables are arranged in such a way that lines give an angular dependence of sputtering yields at a fixed energy e_0. and columns give an energy dependence at a fixed angle of incidence, a. In special cases this arrangement is changed. On top of the tables the input values are given:

z1	projectile (ion) atomic number
m1	projectile mass
z2	target atomic number
m2	target mass
c2	target atomic fraction
Eq	projectile energy (eV)
alpha	angle of incidence
nh	number of histories (= number of projectiles)
sbe	surface binding energy (eV) for target atoms
rlio	atomic target density (g/cm^3)
ef	cutoff energy (eV), to stop calculation
esb	projectile binding energy (eV)
ca	correction factor to the screening length in the potential
kkO	number of ring cylinders for weak simultaneous collisions (proj.)
kkOr	number of ring cylinders for weak simultaneous collisions (recoils)
kdeel	inelastic loss model for projectiles (1: LS, 2: OR. 3: (LS+OR)/2, 4: AZ for H, 5: Z for He)
kdee2	inelastic loss model for target atoms (1: LS, 2: OR, 3: (LS+OR)/2)
ipot	interaction potential for projectiles (1: KrC, 2: Moliere, 3: ZBL, 4: Si potential)
ipotr	interaction potential for target atoms (1: KrC, 2: Moliere, 3: ZBL, 4: Si potential)
program	this gives the version used for the calculation
ne	number of projectile energies in the table
na	number of incident angles in the table
dx	depth interval (Ä)

For most projectile - target combinations five tables are produced: sputtering yields, sputtered energies, particle reflection coefficients, energy reflection coefficients, and average depths of implanted atoms. The definitions are: the sputter yield, *Y*. is the number of sputtered atoms per projectile, the sputtered energy, *Ye.* is the mean energy taken away by sputtered atoms per projectile energy, the particle reflection coefficient, *Rjy.* is the fraction of backscattered projectiles (not implanted or transmitted), and the energy reflection coefficient, /?.#, is the fraction of the incident energy carried by the reflected projectiles. In a few cases also transmission has been investigated. *Tn* and *Te* are the particle and energy transmission coefficients. *YT* and *YTe* are the forward sputtering yield and the forward sputtered energy, respectively.

Input values different from the usually chosen values are indicated by italic style. If the input values are the same, they are not repeated at the same page.

The data are stored at /afs/ipp/u/wge/reports/rep02. The data in the tables of the report are stored in the corresponding subdirectories; their names represent the target species. More data for other projectile-target combinations, but mostly for single energy and angle, can be found in /afs/ipp/m/wge/result/trim.

0.4 Data Use

The calculated values are valid for nearly flat surfaces.

The energy distribution of the sputtered atoms can be described in a first order approximation by a Thompson distribution:

$$f(E)dE = \frac{F}{\text{vCy -j-}}\blacksquare \; \frac{-dE}{J} \tag{0.1}$$

Applying this distribution an energy E can be determined by a pseudorandom number r due to the formula

$$\frac{E}{Es} = \frac{1}{(1 + 1/a) \;\; !/? \; - \; 1} \tag{0.2}$$

where E_s is the surface binding energy and a the maximum transferable energy divided by the surface binding energy

$$a - \frac{4m!m_2}{(m_r + m_2)^2} \frac{Eq}{E_s} \qquad (1 \;\; J)$$

The mean energy $< E >$ of sputtered atoms for a constant incident energy is given by

$$< E(E_0, \alpha) >= E_0 \frac{Y_E(E_0, \alpha)}{Y(E_0, \alpha)} \tag{M}$$

For an incident Maxwellian distribution the mean energy is provided in the corresponding table.

The angular distribution of sputtered atoms can be approximated by a cosine distribution in a first approximation. An exit angle *6* can again be determined by a random number *r*

$$0 = \arcsin r \tag{0-5}$$

For backscattered atoms the situation is more difficult, because simple formulae for the energy and angular distributions do not exist. As for sputtered atoms the mean energy of reflected atoms can be determined for a constant incident energy by

$$< E(E_0, \alpha) >= E_0 \frac{R_E(E_0, \alpha)}{tiN\{ n_0 , a)} \tag{0.6}$$

For rough surfaces the angular dependence of the sputtering yield and the reflection coefficients is less pronounced as given in the tables.

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The numbers in the table are the page numbers at which the corresponding data are presented. The lines of the table give the data for the same projectile (in italic style), the rows for the same target atom.

mono-atomic targets

	Li	Be	B	C	A]	Si	Ti	V	Fe	Ni	Cu	Ga	Ge	Zr	Nb
p										119					
H		14		41		82			114	120	138				
D	7	16	37	44	76	83	104	111	114	121	139	152			165
T	10	20		47					115			154			
^{3}*He*		22								121					
^{4}*He*	11	23		50	77	84	105		116	122	141				
Li	12														
Be		25		52											
B			39												
C				53		85									
N		30		62											
O		32	40	65											
Ne		33		66	78	85	106			124	143				
Mg						86							160		
Al					79	86							160		
Si						87							161		
P						100							161		
At		35		68	81	101	108			128	144		162		
Ti							109								
V								112							
Fe									118						
Ni										132					
Cu											146				
Ga												156			
Kt										134					
Xe				72		102				136	151			164	
Hg												159			
Bi						103							163		

	Mo	Pd	Ag	Tn	Cs	Sm	Ta	W	Pt	Au	Hg	U
P										242		
H	166			196			207	208				257
D	167		190	197				211		243		
T	170			199				214				
^{4}*He*	172	188	191					217	239	246		258
C	175							219				
N								221				
O	175							224				
Ne	176							224	240	248		258
Na			192							249		
At	177		193					226		250		258
K			194							251		
Kt	180					205					255	259
Mo	181											
In				201								
Xe	185	189	195						241	252		260
Cs					203							
W								229				
Au										253		
Hg	186											
Rn	187											260
U												261

compound targets

	BeO	B_4C	**B2O3**	$B(OH)_3$	SiO_2	TiC	WO_3	WO_4	W_xO_y
μ					280				
H		266				281			
D		268							
^{4}*He*		271							
C		274							
o	263	276	278	279			282	287	288
Ne		277					285		
Kr							286		

layered targets

	Li on Cu	Li on LiCu	B2O3 on B	B2O3 on B_4C	$B(OH)_3$ on B	$B(OH)_3$ on B_4C	O on WO 3	WO_3 on W
D		295						
O			301	303	305	307	310	311
At	291	299						

Mono-atomic targets

D -4 Li

Sputtering yield of Li by I)
zl = 1. ml = 2.01, z2= 3. m2= 6.94, sbe=1.67 eV, rho = 0.53 g/cm **3
ef=0.98 eV, esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx, IPP 9/82
ne=14, na= 2

E_0 (eV)	0°	65°
10	3.81e-3	2.10e-2
15	9.88e-3	6.36e-2
20	1.58e-2	1.10e-l
30	2.38e-2	1.76e-l
50	3.30e-2	2.55e-l
70	3.87e-2	2.97e-l
100	4.22e-2	3.28e-l
200	4.45e-2	3.44e-l
300	4.10e-2	
500	3.41e-2	2.91e-l
1000	2.67e-2	2.06e-l
2000	1.81e-2	1.38e-l
5000	1.04e-2	7.08e-2
10000	6.93e-3	3.68e-2

Sputtered energy of Li by D
program : testvmcx
ne = 13, na= 2

Eo(eV)	0°	65°
10	2.98e-4	3.21e-3
15	7.92e-4	9.43e-3
20	1.21e-3	1.50e-2
30	1.65e-3	2.11e-2
50	1.81e-3	2.39e-2
70	1.88e-3	2.41e-2
100	1.78e-3	2.21e-2
200	1.26e-3	1.65e-2
500	4.66e-4	9.04e-3
1000	2.50e-4	4.77e-3
2000	9.72e-5	1.97e-3
5000	3.33e-5	6.75e-4
10000	1.48e-5	2.31e-4

D -> Li

Particle reflection coefficient of D backscattered from Li
zl = 1. ml = 2.01. z2= 3. m2 = 6.94. sbe = 1.67 eV. rho=0.53 g/cm**3
ef=0.98 eV. esb=1.00 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx
ne=13. na= 2

E_0 (eV)	0°	65°
10	1.50e-l	5.48e-l
15	1.46e-l	5.31e-l
20	1.39e-l	5.09e-l
30	1.30e-l	4.70e-l
50	1.16e-l	4.24e-l
70	1.06e-l	4.02e-l
100	9.40e-2	3.80e-l
200	6.92e-2	3.36e-1
500	4.18e-2	2.83e-l
1000	2.28e-2	2.34e-l
2000	1.02e-2	1.86e-l
5000	3.28e-3	1.01e-l
10000	1.30e-3	4.92e-2

Energy reflection coefficient of D backscattered from Li
program : testvmcx
ne=13. na= 2

E_0 (eV)	0°	65°
10	3.76e-2	3.07e-l
15	3.74e-2	3.03e-l
20	3.58e-2	2.87e-l
30	3.33e-2	2.56e-l
50	2.93e-2	2.23e-l
70	2.65e-2	2.06e-l
100	2.37e-2	1.88e-l
200	1.68e-2	1.61e-l
500	9.56e-3	1.25e-l
1000	4.86e-3	9.16e-2
2000	1.94e-3	6.21e-2
5000	5.52e-4	2.27e-2
10000	1.77e-4	8.20e-3

Average depth (mean range) in Å of D implanted in Li
program : testvmcx
ne=13, na= 2

E_0 (eV)	0°	65°
10	1.25e+l	9.30e+0
15	1.70e+l	1.28e+l
20	2.13e+l	1.59e-|-l
30	2.94e+l	2.17e-|-l
50	4.49e-f-l	3.24e+l
70	6.01e + l	4.34e-|-l
100	8.24e-f-l	5.83e-}-l
200	1.58e+2	1.08e+2
500	3.90e+2	2.47e-f-2
1000	7.76e+2	4.61e-|-2
2000	1.52e+3	8.21e-f-2
5000	3.44e-J-3	1.66e+3
10000	5.99e + 3	2.68e+3

D -> Li

Sputtering yield of Li by D
zl = 1. ml= 2.01. z2= 3. m2= 6.94. sbe = eV. rho=0.53 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2=3_. ipot=ipotr=l (KrC)
program : testvmcx
ne= 3. na= 2. n(sbe) = 4

sbe(eV)	1.60	1.90	2.20	2.50	2.20	2.50
Eo(eV)	0°	0°	0°	0°	65°	65°
30			5.90e-4	1.05e-4		
50	2.18e-2	1.29e-2	7.81e-3	4.50e-3	6.09e-3	3.23e-3
100	4.92e-2	3.57e-2	2.65e-2	2.05e-2		

Sputtered energy of Li by D
ne= 3. na= 2, n(sbe) = 4

sbe(eV)	1.60	1.90	2.20	2.50	2.20	2.50
E_0 (eV)	0°	0°	0°	0°	65°	65°
30			6.92e-6	8.83e-7		
50	4.75e-4	2.75e-4	1.58e-4	8.55e-5	1.30e-4	6.51e-5
100	9.74e-4	7.40e-4	5.51e-4	4.45e-4		

D —> Li

D on Li. Maxwellian velocity distribution, sheath potential 0 kT
zl= 1. ml= 2.01. z2= 3. m2 = 6.94. sbe = 1.67 eV. rho= 0.53 g/cm**3
ef=0.98 eV, esb = 1.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx
ne=ll

kT(eV)	Y	Ye	Esp	R_N	R_E	E_b	range
2	1.83e-3	6.58e-4	1.44e-f-0	2.04e-l	1.25e-l	2.45e+0	4.50e4-0
5	1.89e-2	4.33e-3	2.29e+0	3.04e-l	1.63e-l	5.36e+0	9.90e4-0
10	5.18e-2	8.25e-3	3.19e+0	3.24e-l	1.59e-l	9.84e+0	1.78eRl
20	9.83e-2	1.09e-2	4.42e+0	3.08e-l	1.44e-l	1.87e + l	3.22e + l
50	1.53e-l	9.92e-3	6.47e+0	2.70e-l	1.17e-l	4.33e+l	7.18e + l
100	1.74e-l	7.82e-3	8.93e-f-0	2.34e-l	9.77e-2	8.30e + l	1.34e + 2
200	1.71e-l	4.95e-3	1.16e+l	2.00e-l	7.73e-2	1.54e+2	2.59e+2
500	1.39e-l	2.57e-3	1.84e+l	1.52e-l	5.27e-2	3.44e+2	6.03e+2
1000	1.05e-l	1.22e-3	2.32e + l	1.15e-l	3.40e-2	5.92e+2	1.12e+3
2000	7.19e-2	5.11e-4	2.83e + l	8.44e-2	2.12e-2	9.98e+2	1.97eR3
5000	3.93e-2	1.39e-4	3.54e + l	5.25e-2	1.00e-2	1.91e4-3	3.95e4-3

D on Li . Maxwellian velocity distribution , sheath potential 3 kT
ne= 11

kT(eV)	Y	y_e	E *sp*	Rat	Rfi	B_b	range
2	7.84e-3	1.02e-3	1.30e4-0	1.92e-l	6.17e-2	3.22e+0	1.17e + l
5	3.43e-2	3.09e-3	2.25e + 0	1.74e-l	5.41e-2	7.75e4-0	2.37e + l
10	5.58e-2	3.72e-3	3.34e4-0	1.51e-l	4.62e-2	1.53e+l	4.21e + l
20	6.96e-2	3.28e-3	4.71e + 0	1.25e-l	3.74e-2	2.99e + l	7.71e+l
50	7.10e-2	2.18e-3	7.67e+0	9.25e-2	2.66e-2	7.20e4-l	1.81e4-2
100	5.57e-2	1.13e-3	1.01e + l	6.27e-2	1.64e-2	1.31e + 2	3.55e + 2
200	4.40e-2	5.85e-4	1.33e+l	3.91e-2	9.19e-3	2.35eR2	7.05e + 2
500	2.35e-2	1.70e-4	1.81e + l	1.52e-2	3.16e-3	5.19e+2	1.67e4-3
1000	1.60e-2	6.89e-5	2.15e + l	5.85e-3	1.03e-3	8.85e+2	3.06e+3
2000	9.17e-3	2.53e-5	2.76e-f-l	2.19e-3	3.31e-4	1.51e+3	5.29e+3
5000	4.43e-3	7.99e-6	4.51e+l	4.73e-4	7.77e-5	4.10e+3	1.01e+4

T -> Li

Sputtering yield of Li by T
zl = 1. ml= 3.01, z2= 3. m2= 6.94. sbe=1.68. 1.67 eV. rho = 0.53 g/cm**3
ef=0.90. esb = 1.00. ca=1.00. kk0 = kk0r=2, kdeel=kdee2=3. ipot=ipotr= 1 (KrC)
program: newtrim (Laszlo), IPP9/82
ne=13, na=13

Bq(eV)	0°	20°	40°	50°	60°	65°	70°	75°	77°	80°	82°	85°	87°
10	2.52e-3					3.67e-2							
14	7.36e-3												
20	1.34e-2					1.50e-l							
30	2.04e-2												
50	3.00e-2					3.35e-l							
100	4.20e-2	5.44e-2	1.50e-l	2.25e-l	3.48e-l	4.30e-l	5.00e-l	5.74e-l		5.45e-l		2.51e-l	1.22e-l
200	4.71e-2					4.51e-l							
300	4.52e-2	6.40e-2	1.37e-l	2.16e-l			5.31e-l		7.33e-l		7.74e-l	5.71e-l	1.99e-l
500	4.40e-2					3.87e-l							
1000	3.66e-2					3.09e-l							
2000	2.67e-2					2.00e-l							
5000	1.64e-2					1.04e-l							
10000	1.10e-2					6.11e-2							

Sputtered energy of Li by T
program: newtrim (Laszlo)
ne=10, na= 2

E_0 (eV)	0°	65°
10		6.99e-3
20		2.42e-2
50	1.58e-3	3.54e-2
100	1.53e-3	3.24e-2
200	1.20e-3	2.43e-2
500	6.44e-4	1.38e-2
1000	3.47e-4	8.36e-3
2000	1.51e-4	3.48e-3
5000	6.03e-5	1.31e-3
10000	1.74e-5	4.90e-4

Particle reflection coefficient of T backscattered from Li
zl = 1, ml = 3.01, z2= 3, m2= 6.94. Es=1.68 eV. rho=0.53 g/cm**3
ef=0.90, esb = 1.00. ca=1.00, kkO=kkOr=2, kdeel=kdee2=3, ipot=ipotrs=l (KrC)
program: newtrim (Laszlo)
ne=10, na= 2

E_0 (eV)	0°	65°
10		4.75e-l
20		4.49e-l
50	6.62e-2	3.74e-l
100	5.39e-2	3.28e-l
200	3.96e-2	2.92e-l
500	2.29e-2	2.46e-l
1000	1.29e-2	2.04e-l
2000	5.75e-3	1.55e-l
5000	2.15e-3	9.41e-2
10000	7.45e-4	5.12e-2

Energy reflection coefficient of T backscattered from Li
ne=10. na= 2

Bo(eV)	0°	65°
10		2.41e-l
20		2.33e-l
50	1.18e-2	1.80e-l
100	9.65e-3	1.50e-l
200	7.05e-3	1.29e-l
500	3.91e-3	1.03e-l
1000	2.11e-3	7.95e-2
2000	8.73e-4	5.10e-2
5000	2.96e-4	2.24e-2
10000	1.00e-4	8.83e-3

Average depth (mean range) in Ä of T implanted in Li
ne=10. na= 2

E_0 (eV)	0°	65°
10		7.69e+0
20		1.35e+l
50	4.17e+l	2.79e+l
100	7.73e + l	5.08e+l
200	1.50e+2	9.47e+l
500	3.77e+2	2.28e+2
1000	7.77e+2	4.40e+2
2000	1.58e+3	8.34e+2
5000	3.76e+3	1.80e+3
10000	6.75e + 3	3.03e+3

He -> Li

He on Li. Maxwellian velocity distribution, sheath potential 0 kT
zl = 2. ml = 4.00. z2= 3. m2= 6.94. sbe=1.68 eV. rho = 0.53 g/cm**3
ef=0.30 eV. esb = 0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo)
ne= 11

kT(eV)	Y	Ye	Esp	Rjv	Re	Eh	range
2	2.16e-3	1.07e-3	1.99e+0	5.37e-l	2.58e-l	1.92e+0	3.23e+0
5	2.83e-2	8.70e-3	3.08e+0	4.65e-l	2.16e-l	4.64e + 0	6.54e+0
10	9.00e-2	1.84e-2	4.09e + 0	3.95e-l	1.76e-l	8.90e+0	1.08e+l
20	1.88e-l	2.59e-2	5.50e + 0	3.25e-l	1.38e-l	1.70e + l	1.77e + l
50	3.46e-l	2.85e-2	8.24e+0	2.49e-l	9.86e-2	3.96e + l	3.57e + l
100	4.37e-l	2.46e-2	1.12e + l	2.04e-l	7.84e-2	7.68e + l	6.43e4-l
200	4.88e-l	1.90e-2	1.56e + l	1.67e-l	6.31e-2	1.51e + 2	1.21e+2
500	4.71e-l	1.17e-2	2.46e-f-l	1.33e-l	4.87e-2	3.64e+2	2.88e+2
1000	4.25e-l	7.48e-3	3.49e + l	1.12e-l	3.83e-2	6.75e + 2	5.58e+2
2000	3.45e-l	4.19e-3	4.84e+l	8.69e-2	2.62e-2	1.20e+3	1.08e+3
5000	2.34e-l	1.91e-3	8.15e+l	5.93e-2	1.58e-2	2.65e+3	2.38e+3

He on Li. Maxwellian velocity distribution, sheath potential 2 kT
ne= 9

kT(eV)	Y	YE	Esp	Rtv	Re	Eb	range
2	7.09e-3	1.78e-3	1.96e+0	2.30e-l	6.26e-2	2.13e+0	5.75e+0
5	5.41e-2	6.77e-3	2.50e+0	1.56e-l	3.60e-2	4.60e + 0	1.12e4-l
10	1.18e-l	1.09e-2	3.68e+0	1.18e-l	2.57e-2	8.69e4-0	1.85e-}-l
20	1.78e-l	1.lle-2	4.95e+0	9.04e-2	2.00e-2	1.77e + l	3.20e + l
50	2.31e-l	9.16e-3	7.96e+0	6.56e-2	1.54e-2	4.69e + l	7.06e-|-l
100	2.41e-l	7.29e-3	1.21e-}-l	5.Ole-2	1.12e-2	8.89e+l	1.31e+2
200	1.98e-l	3.90e-3	1.58e + l	3.51e-2	8.50e-3	1.94e+2	2.62e+2
500	1.54e-l	1.64e-3	2.12e+l	2.03e-2	4.53e-3	4.46e-|-2	6.51e+2
1000	1.03e-l	8.49e-4	3.31e + l	1.03e-2	2.04e-3	7.95e+2	1.29e4-3

He on Li, Maxwellian velocity distribution, sheath potential 3 kT
ne=ll

kT(eV)	Y	YE	Esp	R;V	R E	Eb	range
2	9.98e-3	1.76e-3	1.77e + 0	1.89e-l	4.24e-2	2.25e + 0	6.98e4-0
5	5.89e-2	6.17e-3	2.62e-}-0	1.27e-l	2.52e-2	4.96e+0	1.35e+l
10	1.14e-l	8.36e-3	3.68e+0	9.61e-2	1.81e-2	9.43e+0	2.28e+l
20	1.65e-l	8.64e-3	5.24e+0	7.32e-2	1.39e-2	1.90e+l	3.96e + l
50	1.99e-l	6.63e-3	8.31e+0	5.04e-2	9.71e-3	4.81e + l	8.79e-H
100	1.96e-l	4.65e-3	1.19e4-l	3.66e-2	6.95e-3	9.49e + l	1.69e+2
200	1.62e-l	2.68e-3	1.67e+l	2.43e-2	4.79e-3	1.97e+2	3.34e+2
500	1.19e-l	1.Ole-3	2.13e + l	1.27e-2	2.24e-3	4.41e+2	8.42e+2
1000	8.36e-2	5.96e-4	3.57e + l	6.25e-3	8.84e-4	7.08e-f-2	1.66e+3
2000	5.46e-2	2.65e-4	4.83e + l	1.19e-3	1.91e-4	1.60e+3	3.09e-|-3
5000	1.78e-2		1.34e+2				6.45e+3

He on Li, Maxwellian velocity distribution, sheath potential 9 kT
ne=ll

kT(eV)	Y	Ye	Egp	R/V	Re	Bb	range
2	9.98e-3	1.76e-3	1.77e4-0	1.89e-l	4.24e-2	2.25e-)-0	6.98e+0
5	5.89e-2	6.17e-3	2.62e-|-0	1.27e-l	2.52e-2	4.96e-|-0	1.35e-|-l
10	1.14e-l	8.36e-3	3.68e+0	9.61e-2	1.81e-2	9.43e-f-0	2.28e-f-l
20	1.65e-l	8.64e-3	5.24e-{-0	7.32e-2	1.39e-2	1.90e + l	3.96e4-l
50	1.99e-l	6.63e-3	8.31e+0	5.04e-2	9.71e-3	4.81e+l	8.79e + l
100	1.96e-l	4.65e-3	1.19e+l	3.66e-2	6.95e-3	9.49e+l	1.69e-J-2
200	1.62e-l	2.68e-3	1.67e + l	2.43e-2	4.79e-3	1.97e4-2	3.34e+2
500	1.19e-l	1.Ole-3	2.13e+l	1.27e-2	2.24e-3	4.41e+2	8.42e + 2
1000	8.36e-2	5.96e-4	3.57e+l	6.25e-3	8.84e-4	7.08e+2	1.66e+3
2000	5.46e-2	2.65e-4	4.83e+l	1.19e-3	1.91e-4	1.60e4-3	3.09e-}-3
5000	1.78e-2		1.34e+2				6.45e + 3

Li —> Li

Sputtering yield of Li by Li
zl = 3. ml= 6.94. z2= 3, m2= 6.94. sbe = 1.68 eV. rho=0.53 g/cm**3
ef=1.18 eV. esb = 1.68 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), IPP 9/82
ne= 9, na=10

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	75°	80°	85°
20	5.42e-3							2.28e-l		
50	4.29e-2							5.96e-l		
100	9.48e-2	2.60e-l	5.19e-l		9.21e-l	1.05e-0	1.13e-0	1.07e-0	7.68e-l	3.21e-l
200	1.50e-l	3.43e-l	6.56e-l		1.18e-0	1.39e-0	1.58e-0	1.62e-0	1.36e-0	5.19e-l
500	1.91e-l							2.29e-0		
1000	2.07e-l	3.75e-l	6.57e-l	1.04e-0	1.33e-0		2.06e-0	2.49e-0	2.82e-0	2.16e-0
2000	1.87e-l							2.Sße-O		
5000	1.44e-l							2.01e-0		
10000	1.19e-l							1.48e-0		

Sputtered energy of Li by Li
program: newtrim (Laszlo)
ne= 9, na=10

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	75°	80°	85°
20	2.62e-4							5.67e-2		
50	1.62e-3							1.02e-l		
100	2.72e-3	1.27e-2	3.41e-2		7.85e-2	9.78e-2	1.15e-l	1.22e-l	9.97e-2	5.00e-2
200	3.17e-3	1.23e-2	3.12e-2		7.17e-2	8.94e-2	1.10e-l	1.25e-l	1.16e-l	5.40e-2
500	2.61e-3							1.09e-l		
1000	2.08e-3	6.76e-3	1.61e-2	3.06e-2	4.15e-2		7.17e-2	8.97e-2	1.02e-l	8.26e-2
2000	1.29e-3								6.53e-2	
5000	5.98e-4								3.85e-2	
10000	3.46e-4								2.08e-2	

Particle reflection coefficient of Li backscattered from Li
zl = 3, ml= 6.94, z2= 3, m2= 6.94, sbe = 1.68 eV, rho=0.53 g/cm**3
ef=1.18 eV, esb = 1.68 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo)
ne= 9, na=10

Bq(eV)	0°	30°	45°	55°	60°	65°	70°	75°	80°	85°
20	9.31e-4							5.18e-l		
50	3.80e-3							5.96e-l		
100	5.39e-3	2.39e-2	6.99e-2		1.93e-l	2.69e-l	3.72e-l	5.18e-l	7.21e-l	9.05e-l
200	5.10e-3	2.09e-2	5.93e-2		1.64e-l	2.27e-l	3.14e-l	4.33e-l	6.28e-l	8.89e-l
500	3.56e-3							3.52e-l		
1000	2.42e-3	1.lle-2	3.39e-2	7.57e-2	1.12e-l		2.24e-l	3.10e-l	4.50e-l	6.98e-l
2000	1.79e-3							2.89e-l		
5000	6.04e-4							2.45e-l		
10000								2.08e-l		

Energy reflection coefficient of Li backscattered from Li
ne= 9, na=10

B_0 (eV)	0°	30°	45°	55°	60°	65°	70°	75°	80°	85°
20	5.99e-5							2.56e-l		
50	2.25e-4							3.43e-l		
100	3.04e-4	2.92e-3	1.33e-2		6.05e-2	1.02e-l	1.70e-l	2.91e-l	4.98e-l	7.32e-l
200	2.79e-4	2.45e-3	1.07e-2		4.74e-2	7.96e-2	1.32e-l	2.26e-l	4.20e-l	7.49e-l
500	1.91e-4							1.67e-l		
1000	1.27e-4	1.20e-3	6.34e-3	1.77e-2	3.03e-2		8.35e-2	1.41e-l	2.53e-l	5.40e-l
2000	1.18e-4							1.25e-l		
5000	2.66e-5							1.01e-l		
10000								7.16e-2		

Average depth (mean range) in Ä of Li implanted in Li
ne= 9, na=10

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	75°	80°	85°
20	1.01e4-l							3.62e-|-0		
50	1.94e-}-l							8.87e+0		
100	3.25e-)-l	2.85e-f-l	2.43e + l		1.95e + l	1.79e+l	1.66e + l	1.53e+l	1.40e + l	1.25e-|-l
200	5.63e-{-l	4.95e4-l	4.17e+l		3.35e-}-l	3.09e+l	2.85e+l	2.62e-f-l	2.43e + l	2.22e+l
500	1.24e+2							5.60e-|-l		
1000	2.39e+2	2.09e+2	1.74e+2	1.50e+2	1.38e-}-2		1.13e+2	1.04e+2	9.58e-f-l	8.93e-{-l
2000	4.79e+2							2.00e+2		
5000	1.23e-}-3							4.69e+2		
10000	2.45e+3							8.63e+2		

Li -4 Li

Li on Li, Maxwellian velocity distribution, sheath potential 0 kT
zl = 3, ml = 6.94. z2= 3. m2= 6.94. sbe = 1.67 eV, rho= 0.53 g/cm**3
ef=1.62 eV, esb = 1.67 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, newtrim(Laszlo)
ne=14

kT(eV)	Y	Y_E	Esp	R_N	Re	Eb	range
1.1	4.56e-4	3.04e-4	1.47e+0	1.10e-3	1.12e-3	2.24e+0	1.12e+0
1.4	1.24e-3	7.64e-4	1.73e+0	2.85e-3	2.74e-3	2.69e+0	1.36e + 0
2	4.22e-3	2.37e-3	2.24e-|-0	9.29e-3	8.13e-3	3.50e+0	1.82e4-0
3	1.41e-2	6.30e-3	2.68e+0	2.40e-2	1.80e-2	4.49e + 0	2.51e4-0
5	4.28e-2	1.44e-2	3.36e+0	5.70e-2	3.80e-2	6.67e4-0	3.94e+0
10	1.26e-l	2.84e-2	4.53e+0	1.09e-l	6.07e-2	1.12e-|-l	6.83e-)-0
20	2.58e-l	3.90e-2	6.04e + 0	1.43e-l	7.Ole-2	1.96e+l	1.18e + l
50	4.88e-l	4.31e-2	8.87e+0	1.48e-l	6.39e-2	4.32e + l	2.43e-}-l
100	6.66e-l	4.10e-2	1.23e + l	1.34e-l	5.37e-2	8.01e + l	4.22e + l
200	7.95e-l	3.49e-2	1.74e+l	1.19e-l	4.60e-2	1.53e+2	7.64e + l
500	8.58e-l	2.39e-2	2.78e + l	9.74e-2	3.58e-2	3.66e+2	1.80e+2
1000	7.95e-l	1.62e-2	4.08e + l	7.90e-2	2.92e-2	7.39e-|-2	3.52e+2
2000	7.35e-l	1.12e-2	6.09e + l	7.05e-2	2.35e-2	1.33e-f-3	6.96e+2
5000				5.12e-2	1.82e-2	3.57e+3	1.69e+3

Li on Li, Maxwellian velocity distribution, sheath potential' 3 kT
ne=14

kT(eV)	Y	Ye	E sp	RiV	r e	B b	range
1.1	1.43e-3	3.71e-4	1.43e + 0	1.56e-3	5.76e-4	2.03e4-0	3.34e-f-0
1.4	3.47e-3	7.95e-4	1.61e+0	3.05e-3	1.04e-3	2.37e+0	4.02e + 0
2	1.07e-2	2.00e-3	1.87e-f-0	6.82e-3	2.07e-3	3.03e+0	5.29e-f-0
3	2.71e-2	4.10e-3	2.27e + 0	1.19e-2	3.06e-3	3.86e+0	7.15e + 0
5	6.41e-2	7.17e-3	2.79e-}-0	1.71e-2	3.68e-3	5.39e-J-0	1.05e+l
10	1.36e-l	1.05e-2	3.84e-}-0	2.04e-2	3.51e-3	8.59e4-0	1.74e4-l
20	2.14e-l	1.16e-2	5.41e-f-0	1.92e-2	2.94e-3	1.53e-f-l	2.92e-f-l
50	3.19e-l	1.09e-2	8.58e4-0	1.73e-2	2.65e-3	3.82e-f-l	6.10e-H
100	3.45e-l	8.13e-3	1.21e + l	1.28e-2	1.88e-3	7.31e + l	1.12e-|-2
200	3.24e-l	5.68e-3	1.76e+l	9.05e-3	1.43e-3	1.58e+2	2.15e+2
500	2.40e-l	2.46e-3	2.57e+l	4.72e-3	6.67e-4	3.53e-f-2	5.38e+2
1000	2.16e-l	1.54e-3	3.57e-f-l	2.99e-3	4.51e-4	7.57e+2	1.10e+3
2000	1.46e-l	8.98e-4	6.14e + l	7.58e-4	1.36e-4	1.80e-}-3	2.19e-j-3
5000	9.47e-2	3.04e-4	8.04e4-l				5.07e-|-3

Li on Li, Maxwellian velocity distribution, sheath potential 9 kT
ne=14

kT(eV)	Y	Ye	E sp	R/V	Re	E b	range
1.1	5.18e-3	5.87e-4	1.37e+0	2.18e-3	3.64e-4	2.02e4-0	6.58e + 0
1.4	1.08e-2	1.04e-3	1.49e+0	3.38e-3	5.06e-4	2.31e+0	7.84e-}-0
2	2.37e-2	1.93e-3	1.79e+0	5.45e-3	7.29e-4	2.94e+0	1.01e + l
3	4.80e-2	3.25e-3	2.23e+0	7.61e-3	9.23e-4	4.00e+0	1.36e-t-l
5	8.93e-2	4.65e-3	2.86e + 0	9.45e-3	9.90e-4	5.76e+0	1.99e4-l
10	i.55e-l	6.03e-3	4.27e + 0	1.Ole-2	9.55e-4	1.04e + l	3.35e + l
20	2.15e-l	5.74e-3	5.87e+0	8.97e-3	8.33e-4	2.04e + l	5.84e + l
50	2.55e-l	4.50e-3	9.72e+0	6.58e-3	6.13e-4	5.12e + l	1.30e-f-2
100	2.49e-l	3.06e-3	1.35e + l	4.13e-3	3.27e-4	8..71e-}-l	2.52e+2
200	2.10e-l	1.82e-3	1.90e + l	2.23e-3	2.79e-4	2.75e-}-2	5.03e+2
500	1.43e-l	6.45e-4	2.49e + l	1.55e-3	1.37e-4	4.85e + 2	1.29e-|-3
1000	1.20e-l	4.38e-4	4.01e + l	2.61e-4	1.90e-5	8.02e+2	2.57e-f-3
2000	8.47e-2	1.82e-4	4.71e4-l	2.12e-4	8.83e-6	9.16e + 2	4.88e + 3
5000	4.98e-2	8.04e-5	8.89e + l				8.65e-|-3

H Be

Sputtering yield of Be by H
zl = 1, ml= 1.01, z2= 4, m2= 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne=17, na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
15	2.39e-5	2.63e-5	2.85e-5	2.14e-5	1.21e-5	8.09e-6	4.43e-6			
17	1.80e-4	1.95e-4	2.08e-4	1.66e-4	1.05e-4	7.32e-5	4.48e-5	9.26e-6	3.26e-6	3.82e-6
20	8.03e-4	8.49e-4	9.25e-4	8.35e-4	6.15e-4	4.64e-4	3.12e-4	8.45e-5	3.29e-5	1.31e-5
22	1.45e-3	1.50e-3	1.68e-3	1.65e-3	1.32e-3		7.44e-4	2.31e-4	9.69e-5	3.89e-5
25	2.57e-3	2.75e-3	3.17e-3	3.36e-3	2.89e-3	2.50e-3	1.92e-3	7.73e-4	3.29e-4	1.38e-4
27	3.50e-3									
30	4.68e-3	4.98e-3	5.82e-3	6.88e-3	6.92e-3	6.37e-3	5.53e-3	2.68e-3	1.26e-3	4.78e-4
40	8.46e-3	9.19e-3	1.13e-2	1.43e-2	1.76e-2	1.87e-2	1.83e-2	1.10e-2	4.97e-3	1.39e-3
50	1.15e-2	1.24e-2	1.55e-2	2.20e-2	2.89e-2	3.24e-2	3.40e-2	2.38e-2	1.05e-2	2.46e-3
70	1.54e-2	1.69e-2	2.19e-2	3.35e-2	4.76e-2	5.61e-2	6.40e-2	5.41e-2	2.57e-2	4.28e-3
100	1.85e-2	2.04e-2	2.70e-2	4.38e-2	6.49e-2	7.81e-2	9.48e-2	9.73e-2	5.15e-2	6.63e-3
140	1.98e-2	2.24e-2	3.07e-2	5.05e-2	7.71e-2		1.18e-l	1.39e-l	8.57e-2	1.02e-2
200	2.02e-2	2.28e-2	3.27e-2	5.57e-2	8.43e-2	1.05e-l	1.33e-l	1.78e-l	1.33e-l	1.70e-2
300	1.93e-2	2.23e-2	3.27e-2	5.64e-2	8.66e-2		1.37e-l	2.07e-l	1.91e-l	3.41e-2
500	1.69e-2	1.98e-2	2.99e-2	5.13e-2	8.02e-2	1.00e-l	1.30e-l	2.15e-l	2.43e-l	8.09e-2
1000	1.26e-2	1.49e-2	2.26e-2	4.00e-2	6.28e-2	8.37e-2	1.04e-l	1.88e-l	2.51e-l	1.93e-l
2000						5.55e-2				

Sputtered energy of Be by H
ne=17, na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
15	5.14e-7	6.20e-7	7.95e-7	6.37e-7	3.73e-7	2.51e-7	1.27e-7			
17	5.30e-6	6.12e-6	7.26e-6	6.29e-6	3-98e-6	2.79e-6	1.68e-6	3.59e-7	1.31e-7	2.07e-7
20	3.14e-5	3.45e-5	4.08e-5	3.99e-5	2.98e-5	2.25e-5	1.54e-5	4.24e-6	1.71e-6	7.12e-7
22	6.21e-5	6.65e-5	8.12e-5	8.74e-5	7.17e-5		4.08e-5	1.29e-5	5.50e-6	2.34e-6
25	1.22e-4	1.36e-4	1.68e-4	1.92e-4	1.73e-4	1.53e-4	1.19e-4	4.716-5	2.15e-5	9.17e-6
27	1.74e-4									
30	2.42e-4	2.67e-4	3.31e-4	4.23e-4	4.46e-4	4.20e-4	3.77e-4	1.94e-4	9.45e-5	3.69e-5
40	4.61e-4	5.09e-4	6.62e-4	9.35e-4	1.17e-3	1.29e-3	1.33e-3	8.94e-4	4.35e-4	1.28e-4
50	6.19e-4	6.74e-4	8.89e-4	1.34e-3	1.87e-3	2.21e-3	2.45e-3	2.01e-3	9.77e-4	2.47e-4
70	7.72e-4	8.60e-4	1.14e-3	1.88e-3	2.88e-3	3.56e-3	4.33e-3	4.44e-3	2.38e-3	4.33e-4
100	8.25e-4	9.19e-4	1.24e-3	2.11e-3	3.33e-3	4.37e-3	5.66e-3	7.00e-3	4.30e-3	6.46e-4
140	7.78e-4	8.76e-4	1.21e-3	2.11e-3	3.44e-3		6.00e-3	8.66e-3	6.13e-3	8.86e-4
200	6.59e-4	7.45e-4	1.08e-3	1.99e-3	3.22e-3	4.34e-3	5.77e-3	8.99e-3	7.80e-3	1.27e-3
300	5.02e-4	5.80e-4	8.63e-4	1.66e-3	2.77e-3		4.77e-3	8.11e-3	8.64e-3	2.00e-3
500	3.13e-4	3.77e-4	5.91e-4	1.1le-3	1.99e-3	2.42e-3	3 33e-3	6.22e-3	7.74e-3	3.29e-3
1000	1.39e-4	1.66e-4	2.92e-4	5.88e-4	1.00e-3	1.27e-3	1.88e-3	3.66e-3	5.11e-3	4.57e-3
2000						6.26e-4				

H -4- Be

Particle reflection coefficient of H backscattered from Be
zl = 1. ml = 1.01, z2= 4, m2 = 9.01. sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : trvmc
ne=18, na=10

E 0 (eV)	0 °	15°	30 °	45°	55°	60°	65 °	75°	80 °	85°
10	4.27e-l	4.51e-l	5.21e-l	6.43e-l	7.48e-l		8.56e-l	9.38e-l	9.61e-l	9.74e-l
15	3.79e-l	4.01e-l	4.65e-l	5.87e-l	7.02e-l	7.66e-l	8.32e-l	9.38e-l	9.69e-l	9.83e-l
17	3.66e-l	3.86e-l	4.48e-l	5.68e-l	6.85e-l	7.51e-l	8.20e-l	9.37e-l	9.70e-l	9.85e-l
20	3.49e-l	3.68e-l	4.28e-l	5.44e-l	6.61e-l	7.30e-l	8.04e-l	9.34e-l	9.71e-l	9.87e-l
22	3.40e-l	3.59e-l	4.16e-l	5.29e-l	6.46e-l		7.92e-l	9.31e-l	9.71e-l	9.88e-l
25	3.28e-l	3.46e-l	4.02e-l	5.10e-l	6.26e-l	6.97e-l	7.76e-l	9.26e-l	9.71e-l	9.89e-l
27	3.22e-l									
30	3.11e-l	3.28e-l	3.81e-l	4.85e-l	5.97e-l	6.69e-l	7.50e-l	9.17e-l	9.70e-l	9.91e-l
40	3.87e-l	3.03e-l	3.53e-l	4.48e-l	5.52e-l	6.21e-l	7.05e-l	8.97e-l	9.66e-l	9.93e-l
50	2.69e-l	2.85e-l	3.32e-l	4.22e-l	5.20e-l	5.87e-l	6.68e-l	8.75e-l	9.60e-l	9.93e-l
70	2.44e-l	2.58e-l	3.03e-l	3.88e-l	4.76e-l	5.35e-l	6.13e-l	8.33e-l	9.46e-l	9.94e-l
100	2.18e-l	2.32e-l	2.74e-l	3.53e-l	4.36e-l	4.90e-l	5.60e-l	7.77e-l	9.20e-l	9.93e-l
140	1.94e-l	2.08e-l	2.47e-l	3.23e-l	4.02e-l		5.17e-l	7.17e-l	8.82e-l	9.92e-l
200	1.68e-l	1.81e-l	2.19e-l	2.92e-l	3.69e-l	4.22e-l	4.77e-l	6.58e-l	8.28e-l	9.87e-l
300	1.39e-l	1.51e-l	1.87e-l	2.58e-l	3.31e-l		4.35e-l	6.00e-l	7.77e-l	9.74e-l
500	1.03e-l	1.14e-l	1.46e-l	2.13e-l	2.85e-l	3.36e-l	3.86e-l	5.39e-l	6.71e-l	9.37e-l
1000	5.91e-2	6.64e-2	9.28e-1	1.50e-l	2.17e-l	2.68e-l	3.18e-l	4.67e-l	5.80e-l	8.28e-l
2000						1.91e-l				

Energy reflection coefficient of H backscattered from Be
ne=18, na=10

E 0 (eV)	0°	15 °	30°	45 °	55°	60 °	65 °	75 °	80°	85 °
10	1.96e-l	2.15e-l	2.73e-l	3.88e-l	5.01e-l		6.34e-l	7.58e-l	7.99e-l	8.24e-l
15	1.71e-l	1.87e-l	2.38e-l	3.50e-l	4.71e-l	5.45e-l	6.27e-l	7.85e-l	8.40e-l	8.70e-l
17	1.63e-l	1.78e-l	2.27e-l	3.35e-l	4.56e-l	5.33e-l	6.19e-l	7.89e-l	8.49e-l	8.81e-l
20	1.54e-l	1.68e-l	2.14e-l	3.16e-l	4.36e-l	5.14e-l	6.05e-l	7.92e-l	8.59e-l	8.93e-l
22	1.49e-l	1.62e-l	2.06e-l	3.04e-l	4.23e-l		5.95e-l	7.92e-l	8.63e-l	9.00e-l
25	1.42e-l	1.55e-l	1.96e-l	2.90e-l	4.04e-l	4.84e-l	5.79e-l	7.89e-l	8.68e-l	9.08e-l
27	1.39e-l									
30	1.33e-l	1.45e-l	1.83e-l	2.69e-l	3.78e-l	4.56e-l	5.54e-l	7.82e-l	8.73e-l	9.17e-l
40	1.20e-l	1.30e-l	1.65e-l	2.40e-l	3.37e-l	4.10e-l	5.06e-l	7.62e-l	8.74e-l	9.28e-l
50	l.lle-1	1.20e-l	1.52e-l	2.20e-l	3.08e-l	3.76e-l	4.68e-l	7.37e-l	8.70e-l	9.35e-l
70	9.79e-2	1.06e-l	1.34e-l	1.95e-l	2.70e-l	3.27e-l	4.10e-l	6.86e-l	8.54e-l	9.42e-l
100	8.46e-2	9.22e-2	1.17e-l	1.71e-l	2.36e-l	2.86e-l	3.56e-l	6.18e-l	8.21e-l	9.45e-l
140	7.29e-2	8.00e-2	1.02e-l	1.51e-l	2.09e-l		3.13e-l	5.45e-l	7.71e-l	9.45e-l
200	6.08e-2	6.72e-2	8.70e-2	1.31e-l	1.84e-l	2.25e-l	2.75e-l	4.73e-l	6.98e-l	9.40e-l
300	4.81e-2	5.30e-2	7.03e-2	1.09e-l	1.57e-l		2.37e-l	4.09e-l	6.03e-l	9.22e-l
500	3.29e-2	3.72e-2	5.11e-2	8.30e-2	1.24e-l	1.55e-l	1.94e-l	3.34e-l	4.90e-l	8.65e-l
1000	1.68e-2	1.92e-2	2.83e-2	5.06e-2	8.15e-2	1.07e-l	1.39e-l	2.55e-l	3.71e-l	7.02e-l
2000						6.27e-2				

Average depth (mean range) in Ä of H implanted in Be
ne=18, na=10

E 0 (eV)	0°	15°	30 °	45°	55 °	60 °	65 °	75°	80°	85°
10	5.11e+0	5.06e+0	4.96e-f-0	4.79e+0	4.65e-f-0		4.49e4-0	4.32e-}-0	4.24e-|-0	4.18e-|-0
15	6.88e+0	6.81e+0	6.64e+0	6.39e4-0	6.20e-}-0	6.09e+0	5.98e+0	5.74e+0	5.58e-|-0	5.58e-f-0
17	7.55e-f-0	7.47e+0	7.27e + 0	6.99e+0	6.77e+0	6.65e+0	6.54e + 0	6.29e4-0	6.17e+0	6.05e+0
20	8.52e-f-0	8.43e-|-0	8.20e+0	7.86e+0	7.61e+0	7.47e-}-0	7.34e-|-0	7.07e+0	6.93e+0	6.80e+0
22	9.15e-|-0	9.05e-|-0	8.80e-}-0	8.43e+0	8.15e-f-0		7.86e+0	7.57e-J-0	7.41e+0	7.27e+0
25	1.01e + l	1.00e+l	9.69e+0	. 9.25e+0	8.95e+0	8.79e-|-0	8.63e+0	8.30e+0	8.14e+0	7.98e+0
27	1.07e+l									
30	1.16e4-l	1.15e-H	l.lle+1	1.06e-f-l	1.02e-{-l	1.01e+l	9.86e+0	9.49e+0	9.30e4-0	9.13e+0
40	1.45e + l	1.44e-J-l	1.39e+l	1.32e4-l	1.27e-}-l	1.25e+l	1.22e+l	1.18e4-l	1.16e-|-l	1.13e+l
50	1.74e+l	1.71e+l	1.65e + l	1.57e-}-l	1.51e+l	1.47e+l	1.45e-|-l	1.39e + l	1.37e+l	1.34e+l
70	2.28e-|-l	2.25e+l	2.17e + l	2.05e-f-l	1.95e+l	1.91e+l	1.87e + l	1.80e + l	1.77e + l	1.74e+l
100	3.07e-{-l	3.03e-|-l	2.91e + l	2.73e+l	2.60e + l	2.54e+l	2.48e-|-l	2.38e + l	2.34e-|-l	2.31e4-l
140	4.09e+l	4.03e+l	3.85e+l	3.60e4-l	3.42e + l		3.24e-J-l	3.10e+l	3.05e+l	3.00e+l
200	5.58e + l	5.48e+l	5.23e+l	4.86e+l	4.58e-}-l	4.44e+l	4.33e + l	4.11e + l	4.05e-}-l	4.06e+l
300	8.00e-|-l	7.84e+l	7.44e + l	6.86e+l	6.41e + l		6.03e-|-l	5.67e+l	5.57e-pl	5.54e-|-l
500	1.26e-f-2	1.23e+2	1.17e+2	1.06e+2	9.82e + l	9.45e+l	9.10e + l	8.50e-|-l	8.28e4-l	8.25e+l
1000	2.37e-f-2	2.31e+2	2.15e + l	1.91e+l	1.74e-}-2	1.65e+2	1.57e+2	1.43e+2	1.38e+2	1.36e+2
2000						2.80e-}-2				

D → Be

Sputtering yield of Be by D
zl= 1. ml = 2.01. z2= 4. m2= 9.01. sbe = 3.38 eV. rho = 1.80 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : trvmc
ne=21. na=12

Eq(eV)	0°	15°	30°	45°	55°	60°	65°	70°	75°	80°	85°	87°
10	4.13e-6	4.30e-6	4.56e-6									
11	2.61e-5	3.05e-5	3.15e-5	2.69e-5	1.86e-5		1.00e-5		3.67e-6	8.00e-7	5.00e-7	
12	9.29e-5	1.07e-4	1.25e-4	1.14e-4	8.71e-5	6.81e-5	5.37e-5		2.31e-5	1.39e-5	9.62e-6	
13	2.32e-4	2.67e-4	3.47e-4	3.16e-4	2.61e-4	2.10e-4	1.62e-4		7.67e-5	4.78e-5	3.18e-5	
14	4.65e-4	5.50e-4	6.90e-4	6.91e-4	5.92e-4		3.92e-4		1.91e-4	1.20e-4	7.85e-5	
15	8.10e-4	9.42e-4	1.21e-3	1.29e-3	1.12e-3	9.82e-4	7.97e-4		4.11e-4	2.57e-4	1.65e-4	
17	1.73e-3	2.02e-3	2.60e-3	3.03e-3	2.92e-3		2.29e-3		1.25e-3	7.67e-4	4.62e.-4	
20	3.64e-3	4.19e-3	5.46e-3	7.03e-3	7.46e-3	7.12e-3	6.59e-3		3.76e-3	2.14e-3	1.16e-3	
25	7.30e-3	8.25e-3	1.1le-2	1.57e-2	1.87e-2	1.94e-2	1.85e-2		1.08e-2	5.51e-3	2.51e-3	
30	1.08e-2	1.22e-2	1.69e-2	2.54e-2	3.25e-2	3.58e-2	3.46e-2		2.07e-2	1.02e-2	3.82e-3	
40	1.68e-2	1.90e-2	2.64e-2	4.34e-2	6.08e-2		7. 17e-2		4.54e-2	2.12e-2	5.91e-3	
50	2.09e-2	2.40e-2	3.45e-2	5.78e-2	8.53e-2	9.88e-2	1.07e-l		7.40e-2	3.23e-2	7.37e-3	
70	2.63e-2	3.04e-2	4.43e-2	7.94e-2	1.19e-l		1.60e-l		1.28e-l	5.90e-2	9.51e-3	
100	3.10e-2	3.59e-2	5.42e-2	9.78e-2	1.49e-l	1.80e-l	2.13e-l		2.00e-l	1.01e-l	1.27e-2	
140	3.32e-2	3.94e-2	6.11e-2	1.08e-l	1.68e-l		2.48e-l		2.71e-l	1.60e-l	1.82e-2	
200	3.51e-2	4.03e-2	6.32e-2	1.14e-l	1.77e-l	2.20e-l	2.68e-l		3.42e-l	2.43e-l	2.93e-2	
300	3.44e-2	4.20e-2	6.34e-2	1.12e-l	1.75e-l	2.12e-l	2.72e-l		3.91e-l	3.42e-l	5.71e-2	
500	3.24e-2	3.85e-2	5.82e-2	1.04e-l	1.50e-l	1.98e-l	2.57e-l		4.08e-l	4.39e-l	1.38e-l	
1000	2.53e-2	2.96e-2	4.37e-2	7.80e-2	1.25e-l	1.54e-l	2.06e-l		3.65e-l	4.59e-l	3.34e-l	
2000	1.76e-2											
3000	1.25e-2		2.02e-2	3.43e-2		7.29e-2		1.29e-l		2.89e-l	4.59e-l	3.18e-l

Sputtered energy of Be by D
ne=19. na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	1.72e-7									
11	1.21e-6	1.56e-6	1.98e-6	1.99e-6	1.51e-6		9.34e-7	4.11e-7	1.24e-7	2.70e-8
12	4.88e-6	6.11e-6	8.54e-6	8.82e-6	7.18e-6	5.83e-6	5.05e-6	2.39e-6	1.49e-6	1.10e-6
13	1.30e-5	1.66e-5	2.54e-5	2.61e-5	2.35e-5	1.94e-5	1.55e-5	8.02e-6	5.16e-6	3.52e-6
14	2.79e-5	3.57e-5	5.17e-5	5.93e-5	5.50e-5		3.98e-5	2.08e-5	1.33e-5	8.92e-6
15	5.04e-5	6.24e-5	9.50e-5	1.14e-4	1.09e-4	9.93e-5	8.38e-5	4.72e-5	2.99e-5	1.98e-5
17	1.13e-4	1.43e-4	2.13e-4	2.87e-4	3.05e-4		2.57e-4	1.49e-4	9.47e-5	5.87e-5
20	2.51e-4	3.10e-4	4.62e-4	6.96e-4	8.14e-4	8.32e-4	7.90e-4	4.86e-4	2.91e-4	1.63e-4
25	5.28e-4	6.36e-4	9.66e-4	1.56e-3	2.09e-3	2.26e-3	2.32e-3	1.53e-3	8.29e-4	3.96e-4
30	7.87e-4	9.35e-4	1.44e-3	2.49e-3	3.56e-3	4.15e-3	4.36e-3	3.04e-3	1.59e-3	6.39e-4
40	1.20e-3	1.42e-3	2.12e-3	3.97e-3	6.30e-3		8.66e-3	6.66e-3	3.39e-3	1.Ole-3
50	1.43e-3	1.68e-3	2.60e-3	4.94e-3	8.18e-3	1.02e-2	1.21e-2	1.04e-2	5.02e-3	1.26e-3
70	1.60e-3	1.88e-3	2.95e-3	5.87e-3	1.00e-2		1.59e-2	1.58e-2	8.45e-3	1.53e-3
100	1.63e-3	1.95e-3	3.04e-3	6.18e-3	1.07e-2	1.36e-2	1.78e-2	2.07e-2	1.22e-2	1.84e-3
140	1.48e-3	1.82e-3	2.94e-3	5.89e-3	1.02e-2		1.72e-2	2.30e-2	1.58e-2	2.26e-3
200	1.30e-3	1.48e-3	2.57e-3	5.21e-3	8.88e-3	1.21e-2	1.52e-2	2.31e-2	1.92e-2	3.03e-3
300	1.Ole-3	1.24e-3	2.07e-3	4.14e-3	7.29e-3		1.22e-2	2.06e-2	2.03e-2	4.56e-3
500	6.64e-4	8.04e-4	1.42e-3	3.03e-3	4.99e-3	6.57e-3	8.91e-3	1.58e-2	1.85e-2	7.33e-3
1000	3.22e-4	3.90e-4	7.24e-4	1.47e-3	2.71e-3	3.50e-3	4.93e-3	9.33e-3	1.25e-2	1.04e-2

D —>Be

Particle reflection coefficient of D backscattered from Be
zl = 1. ml = 2.01. z2= 4. m2= 9.01. sbe=3.38 eV. rho = 1.80 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr = l (KrC)
program : trvmc
ne=19. na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	3.05e-l									
11	2.97e-l	3.23e-l	4.00e-l	5.45e-l	6.74e-l		8.12e-l	9.21e-l	9.52e-l	9.68e-l
12	2.89e-l	3.14e-l	3.90e-l	5.34e-l	6.66e-l	7.37e-l	8.08e-l	9.23e-l	9.55e-l	9.72e-l
13	2.82e-l	3.06e-l	3.81e-l	5.23e-l	6.57e-l	7.30e-l	8.04e-l	9.24e-l	9.58e-l	9.74e-l
14	2.76e-l	2.99e-l	3.72e-l	5.13e-l	6.48e-l		7.99e-l	9.24e-l	9.60e-l	9.77e-l
15	2.70e-l	2.92e-l	3.63e-l	5.03e-l	6.39e-l	7.15e-l	7.94e-l	9.24e-l	9.61e-l	9.78e-l
17	2.58e-l	2.80e-l	3.48e-l	4.84e-l	6.21e-l		7.83e-l	9.23e-l	9.63e-l	9.81e-l
20	2.45e-l	2.66e-l	3.29e-l	4.60e-l	5.95e-l	6.76e-l	7.64e-l	9.20e-l	9.65e-l	9.84e-l
25	2.27e-l	2.46e-l	3.05e-l	4.26e-l	5.58e-l	6.41e-l	7.34e-l	9.12e-l	9.66e-l	9.87e-l
30	2.14e-l	2.32e-l	2.88e-l	4.01e-l	5.27e-l	6.11e-l	7.06e-l	9.02e-l	9.64e-l	9.89e-l
40	2.95e-l	2.10e-l	2.61e-l	3.64e-l	4.81e-l		6.56e-l	8.80e-l	9.60e-l	9.91e-l
50	1.81e-l	1.96e-l	2.44e-l	3.41e-l	4.49e-l	5.22e-l	6.17e-l	8.56e-l	9.53e-l	9.92e-l
70	1.63e-l	1.76e-l	2.19e-l	3.07e-l	4.05e-l		5.58e-l	8.09e-l	9.38e-l	9.93e-l
100	1.43e-l	1.58e-l	2.00e-l	2.77e-l	3.65e-l	4.24e-l	5.03e-l	7.48e-l	9.10e-l	9.93e-l
140	1.29e-l	1.41e-l	1.85e-l	2.53e-l	3.35e-l		4.61e-l	6.85e-l	8.68e-l	9.91e-l
200	1.12e-l	1.22e-l	1.59e-l	2.30e-l	3.09e-l	3.58e-l	4.24e-l	6.22e-l	8.10e-l	9.86e-l
300	9.35e-2	1.04e-l	1.37e-l	2.05e-l	2.81e-l		3.90e-l	5.64e-l	7.35e-l	9.72e-l
500	7.20e-2	8.05e-2	1.10e-l	1.72e-l	2.46e-l	2.87e-l	3.47e-l	5.09e-l	6.49e-l	9.32e-l
1000	4.38e-2	5.04e-2	7.37e-2	1.27e-l	1.92e-l	2.39e-l	2.94e-l	4.45e-l	5.66e-l	8.23e-l

Energy reflection coefficient of D backscattered from Be
ne=19, na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	9.79e-2									
11	9.60e-2	l.lle-1	1.62e-l	2.73e-l	3.92e-l		5.42e-l	6.93e-l	7.47e-l	7.79e-l
12	9.40e-2	1.09e-l	1.58e-l	2.69e-l	3.89e-l	4.63e-l	5.45e-l	7.04e-l	7.61e-l	7.95e-l
13	9.19e-2	1.06e-l	1.54e-l	2.63e-l	3.86e-l	4.61e-l	5.46e-l	7.13e-l	7.73e-l	8.08e-l
14	9.00e-2	1.04e-l	1.50e-l	2.58e-l	3.81e-l		5.46e-l	7.20e-l	7.84e-l	8.20e-l
15	8.80e-2	1.01e-l	1.47e-l	2.53e-l	3.76e-l	4.55e-l	5.45e-l	7.26e-l	7.92e-l	8.30e-l
17	8.43e-2	9.67e-2	1.40e-l	2.42e-l	3.65e-l		5.40e-l	7.34e-l	8.07e-l	8.47e-l
20	7.96e-2	9.11e-2	1.31e-l	2.27e-l	3.48e-l	4.30e-l	5.29e-l	7.41e-l	8.22e-l	8.66e-l
25	7.33e-2	8.34e-2	1.19e-l	2.06e-l	3.21e-l	4.04e-l	5.07e-l	7.44e-l	8.38e-l	8.88e-l
30	6.84e-2	7.79e-2	l.lle-1	1.90e-l	2.97e-l	3.79e-l	4.83e-l	7.40e-l	8.46e-l	9.03e-l
40	6.14e-2	6.94e-2	9.80e-2	1.67e-l	2.62e-l		4.39e-l	7.22e-l	8.52e-l	9.20e-l
50	5.66e-2	6.39e-2	8.97e-2	1.52e-l	2.38e-l	3.04e-l	4.02e-l	6.98e-l	8.51e-l	9.30e-l
70	5.Ole-2	5.65e-2	7.90e-2	1.33e-l	2.06e-l		3.48e-l	6.47e-l	8.37e-l	9.41e-l
100	4.35e-2	4.94e-2	7.06e-2	1.16e-l	1.78e-l	2.27e-l	2.98e-l	5.78e-l	8.04e-l	9.47e-l
140	3.86e-2	4.35e-2	6.14e-2	1.04e-l	1.58e-l		2.62e-l	5.07e-l	7.52e-l	9.48e-l
200	3.27e-2	3.73e-2	5.42e-2	9.20e-l	1.41e-l	1.77e-l	2.31e-l	4..36e-l	6.78e-l	9.43e-l
300	2.66e-2	3.06e-2	4.47e-2	7.88e-l	1.24e-l		2.04e-l	3.73e-l	5.84e-l	9.24e-l
500	1.96e-2	2.28e-2	3.43e-2	6.32e-l	1.02e-l	1.31e-l	1.71e-l	3.15e-l	4.76e-l	8.67e-l
1000	1.10e-2	1.30e-2	2.10e-2	4.24e-2	7.19e-2	9.78e-2	1.31e-l	2.49e-l	3.716-1	7.08e-l

Average depth (mean range) in Ä of D implanted in Be
ne=19. na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	4.20e+0									
11	4.53e-|-0	4.47e+0	4.31e+0	4.06e + 0	3.87e+0		3.63e4-0	3.37e-|-0	3.24e-j-0	3.12e-}-0
12	4.85e-}-0	4.78e+0	4.61e+0	4.35e + 0	4.14e-f-0	4.01e+0	3.89e+0	3.62e+0	3.48e + 0	3.38e+0
13	5.16e-|-0	5.08e+0	4.90e-[-0	4.62e+0	4.40e + 0	4.26e+0	4.14e+0	3.86e+0	3.72e+0	3.60e+0
14	5.47e+0	5.39e4-0	5.19e+0	4.88e-f-0	4.66e-f-0		4.39e+0	4.09e-f-0	3.95e-t-0	3.82e-}-0
15	5.77e+0	5.68e4-0	5.47e-|-0	5.15e+0	4.90e+0	4.75e4-0	4.62e-f-0	4.32e-f-0	4.17e+0	4.04e+0
17	6.36e+0	6.26e-|-0	6.02e-|-0	5.66e-j-0	5.39e+0		5.08e-|-0	4.76e-}-0	4.59e+0	4.44e-}-0
20	7.21e+0	7.10e-|-0	6.82e-]-0	6.39e-}-0	6.08e-|-0	5.91e+0	5.74e-|-0	5.39e+0	5.21e+0	5.02e-|-0
25	8.61e+0	8.48e+0	8.11e-}-0	7.59e-|-0	7.20e-|-0	6.99e+0	6.79e-|-0	6.37e+0	6.17e+0	5.96e-|-0
30	9.95e + 0	9.79e+0	9.36e+0	8.74e+0	8.29e-|-0	8.11e+0	7.81e+0	7.36e4-0	7.09e + 0	6.84e+0
40	1.26e-{-l	1.24e+l	1.18e+l	1.10e+l	1.04e4-l		9.78e+0	9.19e-f-0	8.86e + 0	8.59e-f-0
50	1.52e-|-l	1.49e-|-l	1.42e-H	1.31e + l	1.24e4-l	1.20e4-l	1.17e + l	1.10e + l	1.06e-|-l	1.02e+l
70	2.02e+l	1.98e+l	1.89e-H	1.74e-f-l	1.63e-}-l		1.54e-J-l	1.45e + l	1.41e-j-l	1.34e+l
100	2.76e+l	2.71e-f-l	2.57e-f-l	2.37e+l	2.21e-f-l	2.15e+l	2.07e + l	1.94e + l	1.88e + l	1.85e+l
140	3.75e + l	3.69e+l	3.47e+l	3.18e-f-l	2.97e+l		2.77e-}-l	2.60e-f-l	2.52e + l	2.42e-f-l
200	5.22e + l	5.12e-f-l	4.82e + l	4.41e + l	4.08e-|-l	3.91e-}-l	3.79e-|-l	3.52e+l	3.43e4-l	3.33e+l
300	7.68e4-l	7.51e+l	7.07e + l	6.40e4-l	5.88e+l		5.44e-|-l	5.03e + l	4.90e-|-l	4.85e+l
500	1.26e+2	1.24e-|-2	1.15e+2	1.03e+2	9.47e-H	9.06e+l	8.66e + l	7.94e + l	7.69e + l	7.60e+l
1000	2.51e+2	2.45e4-2	2.26e+2	1.99e + 2	1.81e + 2	1.69e+2	1.61e+2	1.45e+2	1.39e-}-2	1.37e+2

D —> Be

D on Be. Maxwellian velocity distribution, sheath potential 3 kT
zl= 1. ml = 2.01. z2= 4. m2= 9.01. sbe = 3.38 eV. rho = 1.80 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : testvmcx
ne=12

kT(eV)	Y	Y_e	E_{sp}	R_N	R_E	Eb	range
2	2.64e-4	4.14e-5	1.57e+0	3.82e-l	1.52e-l	3.98e + 0	3.98e+0
2.5	1.00e-3	1.40e-4	1.75e + 0	3.61e-l	1.44e-l	4.98e4-0	4.75e+0
3	2.19e-3	2.74e-4	1.87e+0	3.42e-l	1.35e-l	5.94e-f-0	5.48e+0
4	6.45e-3	7.50e-4	2.32e + 0	3.11e-l	1.21e-l	7.80e4-0	6.87e+0
5	1.15e-2	1.22e-3	2.64e+0	2.87e-l	1.10e-l	9.60e-}-0	8.17e4-0
7	2.10e-2	1.92e-3	3.21e+0	2.57e-l	9.63e-2	1.31e4-l	1.07e+l
10	3.19e-2	2.47e-3	3.86e+0	2.32e-l	8.55e-2	1.84e + l	1.43e+l
20	4.78e-2	2.80e-3	5.86e+0	1.85e-l	6.44e-2	3.49e + l	2.60e + l
50	5.65e-2	1.96e-3	8.69e + 0	1.35e-l	4.48e-2	8.29e+l	6.05e + l
100	5.14e-2	1.22e-3	1.19e + l	1.01e-l	3.11e-2	1.55e+2	1.18e+2
200	3.96e-2	6.26e-4	1.58e + l	6.67e-2	1.90e-2	2.85e+2	2.31e+2
500	2.35e-2	1.87e-4	1.98e4-l	3.00e-2	6.91e-3	5.75e+2	5.48e4-2
1000	1.45e-2	7.95e-5	2.74e + l	1.29e-2	2.69e-3	1.04e+3	1.03e+3
2000	8.34e-3	3.34e-5	4.00e + l	4.38e-3	8.29e-4	1.89e4-3'	1.82e+3

D -> Be

D on Be. Maxwellian, energy distribution, sheath potential 0 kT, a=0°
zl = 1. ml = 2.01. z2 = 4, m2= 9.01. sbe=3.38 eV. rho = 1.80 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : testvmcx
ne=ll

kT(eV)	Y	Y_E	Esp	R_N	R_S	Rb	range
5	4.73e-4	1.10e-4	1.74e-J-0	2.29e-l	8.30e-2	2.72e + 0	2.86e + 0
7	1.36e-3	2.67e-4	2.06e+0	2.43e-l	8.13e-2	3.52e + 0	3.93e + 0
10	3.08e-3	5.18e-4	2.52e4-0	2.45e-l	7.61e-2	4.66e+0	5.42e4-0
20	9.32e-3	1.08e-3	3.45e4-0	2.27e-l	6.28e-2	8.26e+0	9.86e + 0
30	1.41e-2	1.29e-3	4.12e+0	2.07e-l	5.45e-2	1.19e + l	1.40e + l
40	1.81e-2	1.33e-3	4.41e+0	1.91e-l	4.85e-2	1.52e+l	1.80e + l
50	2.05e-2	1.34e-3	4.91e + 0	1.81e-l	4.43e-2	1.84e+l	2.20e+l
100	2.73e-2	1.22e-3	6.69e+0	1.47e-l	3.31e-2	3.38e-H	4.12e+l
200	3.12e-2	8.30e-4	8.03e + 0	1.15e-l	2.30e-2	6.04e+l	8.02e+l
500	2.75e-2	3.96e-4	1.08e + l	7.25e-2	1.21e-2	1.26e+2	1.94e+2
1000	2.37e-2	1.92e-4	1.22e4-l	4.82e-2	6.35e-3	1.98e+2	3.75e4-2

D on Be, Maxw'ellian energy distribution, sheath potential 0 kT, a=60°
ne=10

kT(eV)	Y	Y_S	Rsp	R?7	R-b	Rfe	range
5	1.22e-3	5.06e-4	3.12e-J-0	5.78e-l	4.08e-l	5.29e+0	1.71e+0
7	4.08e-3	1.41e-3	3.62e+0	6.17e-l	4.11e-l	6.99e-{-0	2.67e4-0
10	1.08e-2	2.94e-3	4.07e+0	6.31e-l	3.93e-l	9.32e+0	4.12e + 0
20	4.07e-2	7.48e-3	5.50e + 0	6.11e-l	3.34e-l	1.63e4-l	8.45e4-0
30	6.91e-2	1.00e-2	6.54e + 0	5.66e-l	2.86e-l	2.28e + l	1.22e + l
50	1.13e-l	1.16e-2	7.74e+0	5.14e-l	2.39e-l	3.49e + l	1.86e4-l
100	1.61e-l	1.03e-2	9.62e4-0	4.36e-l	1.84e-l	6.35e-f-l	3.33e+l
200	1.89e-l	7.79e-3	1.23e + l	3.69e-l	1.47e-l	1.19e-f-2	5.98e4-l
500	1.77e-l	3.94e-3	1.68e+l	2.94e-l	9.81e-2	2.52e + 2	1.35e4-2
1000	1.45e-l	2.23e-3	2.32e4-l	2.36e-l	6.47e-2	4.14e+2	2.46e4-2

D on Be, Maxwellian energy distribution, sheath potential 3 kT, a=0°
zl= 1, ml= 2.01. z2= 4, m2 = 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx
ne=10

kT(eV)	Y	y_f	®sp	Rat	Rb	E_b	range
5	5.49e-3	4.59e-4	1.88e+0	2.39e-l	7.59e-2	7.14e + 0	7.92e4-0
7	1.14e-2	9.23e-4	2.54e+0	2.14e-l	6.67e-2	9.82e+0	1.04e+l
10	1.85e-2	1.37e-3	3.34e + 0	1.89e-l	5.86e-2	1.39e+l	1.39e-H
20	2.96e-2	1.60e-3	4.85e + 0	1.52e-l	4.52e-2	2.67e+l	2.53e+l
30	3.21e-2	1.47e-3	6.19e-{-0	1.32e-l	3.87e-2	3.95e4-l	3.64e + l
50	3.53e-2	1.18e-3	7.49e+0	1.09e-l	3.09e-2	6.38e+l	5.88e + l
100	3.31e-2	6.96e-4	9.46e+0	7.95e-2	2.13e-2	1.20e+2	1.14e+2
200	2.78e-2	3.69e-4	1.19e-|-l	4.87e-2	1.18e-2	2.18e+2	2.26e+2
500	1.70e-2	1.18e-4	1.57e+l	1.96e-2	4.12e-3	4.74e+2	5.52e+2
1000	1.14e-2	4.52e-5	1.79e+l	8.58e-3	1.65e-3	8.66e+2	1.04e+3

D on Be, Maxwellian energy distribution, sheath potential 3 kT, a=60°
ne=ll

kT(eV)	Y	Yb	E sp	ʳ b	Rb	• Rb	range
5	9.48e-3	1.07e-3	2.53e-f-0	3.11e-l	1.24e-l	9.01e + 0	7.38e-|-0
7	1.84e-2	1.86e-3	3.17e+0	2.77e-l	1.08e-l	1.23e-H	9.67e + 0
10	3.10e-2	2.61e-3	3.78e-f-0	2.47e-l	9.39e-2	1.71e + l	1.29e+l
15	4.26e-2	3.03e-3	4.80e+0	2.19e-l	8.08e-2	2.49e+l	1.82e4-l
20	4.96e-2	3.09e-3	5.59e+0	2.01e-l	7.34e-2	3.28e-f-l	2.33e + l
30	6.06e-2	3.Ole-3	6.73e + 0	1.78e-l	6.33e-2	4.82e + l	3.33e-}-l
50	6.00e-2	2.29e-3	8.60e + 0	1.49e-l	5.15e-2	7.79e-}-l	5.34e+l
100	5.74e-2	1.60e-3	1.26e + l	1.14e-l	3.70e-2	1.47e+2	1.03e + 2
200	4.54e-2	7.30e-4	1.45e+l	7.68e-2	2.23e-2	2.62e+2	2.02e4-2
500	2.74e-2	2.44e-4	2.01e+l	3.79e-2	9.15e-3	5.44e+2	4.86e-|-2
1000	1.66e-2	1.08e-4	2.92e + l	1.61e-2	3.47e-3	9.71e+2	9.08e + 2

T -> Be

Sputtering yield of Be by T
z1 = 1, m1= 3.02, z2= 4, m2= 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdee1 = kdee2 = 3, ipot=ipotr = 1 (KrC)
program : trvmc
ne=15, na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	1.78e-5	2.56e-5	3.89e-5	4.74e-5	4.98e-5	4.92e-5	4.55e-5	3.43e-5	2.76e-5	2.12e-5
11	7.08e-5	1.00e-4	1.49e-4	1.81e-4	1.96e-4		1.82e-4	1.32e-4	1.05e-4	7.89e-5
12	1.77e-4	2.44e-4	3.77e-4	4.92e-4	5.30e-4	5.47e-4	5.05e-4	3.65e-4	2.66e-4	2.00e-4
13	3.49e-4	4.72e-4	7.42e-4	1.02e-3	1.15e-3		1.09e-3	7.68e-4	5.68e-4	4.10e-4
15	9.03e-4	1.20e-3	1.98e-3	2.92e-3	3.46e-3	3.58e-3	3.43e-3	2.37e-3	1.61e-3	1.07e-3
17	1.74e-3	2.28e-3	3.71e-3	6.05e-3	7.30e-3		7.59e-3	4.98e-3	3.16e-3	1.95e-3
20	3.43e-3	4.39e-3	7.28e-3	1.24e-2	1.60e-2	1.72e-2	1.70e-2	1.06e-2	6.07e-3	3.28e-3
25	6.83e-3	8.60e-3	1.42e-2	2.54e-2	3.52e-2	3.84e-2	3.87e-2	2.31e-2	1.19e-2	5.34e-3
30	1.03e-2	1.29e-2	2.12e-2	3.96e-2	5.62e-2		6.36e-2	3.85e-2	1.88e-2	7.22e-3
50	2.11e-2	2.56e-2	4.26e-2	8.41e-2	1.28e-1		1.61e-1	1.10e-1	4.78e-2	1.09e-2
100	3.27e-2	4.02e-2	6.88e-2	1.33e-1	2.10e-1		2.98e-1	2.73e-1	1.36e-1	1.72e-2
200	4.00e-2	4.94e-2	8.17e-2	1.55e-1	2.44e-1	3.25e-1	3.73e-1	4.63e-1	3.24e-1	3.82e-2
300	4.14e-2	5.06e-2	8.22e-2	1.55e-1	2.38e-1		3.78e-1	5.30e-1	4.67e-1	7.57e-2
500	4.05e-2	4.85e-2	7.70e-2	1.41e-1	2.22e-1	2.66e-1	3.56e-1	5.61e-1	5.99e-1	1.83e-1
1000	3.38e-2	3.94e-2	6.09e-2	1.12e-1	1.73e-1	2.13e-1	2.88e-1	5.01e-1	6.42e-1	4.52e-1

Sputtered energy of Be by T
ne=15, na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	1.09e-6	1.86e-6	3.57e-6	5.18e-6	5.82e-6	6.06e-6	5.83e-6	4.72e-6	3.89e-6	3.07e-6
11	4.65e-6	7.58e-6	1.40e-5	2.04e-5	2.40e-5		2.44e-5	1.90e-5	1.52e-5	1.17e-5
12	1.22e-5	1.92e-5	3.63e-5	5.67e-5	6.75e-5	7.26e-5	7.05e-5	5.40e-5	4.03e-5	3.08e-5
13	2.51e-5	3.82e-5	7.37e-5	1.19e-4	1.53e-4		1.58e-4	1.17e-4	8.86e-5	6.52e-5
15	6.76e-5	1.01e-4	2.02e-4	3.59e-4	4.73e-4	5.17e-4	5.21e-4	3.86e-4	2.74e-4	1.82e-4
17	1.33e-4	1.93e-4	3.85e-4	7.52e-4	1.03e-3		1.19e-3	8.54e-4	5.66e-4	3.58e-4
20	2.64e-4	3.73e-4	7.46e-4	1.56e-3	2.29e-3	2.62e-3	2.75e-3	1.93e-3	1.16e-3	6.54e-4
25	5.19e-4	7.19e-4	1.40e-3	3.09e-3	4.93e-3	5.86e-3	6.30e-3	4.40e-3	2.45e-3	1.14e-3
30	7.78e-4	1.04e-3	2.03e-3	4.60e-3	7.58e-3		1.02e-2	7.44e-3	3.92e-3	1.58e-3
50	1.42e-3	1.84e-3	3.38e-3	8.04e-3	1.45e-2		2.20e-2	1.89e-2	9.22e-3	2.30e-3
100	1.69e-3	2.13e-3	4.07e-3	9.35e-3	1.69e-2		2.86e-2	3.29e-2	1.94e-2	2.88e-3
200	1.42e-3	1.83e-3	3.48e-3	7.97e-3	1.39e-2		2.42e-2	3.61e-2	2.93e-2	4.46e-3
300	1.16e-3	1.50e-3	2.84e-3	6.41e-3	1.10e-2		1.95e-2	3.19e-2	3.19e-2	6.81e-3
500	8.22e-4	1.04e-3	2.02e-3	4.49e-3	7.99e-3		1.41e-2	2.48e-2	2.93e-2	1.11e-2
1000	4.28e-4	5.57e-4	1.08e-3	2.42e-3	4.34e-3		8.14e-3	1.53e-2	2.05e-2	1.59e-2

T -> Be

Particle reflection coefficient of T backscattered from Be
zl = 1. ml = 3.02. z2= 4. m2= 9.01) sbe=3.38 eV. rho = 1.80 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00 , kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne=15., na=10

B 0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	2.06e-l	2.33e-l	3.15e-l	4.70e-l	6.12e-l	6.89e-l	7.66e-l	8.90e-l	9.28e-l	9.48e-l
11	2.04e-l	2.30e-l	3.10e-l	4.65e-l	6.09e-l		7.67e-l	8.97e-l	9.36e-l	9.56e-l
12	2.01e-l	2.26e-l	3.04e-l	4.58e-l	6.04e-l	6.85e-l	7.67e-l	9.02e-l	9.42e-l	9.62e-l
13	1.98e-l	2.22e-l	2.98e-l	4.51e-l	5.98e-l		7.65e-l	9.05e-l	9.46e-l	9.66e-l
15	1.90e-l	2.12e-l	2.85e-l	4.34e-l	5.83e-l	6.68e-l	7.58e-l	9.08e-l	9.52e-l	9.73e-l
17	1.82e-l	2.04e-l	2.73e-l	4.17e-l	5.66e-l		7.47e-l	9.09e-l	9.56e-l	9.77e-l
20	1.72e-l	1.92e-l	2.57e-l	3.94e-l	5.42e-l	6.33e-l	7.31e-l	9.08e-l	9.59e-l	9.81e-l
25	1.59e-l	1.77e-l	2.37e-l	3.63e-l	5.05e-l	5.96e-l	7.01e-l	9.00e-l	9.60e-l	9.86e-l
30	1.49e-l	1.65e-l	2.20e-l	3.38e-l	4.74e-l		6.71e-l	8.90e-l	9.59e-l	9.88e-l
50	1.23e-l	1.37e-l	1.83e-l	2.79e-l	3.93e-l		5.76e-l	8.41e-l	9.49e-l	9.92e-l
100	9.57e-2	1.07e-l	1.44e-l	2.24e-l	3.12e-l		4.59e-l	7.26e-l	9.01e-l	9.92e-l
200	7.27e-2	8.20e-2	1.14e-l	1.83e-l	2.59e-l		3.78e-l	5.91e-l	7.96e-l	9.85e-l
300	6.04e-2	6.85e-2	9.85e-2	1.61e-l	2.35e-l		3.46e-l	5.32e-l	7.16e-l	9.71e-l
500	4.62e-2	5.27e-2	7.92e-2	1.36e-l	2.05e-l		3.09e-l	4.78e-l	6.27e-l	9.29e-l
1000	2.86e-2	3.39e-2	5.47e-2	1.03e-l	1.65e-l		2.63e-l	4.22e-l	5.45e-l	8.14e-l

Energy reflection coefficient of T backscattered from Be
ne=15., na=10

B 0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	4.43e-2	5.68e-2	9.98e-2	1.99e-l	3.11e-l	3.80e-l	4.56e-l	6.08e-l	6.64e-l	6.98e-l
11	4.48e-2	5.69e-2	9.91e-2	1.99e-l	3.13e-l		4.65e-l	6.26e-l	6.87e-l	7.23e-l
12	4.49e-2	5.66e-2	9.77e-2	1.97e-l	3.13e-l	3.88e-l	4.71e-l	6.41e-l	7.06e-l	7.44e-l
13	4.47e-2	5.59e-2	9.58e-2	1.94e-l	3.12e-l		4.75e-l	6.54e-l	7.21e-l	7.62e-l
15	4.38e-2	5.41e-2	9.19e-2	1.87e-l	3.06e-l	3.86e-l	4.78e-l	6.72e-l	7.47e-l	7.90e-l
17	4.25e-2	5.22e-2	8.77e-2	1.80e-l	2.98e-l		4.76e-l	6.84e-l	7.65e-l	8.12e-l
20	4.05e-2	4.93e-2	8.21e-2	1.68e-l	2.85e-l	3.68e-l	4.69e-l	6.96e-l	7.86e-l	8.37e-l
25	3.75e-2	4.53e-2	7.45e-2	1.52e-l	2.62e-l	3.44e-l	4.50e-l	7.02e-l	7.07e-l	8.66e-l
30	3.51e-2	4.23e-2	6.86e-2	1.39e-l	2.42e-l		4.29e-l	7.01e-l	8.19e-l	8.85e-l
50	2.87e-2	3.43e-2	5.49e-2	1.08e-l	1.88e-l		3.52e-l	6.63e-l	8.30e-l	9.21e-l
100	2.21e-2	2.62e-2	4.15e-2	8.14e-2	1.37e-l		2.55e-l	5.44e-l	7.84e-l	9.43e-l
200	1.65e-2	1.98e-2	3.24e-2	6.42e-2	1.07e-l		1.93e-l	4.02e-l	6.57e-l	9.41e-l
300	1.37e-2	1.63e-2	2.75e-2	5.53e-2	9.51e-2		1.70e-l	3.42e-l	5.61e-l	9.23e-l
500	1.Ole-2	1.23e-2	2.15e-2	4.52e-2	8.00e-2		1.45e-l	2.89e-l	4.55e-l	8.63e-l
1000	5.95e-3	7.51e-3	1.39e-2	3.18e-2	5.96e-2		1.14e-l	2.35e-l	3.58e-l	7.04e-l

Average depth (mean range) in Ä of T implanted in Be
ne=15, na=10

E 0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	3.73e-}-0	3.66e-f-0	3.47e+0	3.18e-|-0	2.94e-f-0	2.77e+0	2.64e4-0	2.29e-}-0	2.12e+ 0	1.99e-|-0
11	4.04e-|-0	3.96e+0	3.77e+0	3.46e+0	3.21e+0		2.90e-|-0	2.54e-}-0	2.36e+0	2.22e-f-0
12	4.34e4-0	4.26e+0	4.05e-|-0	3.72e-|-0	3.46e4-0	3.29e+0	3.14e-|-0	2.77e+0	2.59e-|-0	2.44e-f-0
13	4.63e-}-0	4.54e+0	4.32e+0	3.97e-]-0	3.70e+0		3.37e+0	3.00e+0	2.81e+0	2.65e+0
15	5.19e+0	5.10e + 0	4.84e+0	4.46e-j-0	4.16e+0	3.98e+0	3.81e+0	3.42e-|-0	3.21e+0	3.04e+0
17	5.74e+0	5.63e+0	5.34e-|-0	4.92e-}-0	4.60e+0		4.24e+0	3.82e-}-0	3.59e+0	3.40e+0
20	6.53e-}-0	6.41e-f-0	6.08e-f-0	5.59e-}-0	5.22e-|-0	5.01e-|-0	4.81e+0	4.38e+0	4.16e+ 0	3.93e+0
25	7.82e-}-0	7.66e+0	7.24e+0	6.65e-}-0	6.20e+0	5.98e-|-0	5.74e4-0	5.24e+0	4.97e+0	4.73e + 0
30	9.07e+ 0	8.88e+0	8.39e-f-0	7.68e+0	7.16e-|-0		6.63e-f-0	6.07e-f-0	5.75e+0	5.47e+0
50	1.39e+ l	1.36e+l	1.28e-f-l	1.16e-H	1.08e+l		1.00e-f-l	9.15e-}-0	8.75e+0	8.26e+0
100	2.55e+ l	2.50e+l	2.34e+ l	2.11e+ l	1.94e+l		1.78e+l	1.64e-|-l	1.57e+l	1.47e-H
200	4.88e-J-l	4.76e+l	4.44e+ l	3.97e+ l	3.63e-|-l		3.31e+l	3.03e-}-l	2.93e+ l	2.83e-f-l
300	7.25e+ l	7.07e-f-l	6.58e-|-l	5.86e4-l	5.32e+ l		4.82e4-l	4.40e4-l	4.23e+ l	4.09e+l
500	1.22e+2	1.18e-f-2	1.10e+2	9.68e+l	8.74e-|-l		7.85e-f-l	7.10e+ l	6.81e+ l	6.59e-|-l
1000	2.49e4-2	2.42e+ 2	2.22e+2	1.94e-|-2	1.73e+2		1.53e+2	1.36e+2	1.29e+2	1.25e+2

^{3}He -> Be

Sputtering yield of Be by ^{3}He
zl = 2, ml= 3.02, z2= 4, m2= 9.01. sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.50 eV, esb = 0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne= 7, na= 1

E_0 (eV)	0^u
20	3.29e-3
30	1.61e-2
50	4.07e-2
100	7.04e-2
200	9.38e-2
500	9.87e-2
1000	9.56e-2

Sputtered energy of Be by ^{3}He
ne= 7, na= 1

E_0 (eV)	0°
20	2.49e-4
30	1.19e-3
50	2.72e-3
100	3.71e-3
200	3.40e-3
500	2.07e-3
1000	1.29e-3

Particle reflection coefficient of ^{3}He backscattered from Be
zl = 2. ml= 3.02, z2= 4, m2= 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne= 7, na= 1

Eq(eV)	0°
20	2.74e-l
30	2.20e-l
50	1.72e-l
100	1.26e-l
200	9.36e-2
500	6.55e-2
1000	4.21e-2

Energy reflection coefficient of ^{3}He backscattered from Be
ne= 7, na= 1

E_0 (eV)	0°
20	6.57e-2
30	5.25e-2
50	4.00e-2
100	2.82e-2
200	2.02e-2
500	1.40e-2
1000	8.52e-3

Average depth (mean range) in Å of ^{3}He implanted in Be
ne= 7, na= 1

E_0 (eV)	0°
20	4.25e+0
30	5.76e+0
50	8.52e+0
100	1.49e + l
200	2.70e4-l
500	6.20e+l
1000	1.21e+2

^{4}He Be

Sputtering yield of Be by ^{4}He
zl = 2. ml= 4.00. z2= 4. m2= 9.01. sbe=3.38 eV. rho = 1.80 g/cm**3
ef=0.50 eV, esb = 0.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : trvmc
ne=23, na= 9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	3.34e-6	8.39e-6	1.97e-5	2.03e-5	1.82e-5	1.92e-5	8.86e-6	2.04e-6	
11	1.59e-5	3.46e-5	6.56e-5	7.58e-5	8.52e-5	9.Ol e-5	3.65e-5	7.69e-6	
12	4.18e-5	7.72e-5	1.42e-4	1.95e-4	2.57e-4	2.88e-4	1.09e-4	2.18e-5	
13	8.92e-5	1.51e-4	2.81e-4	4.58e-4	6.51e-4	6.89e-4	2.39e-4	4.23e-5	1.00e-6
15	3.08e-4	4.80e-4	8.95e-4	1.70e-3	2.48e-3	2.44e-3	7.39e-4	1.27e-4	
17	8.21e-4	1.21e-3	2.32e-3	4.43e-3	6.16e-3	5.82e-3	1.64e-3	2.58e-4	2.33e-6
20	2.27e-3	3.25e-3	6.23e-3	1.20e-2	1.59e-2	1.40e-2	3.68e-3	5.39e-4	4.80e-6
25	6.28e-3	8.90e-3	1.68e-2	3.19e-2	4.16e-2	3.50e-2	8.72e-3	1.28e-3	8.40e-6
30	1.16e-2	1.57e-2	3.02e-2	5.75e-2	7.30e-2	6.24e-2	1.72e-2	2.35e-3	2.00e-5
40	2.35e-2	3.11e-2	5.76e-2	1.10e-l	1.41e-l	1.27e-l	3.68e-2	5.16e-3	3.31e-5
50	3.42e-2	4.47e-2	8.12e-2	1.56e-l	2.05e-l	1.94e-l	6.22e-2	9.25e-3	5.43e-5
70	5.03e-2	6.53e-2	1.17e-l	2.24e-l	3.04e-l	3.16e-l	1.25e-l	2.12e-2	1.05e-4
100	6.76e-2	8.77e-2	1.54e-l	2.90e-l	4.05e-l	4.66e-l	2.35e-l	4.84e-2	2.49e-4
140	8.31e-2	1.04e-l	1.82e-l	3.39e-l	4.85e-l	5.98e-l	3.88e-l	1.04e-l	5.83e-4
200	9.60e-2	1.20e-l	2.01e-l	3.71e-l	5.48e-l	7.23e-l	5.99e-l	2.11e-l	1.69e-3
300	1.06e-l	1.30e-l	2.14e-l	3.89e-l	5.83e-l	8.21e-l	8.40e-l	4.34e-l	6.74e-3
400	1.09e-l	1.34e-l	2.13e-l	3.93e-l	5.90e-l	8.56e-l	9.94e-l	6.39e-l	1.68e-2
500	1.10e-l	1.36e-l	2.12e-l	3.88e-l	5.86e-l	8.64e-l	1.09e-0	8.12e-l	3.60e-2
700	1.09e-l	1.30e-l	2.06e-l	3.66e-l	5.61e-l	8.49e-l	1.18e-0	1.06e-0	1.06e-l
1000	1.04e-l	1.25e-l	1.89e-l	3.37e-l	5.21e-l	8.18e-l	1.21e-0	1.24e-0	2.77e-l
2000	8.70e-2	1.00e-l	1.48e-l	2.62e-l	4.03e-l	6.67e-l	1.10e-0	1.36e-0	9.00e-l
5000	5.93e-2	6.60e-2	9.39e-2	1.58e-l	2.38e-l	4.08e-l	7.66e-l	1.09e-0	1.37e-0
10000	4.08e-2	4.52e-2	6.05e-2	9.41e-2	1.42e-l	2.38e-l	4.87e-l	7.53e-l	1.23e-0

Sputtered energy of Be by ^{4}He
ne=23, na= 9

B0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.61e-7	4.95e-7	1.63e-6	2.12e-6	2.20e-6	2.72e-6	1.40e-6	3.30e-7	
11	8.90e-7	2.37e-6	5.87e-6	8.26e-6	1.09e-5	1.29e-5	5.78e-6	1.24e-6	
12	2.60e-6	5.76e-6	1.35e-5	2.27e-5	3.45e-5	4.23e-5	1.80e-5	3.81e-6	
13	5.89e-6	1.19e-5	2.78e-5	5.59e-5	9.05e-5	1.07e-4	4.26e-5	7.71e-6	1.57e-7
15	2.21e-5	4.04e-5	9.59e-5	2.24e-4	3.67e-4	4.05e-4	1.38e-4	2.48e-5	
17	6.21e-5	1.06e-4	2.57e-4	6.06e-4	9.63e-4	1.03e-3	3.28e-4	5.44e-5	4.45e-7
20	1.75e-4	2.92e-4	7.08e-4	1.69e-3	2.60e-3	2.62e-3	7.86e-4	1.21e-4	1.09e-6
25	4.72e-4	7.73e-4	1.87e-3	4.49e-3	6.94e-3	6.81e-3	1.98e-3	3.04e-4	1.70e-6
30	8.45e-4	1.31e-3	3.21e-3	7.87e-3	1.19e-2	1.22e-2	3.75e-3	5.73e-4	
40	1.60e-3	2.38e-3	5.46e-3	1.36e-2	2.14e-2	2.36e-2	8.37e-3	1.25e-3	6.64e-6
50	2.17e-3	3.11e-3	7.Ol e-3	1.75e-2	2.83e-2	3.34e-2	1.35e-2	2.12e-3	9.91e-6
70	2.82e-3	3.98e-3	8.65e-3	2.15e-2	3.57e-2	4.66e-2	2.38e-2	4.48e-3	1.91e-5
100	3.22e-3	4.52e-3	9.56e-3	2.30e-2	3.89e-2	5.54e-2	3.69e-2	8.80e-3	3.89e-5
140	3.39e-3	4.55e-3	9.58e-3	2.28e-2	3.84e-2	5.70e-2	4.90e-2	1.58e-2	8.24e-5
200	3.19e-3	4.41e-3	8.88e-3	2.07e-2	3.55e-2	5.53e-2	5.89e-2	2.53e-2	2.22e-4
300	2.83e-3	3.79e-3	7.67e-3	1.76e-2	3.03e-2	4.95e-2	6.25e-2	3.85e-2	7.26e-4
400	2.46e-3	3.43e-3	6.71e-3	1.55e-2	2.67e-2	4.40e-2	6.Ol e-2	4.58e-2	1.55e-3
500	2.27e-3	3.09e-3	5.95e-3	1.36e-2	2.35e-2	3.98e-2	5.82e-2	4.99e-2	2.90e-3
700	1.80e-3	2.41e-3	4.90e-3	1.10e-2	1.91e-2	3.25e-2	5.14e-2	5.13e-2	6.64e-3
1000	1.39e-3	1.94e-3	3.72e-3	8.61e-3	1.50e-2	2.67e-2	4.35e-2	4.75e-2	1.35e-2
2000	7.58e-4	1.02e-3	2.03e-3	4.74e-3	8.54e-3	1.61e-2	2.84e-2	3.53e-2	2.48e-2
5000	2.80e-4	3.74e-4	7.54e-4	1.79e-3	3.26e-3	6.47e-3	1.30e-2	1.88e-2	2.08e-2
10000	1.18e-4	1.59e-4	3.28e-4	7.12e-4	1.32e-3	2.53e-3	6.Ol e-3	9.39e-3	1.28e-2

^{4}He -> Be

Particle reflection coefficient of ^{4}He backscattered from Be
zl = 2, ml = 4.00. z2= 4, m2= 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00. kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program : trvmc
ne=23, na= 9

E 0 (eV)	0°	15°	30°	45°	55°	65 °	75°	80°	85°
10	3.15E-1	3.55E-1	4.62E-1	6.44E-1	7.88E-1	9.20E-1	9.90E-1	9.99E-1	1.00E-J-0
11	3.05E-1	3.44E-1	4.49E-1	6.32E-1	7.79E-1	9.16E-1	9.90E-1	9.99E-1	1.00E4-0
12	2.94E-1	3.32E-1	4.36E-1	6.20E-1	7.70E-1	9.12E-1	9.89E-1	9.99E-1	1.00E+0
13	2.84E-1	3.20E-1	4.24E-1	6.08E-1	7.61E-1	9.08E-1	9.89E-1	9.99E-1	1.00E4-0
15	2.64E-1	2.98E-1	3.99E-1	5.85E-1	7.42E-1	8.99E-1	9.88E-1	9.99E-1	1.00E+0
17	2.47E-1	2.79E-1	3.76E-1	5.61E-1	7.23E-1	8-.90E-1	9.87E-1	9.99E-1	1.00E+0
20	2.25B-1	2.54E-1	3.47E-1	5.29E-1	6.96E-1	8.74E-1	9.85E-1	9.99E-1	1.00E4-0
25	1.97E-1	2.23E-1	3.08E-1	4.82E-1	6.52E-1	8.47E-1	9.81E-1	9.98E-1	1.00E+0
30	1.77E-1	2.00E-1	2.77E-1	4.41E-1	6.12E-1	8.21E-1	9.76E-1	9.98E-1	1.00E+0
40	1.50E-1	1.69E-1	2.36E-1	3.81E-1	5.48E-1	7.69E-1	9.65E-1	9.97E-1	1.00E+0
50	1.32E-1	1.50E-1	2.08E-1	3.40E-1	4.98E-1	7.21E-1	9.52E-1	9.96E-1	1.00E-J-0
70	1.10E-1	1.25E-1	1.75E-1	2.85E-1	4.25E-1	6.42E-1	9.21E-1	9.92E-1	1.00E+0
100	9.22E-2	1.05E-1	1.48E-1	2.44E-1	3.59E-1	5.58E-1	8.68 E-l	9.82E-1	1.00E+0
140	7.91E-2	8.69E-2	1.26E-1	2.10E-1	3.08E-1	4.87E-1	8.00E-1	9.64E-1	1.00E+0
200	6.61E-2	7.43E-2	1.09E-1	1.82E-1	2.74E-1	4.19E-1	7.13E-1	9.27E-1	1.00E+0
300	5.40E-2	6.34E-2	9.14E-2	1.58E-1	2.37E-1	3.68E-1	6.21E-1	8.57E-1	9.99E-1
400	4.63E-2	5.55E-2	8.12E-2	1.42E-1	2.18E-1	3.37E-1	5.62E-1	7.93E-1	9.97E-1
500	4.17E-2	4.99E-2	7.43E-2	1.34E-1	2.05E-1	3.20E-1	5.26E-1	7.41E-1	9.93E-1
700	3.43E-2	4.10E-2	6.39E-2	1.17E-1	1.85E-1	2.95B-1	4.81E-1	6.63E-1	9.79E-1
1000	2.79E-2	3.31E-2	5.39E-2	1.03B-1	1.68E-1	2.71E-1	4.43E-1	6.00E-1	9.42E-1
2000	1.67E-2	2.05E-2	3.54E-2	7.54E-2	1.31E-1	2.26E-1	3.86E-1	5.15E-1	8.05E-1
5000	6.59E-3	8.27E-3	1.62E-2	4.10E-2	8.21E-2	1.66E-l	3.20E-1	4.40E-1	6.43E-1
10000	2.86E-3	3.54E-3	6.96E-3	2.06E-2	4.80E-2	1.14E-1	2.63E-1	3.85E-1	5.69E-1

Energy reflection coefficient of ^{4}He backscattered from Be
ne=23, na= 9

E 0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	4.87E-2	6.66E-2	1.24E-1	2.50E-1	3.91E-1	5.85E-1	7.99E-1	8.86E-1	9.48E-1
11	4.76E-2	6.47E-2	1.21E-1	2.47E-1	3.88E-1	5.86E-1	8.03E-1	8.90E-1	9.52E-1
12	4.64E-2	6.27E-2	1.17E-1	2.43E-1	3.85E-1	5.86E-1	8.06B-1	8.94E-1	9.55E-1
13	4.51E-2	6.08E-2	1.14E-1	2.39 E-l	3.82E-1	5.85E-1	8.09E-1	8.98E-1	9.58E-1
15	4.26E-2	5.70E-2	1.08E-1	2.30E-1	3.74E-1	5.81E-1	8.13E-1	9.03E-1	9.62E-1
17	4.02B-2	5.34E-2	1.01E-1	2.21E-1	3.66E-1	5.76E-1	8.15E-1	9.07E-1	9.65E-1
20	3.70E-2	4.88E-2	9.29E-2	2.07E-1	3.51E-1	5.66E-1	8.17E-1	9.11E-1	9.68E-1
25	3.28E-2	4.28E-2	8.12E-2	1.86E-1	3.27E-1	5.48E-1	8.16E-1	9.16E-1	9.72 E-l
30	2.97E-2	3.85E-2	7.21E-2	1.68E-1	3.04E-1	5.28E-1	8.12E-1	9.18E-1	9.78 E-l
40	2.53E-2	3.21E-2	5.98E-2	1.40E-1	2.64E-1	4.88E-1	7.99E-1	9.20E-1	9.77E-1
50	2.21E-2	2.83E-2	5.18E-2	1.21E-1	2.33E-1	4.49E-l	7.83E-1	9.18E-1	9.78E-1
70	1.85E-2	2.33E-2	4.23E-2	9.73E-2	1.90E-1	3.85E-1	7.46E-1	9.11E-l	9.79E-1
100	1.55E-2	1.94E-2	3.47E-2	7.91E-2	1.51 E-l	3.16E-1	6.85E-1	8.94E-1	9.79 E-l
140	1.30E-2	1.60E-2	2.92E-2	6.62E-2	1.24E-1	2.60E-1	6.10E-1	8.64E-1	9.79E-1
200	1.10B-2	1.38E-2	2.50E-2	5.56E-2	1.05E-1	2.11E-1	5.16E-1	8.13B-1	9.77E-1
300	9.04E-3	1.16E-2	2.05E-2	4.75E-2	8.75E-2	1.75E-1	4.20E-1	7.22E-1	9.73E-1
400	7.68E-3	1.00E-2	1.85E-2	4.15E-2	7.82E-2	1.55E-1	3.62E-1	6.43E-1	9.67E-1
500	6.94E-3	9.10E-3	1.67E-2	3.86E-2	7.29E-2	1.43E-1	3.24E-1	5.79E-1	9.59E-1
700	5.67E-3	7.40E-3	1.43E-2	3.35E-2	6.45E-2	1.29E-1	2.81E-1	4.88E-1	9.34E-1
1000	4.58E-3	5.91E-3	1.17E-2	2.93E-2	5.70E-2	1.14B-1	2.48E-1	4.16E-1	8.78E-1
2000	2.62E-3	3.49E-3	7.42E-3	1.99E-2	4.14E-2	8.85E-2	2.00B-1	3.21E-1	6.84E-1
5000	9.27E-4	1.28E-3	2.96E-3	9.22E-3	2.20E-2	5.48E-2	1.41B-1	2.36E-1	4.60E-1
10000	3.74E-4	4.89E-4	1.13E-3	3.92E-3	1.03E-2	3.01E-2	9.46E-2	1.74E-1	3.50E-1

Average depth (mean range) in Å of ^{4}He in Be
ne=23, na= 9

Bo(e V)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	2.40E + 0	2.30E+0	2.20E-J-0	2.10E4-0	1.90E+0	1.70E4-0	1.30E+0	1.10B+0	6.00E-1
11	2.60B+0	2.50B+0	2.40E + 0	2.20E+0	2.00E4-0	1.80E4-0	1.50B+0	1.20E + 0	7.00E-1
12	2.80B-J-0	2.70E+0	2.60E+0	2.40E4-0	2.20E+0	1.90E+0	1.60E+0	1.30E+0	8.00E-1
13	2.90E+0	2.90E+0	2.70B + 0	2.50E+0	2.30E-J-0	2.10E4-0	1.70E+0	1.40E+0	9.00E-1
15	3.30E+0	3.20E+0	3.10E + 0	2.80E4-0	2.60E+0	2.30E + 0	1.90E+0	1.60E + 0	1.10E+0
17	3.60E+0	3.50E+0	3.40E4-0	3.10E4-0	2.90E4-0	2.50E-J-0	2.10E+0	1.80E4-0	1.30B + 0
20	4.10E+0	4.00E-J-0	3.80E+0	3.50E+0	3.20E+0	2.90E + 0	2.40E-J-0	2.10E4-0	1.60E-J-0
25	4.80E+0	4.70E4-0	4.40E + 0	4.10E4-0	3.80E + 0	3.40E + 0	2.90E+0	2.60E+0	2.10E4-0
30	5.50E + 0	5.40E+0	5.10E4-0	4.60E4-0	4.30E+0	3.90E + 0	3.40E+0	3.00E + 0	2.50E-I-0
40	6.80E-J-0	6.70E+0	6.30E4-0	5.70E4-0	5.30E-J-0	4.80E + 0	4.20E+0	3.80E+0	3.20B + 0
50	8.10E4-0	7.90E4-0	7.50E + 0	6.70E+0	6.20E+0	5.70E + 0	5.00E4-0	4.50E4-0	3.90E4-0
70	1.06E + 1	1.04E+1	9.70E4-0	8.70E4-0	8.00E + 0	7.30E + 0	6.50E+0	6.00E+0	4.60E4-0
100	1.42E + 1	1.39E4-1	1.29E+1	1.16E+1	1.06E-J-1	9.60E + 0	8.70E+0	8.00E + 0	6.50E4-0
140	1.89E + 1	1.84E+1	1.71E+1	1.53E+1	1.39E+1	1.26E+1	1.13E + 1	1.06E + 1	9.00E4-0
200	2.58E + 1	2.51E+1	2.33E+1	2.07E+1	1.88E+1	1.69E4-1	1.52E+1	1.43E+1	1.18E + 1
300	3.72E+1	3.61E+1	3.35E + 1	2.95E+1	2.67E4-1	2.39E-J-1	2.15E+1	2.04E-J-1	1.82E4-1
400	4.84E + 1	4.71B-J-1	4.38E + 1	3.84E+1	3.46E+1	3.09E+1	2.77E + 1	2.64E-J-1	2.39E + 1
500	6.00E + 1	5.82E+1	5.38E+1	4.71E+1	4.25E+1	3.77E-J-1	3.37E + 1	3.23E + 1	2.97E+1
700	8.29E + 1	8.07E+1	7.41E4-1	6.49E+1	5.81E+1	5.12E4-1	4.56E+1	4.33E4-1	4.19E+1
1000	1.18E+2	1.15E+2	1.05E+2	9.16E+1	8.12E4-1	7.14E+1	6.33E + 1	6.02E+1	5.84E+1
2000	2.38E + 2	2.30E+2	2.10E-J-2	1.80E+2	1.58E+2	1.37E+2	1.19E4-2	1.12B+2	1.08E+2
5000	5.97E+2	5.77E+2	5.22E+2	4.38E+2	3.75E + 2	3.15E4-2	2.63E4-2	2.43E+2	2.30E+2
10000	1.15E+3	1.11E+3	1.00E4-3	8.29E4-2	6.95E+2	5.62E+2	5.00E+2	4.08E+2	3.78E+2

Be –> Be

Sputtering yield of Be by Be
zl = 4. ml= 9.01. z2= 4, m2= 9.01, sbe = 3.38 eV. rho = 1.80 g/cm**3
ef=3.33 eV, esb = 3.38 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne=24, na=15

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
5				3.05e-6	7.10e-6	9.83e-6	1.05e-5	1.02e-5	1.03e-5
6			3.17e-6	2.32e-5	3.87e-5	4.62e-5	4.62e-5	4.64e-5	4.61e-5
7			1.36e-5	6.54e-5	9.76e-5	1.18e-4	1.30e-4	1.34e-4	1.38e-4
8		3.35e-6	3.53e-5	1.35e-4	1.96e-4	2.71e-4	3.47e-4	3.80e-4	4.Ole-4
9		9.66e-6	7.48e-5	2.48e-4	3.92e-4	6.31e-4	8.84e-4	9.58e-4	1.Ole-3
10		2.12e-5	1.33e-4	4.22e-4	7.84e-4	1.37e-3	1.89e-3	2.04e-3	2.17e-3
11	6.78e-6	4.03e-5	2.21e-4	7.39e-4	1.51e-3	2.62e-3	3.47e-3	3.77e-3	3.74e-3
12	1.26e-5	6.63e-5	3.47e-4	1.22e-3	2.74e-3	4.67e-3	5.88e-3	6.00e-3	6.04e-3
13	2.14e-5	1.Ole-4	5.39e-4	2.07e-3	4.48e-3	7.29e-3	8.69e-3	8.73e-3	8.84e-3
15	5.23e-5	2.17e-4	1.22e-3	4.95e-3	9.90e-3	1.48e-2	1.61e-2	1.57e-2	1.51e-2
17	1.15e-4	4.40e-4	2.39e-3	9.79e-3	1.79e-2	2.48e-2	2.50e-2	2.35e-2	2.22e-2
20	3.05e-4	1.09e-3	5.63e-3	2.08e-2	3.47e-2	4.38e-2	4.04e-2	3.65e-2	3.33e-2
25	1.09e-3	3.32e-3	1.54e-2	4.77e-2	7. 14e-2	8.21e-2	6.87e-2	5.85e-2	5.09e-2
30	2.68e-3	7.27e-3	2.95e-2	8.18e-2	1.16e-l	1.25e-l	9.74e-2	7.92e-2	6.58e-2
40	8.41e-3	1.93e-2	6.54e-2	1.58e-l	2.12e-l	2.15e-l	1.50e-l	1.12e-l	8.65e-2
50	1.68e-2	3.45e-2	1.03e-l	2.33e-l	3.06e-l	3.04e-l	1.99e-l	1.37e-l	9.65e-2
70	3.77e-2	6.72e-2	1.73e-l	3.59e-l	4.70e-l	4.71e-l	2.87e-l	1.73e-l	1.03e-l
100	7.00e-2	1.lle-1	2.49e-l	4.93e-l	6.63e-l	6.94e-l	4.21e-l	2.29e-l	1.06e-l
200	1.43e-l	1.98e-l	3.77e-l	7.18e-l	1.02e-0	1.21e-0	8.77e-l	4.38e-l	1.16e-l
300.	1.86e-l	2.46e-l	4.37e-l	8.19e-l	1.19e-0	1.52e-0	1.30e-0	6.90e-l	1.37e-l
500	2.33e-l	2.93e-l	4.94e-l	9.03e-l	1.34e-0	1.85e-0	1.92e-0	1.23e-0	2.08e-l
700	2.57e-l	3.16e-l	5.11e-l	9.30e-l	1.40e-0	2.00e-0	2.31e-0	1.72e-0	3.09e-l
1000	2.74e-l	3.31e-l	5.19e-l	9.31e-l	1.41e-0	2.09e-0	2.65e-0	2.27e-0	5.10e-l
2000	2.53e-l								
3000	2.63e-l						2.99e-0	3.38e-0	2.20e-0
5000	2.27e-l								

Eo(eV)	0°	20°	40°	50°	60°	70°	75°	77.5°	80°	85°
1000	2.65e-l	3.64e-l	7.25e-l	l.lle-0	1.67e-0	2.41e-0	2.63e-0		2.27e-0	5.02e-l
3000	2.63e-l	3.25e-l	6.02e-l	9.12e-l	1.46e-0	2.35e-0	2.99e-0	3.20e-0	3.38e-0	2.20e-0

Sputtered energy of Be by Be
ne=24, na=15

Bq(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
5				3.14e-7	8.46e-7	1.38e-6	1.62e-6	1.63e-6	1.71e-6
6			2-59e-7	2.61e-6	5.18e-6	7.07e-6	7.93e-6	8.26e-6	8.46e-6
7			1.17e-6	7.76e-6	1.39e-5	1.96e-5	2.41e-5	2.56e-5	2.71e-5
8		2.15e-7	3.18e-6	1.64e-5	2.93e-5	4.74e-5	6.86e-5	7.69e-5	8.28e-5
9		6.65e-7	6.91e-6	3.11e-5	6.10e-5	1.16e-4	1.82e-4	2.02e-4	2.18e-4
10		1.56e-6	1.25e-5	5.47e-5	1.28e-4	2.62e-4	4.Ole-4	4.50e-4	4.87e-4
11	3.57e-7	2.98e-6	2.14e-5	1.Ole-4	2.58e-4	5.22e-4	7.69e-4	8.63e-4	8.62e-4
12	6.92e-7	4.94e-6	3.46e-5	1.73e-4	4.79e-4	9.61e-4	1.34e-3	1.42e-3	1.45e-3
13	1.18e-6	7.66e-6	5.51e-5	3.05e-4	8.07e-4	1.54e-3	2.03e-3	2.10e-3	2.18e-3
15	2.97e-6	1.66e-5	1.33e-4	7.60e-4	1.85e-3	3.22e-3	3.91e-3	3.94e-3	3.87e-3
17	6.75e-6	3.49e-5	2.70e-4	1.56e-3	3.44e-3	5.56e-3	6.23e-3	6.08e-3	5.87e-3
20	1.84e-5	8.91e-5	6.56e-4	3.39e-3	6.76e-3	1.Ole-2	1.04e-2	9.68e-3	9.00e-3
25	6.59e-5	2.69e-4	1.77e-3	7.72e-3	1.40e-2	1.90e-2	1.79e-2	1.57e-2	1.39e-2
30	1.53e-4	5.54e-4	3.25e-3	1.29e-2	2.23e-2	2.87e-2	2.53e-2	2.12e-2	1.79e-2
40	4.26e-4	1.30e-3	6.53e-3	2.31e-2	3.80e-2	4.69e-2	3.79e-2	2.93e-2	2.27e-2
50	7.62e-4	2.09e-3	9.24e-3	3.09e-2	5.09e-2	6.20e-2	4.77e-2	3.43e-2	2.43e-2
70	1.47e-3	3.45e-3	1.33e-2	4.03e-2	6.67e-2	8.36e-2	6.18e-2	3.97e-2	2.37e-2
100	2.37e-3	4.85e-3	1.61e-2	4.58e-2	7.73e-2	1.01e-l	7.68e-2	4.54e-2	2.12e-2
200	3.69e-3	6.38e-3	1.73e-2	4.58e-2	7.90e-2	1.15e-l	1.07e-l	6.12e-2	1.66e-2
300	4.03e-3	6.49e-3	1.64e-2	4.21e-2	7.23e-2	1.12e-l	1.22e-l	7.56e-2	1.61e-2
500	3.96e-3	6.07e-3	1.44e-2	3.56e-2	6.24e-2	1.01e-l	1.28e-l	9.56e-2	1.84e-2
700	3.68e-3	5.51e-3	1.27e-2	3.11e-2	5.55e-2	9.18e-2	1.24e-l	1.07e-l	2.31e-2
1000	3.25e-3	4.82e-3	1.08e-2	2.64e-2	4.81e-2	8.10e-2	1.17e-l	1.12e-l	3.07e-2
3000	1.87e-3						7.86e-2	9.04e-2	5.93e-2

E_0 (eV)	0°	20°	40°	50°	60°	70°	75°	77.5°	80°	85°
1000	3.13e-3	5.83e-3	1.88e-2	3.42e-2	6.07e-2	9.75e-2	1.16e-l		1.12e-l	3.08e-2
3000	1.87e-3	3.02e-3	9.30e-3	1.90e-2	3.44e-2	6.14e-2	7.86e-2	8.59e-2	9.04e-2	5.93e-2

Be –> Be

Particle reflection coefficient of Be backscattered from Be
zl = 4, ml = 9,01, z2= 4, m2= 9.01. sbe=3.38 eV, rho = 1.80 g/cm**3
ef=3.33 eV, esb=3.38 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne = 24, na=16

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
5							2.61e-8	1.04e-7	1.79e-7
6				1.86e-8	1.75e-7	5.41e-6	2.48e-5	4.10e-5	5.53e-5
7				3.86e-7	1.37e-5	1.13e-4	4.21e-4	6.15e-4	7.63e-4
8				7.09e-6	1.20e-4	7.28e-4	2.15e-3	2.93e-3	3.51e-3
9			4.43e-7	6.14e-5	5.57e-4	2.63e-3	6.71e-3	8.81e-3	1.04e-2
10			6.21e-6	2.91e-4	1.80e-3	6.80e-3	1.55e-2	1.97e-2	2.28e-2
11		1.23e-7	3.32e-5	8.97e-4	4.43e-3	1.40e-2	2.89e-2	3.59e-2	4.06e-2
12		8.83e-7	1.03e-4	2.15e-3	8.66e-3	2.46e-2	4.72e-2	5.72e-2	6.40e-2
13	3.54e-8	4.31e-6	2.64e-4	4.10e-3	1.49e-2	3.81e-2	6.91e-2	8.23e-2	9.10e-2
15	9.31e-7	3.54e-5	1.00e-3	1.07e-2	3.25e-2	7.24e-2	1.21e-l	1.41e-l	1.55e-l
17	7.28e-6	1.30e-4	2.37e-3	2.00e-2	5.47e-2	1.13e-l	1.81e-l	2.08e-l	2.26e-l
20	4.31e-5	4.34e-4	5.59e-3	3.70e-2	9.22e-2	1.77e-l	2.73e-l	3.11e-l	3.35e-l
25	1.90e-4	1.28e-3	1.19e-2	6.57e-2	1.52e-l	2.78e-l	4.17e-l	4.71e-l	5.05e-l
30	4.20e-4	2.31e-3	1.77e-2	8.98e-2	1.99e-l	3.58e-l	5.33e-l	6.01e-l	6.40e-l
40	1.02e-3	4.22e-3	2.65e-2	1.18e-l	2.54e-l	4.56e-l	6.79e-l	7.60e-l	8.07e-l
50	1.63e-3	5.73e-3	3.17e-2	1.28e-l	2.72e-l	4.95e-l	7.46e-l	8.35e-l	8.84e-l
70	2.72e-3	7.80e-3	3.48e-2	1.28e-l	2.70e-l	5.03e-l	7.82e-l	8.88e-l	9.41e-l
100	3.91e-3	9.09e-3	3.47e-2	1.17e-l	2.44e-l	4.68e-l	7.78e-l	9.03e-l	9.65e-l
200	5.32e-3	9.73e-3	2.92e-2	8.92e-2	1.81e-l	3.64e-l	6.94e-l	8.82e-l	9.79e-l
300	5.18e-3	8.94e-3	2.57e-2	7.52e-2	1.54e-l	3.05e-l	6.16e-l	8.41e-l	9.80e-l
500	4.65e-3	7.66e-3	2.12e-2	6.12e-2	1.26e-l	2.51e-l	5.09e-l	7.55e-l	9.74e-l
700	4.04e-3	6.53e-3	1.83e-2	5.38e-2	1.lle-1	2.23e-l	4.56e-l	6.84e-l	9.62e-l
1000	3.42e-3	5.54e-3	1.53e-2	4.69e-2	9.92e-2	2.00e-l	4.05e-l	6.12e-l	9.39e-l

E_0 (eV)	0°	20°	40°	50°	60°	70°	75°	77.5°	80°	82.5°	85°
1000	3.62e-3	6.70e-3	3.33e-2	6.57e-2	1.44e-l	2.79e-l	4.03e-l		6.07e-l		9.40e-l
3000	1.30e-3	3.30e-3	1.98e-2	4.40e-2	1.09e-l	2.13e-l	3.15e-l	3.75e-l	4.54e-l	5.66e-l	7.71e-l

Energy reflection coefficient of Be backscattered from Be
ne=24, na=16

Bo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
5							3.22e-9	1.42e-8	2.48e-8
6				2.21e-9	2.12e-8	7.74e-7	3.92e-6	6.78e-6	9.38e-6
7				4.45e-8	2.09e-6	2.03e-5	8.56e-5	1.31e-4	1.67e-4
8				9.31e-7	2.10e-5	1.50e-4	5.03e-4	7.16e-4	8.79e-4
9			4.36e-8	8.72e-6	1.03e-4	5.90e-4	1.70e-3	2.33e-3	2.82e-3
10			6.66e-7	4.45e-5	3.51e-4	1.61e-3	4.19e-3	5.60e-3	6.62e-3
11		9.90e-9	4.06e-6	1.47e-4	9.07e-4	3.48e-3	8.34e-3	1.08e-2	1.26e-2
12		7.44e-8	1.34e-5	3.73e-4	1.85e-3	6.43e-3	1.44e-2	1.83e-2	2.11e-2
13	2.07e-9	3.70e-7	3.49e-5	7.50e-4	3.35e-3	1.04e-2	2.21e-2	2.77e-2	3.15e-2
15	6.56e-8	3.40e-6	1.41e-4	2.11e-3	7.88e-3	2.14e-2	4.19e-2	5.17e-2	5.84e-2
17	5.27e-7	1.35e-5	3.50e-4	4.15e-3	1.41e-2	3.56e-2	6.66e-2	8.09e-2	9.08e-2
20	3.24e-6	4.71e-5	8.71e-4	8.23e-3	2.54e-2	5.96e-2	8.23e-2	1.30e-l	1.45e-l
25	1.44e-5	1.40e-4	1.90e-3	1.55e-2	4.51e-2	1.01e-l	1.81e-l	2.16e-l	2.40e-l
30	3.07e-5	2.49e-4	2.86e-3	2.18e-2	6.16e-2	1.39e-l	2.46e-l	2.96e-l	3.28e-l
40	7.07e-5	4.30e-4	4.24e-3	2.92e-2	8.29e-2	1.90e-l	3.47e-l	4.18e-l	4.65e-l
50	1.08e-4	5.54e-4	4.88e-3	3.15e-2	9.08e-2	2.16e-l	4.09e-l	5.00e-l	5.59e-l
70	1.67e-4	6.85e-4	5.10e-3	3.07e-2	9.04e-2	2.29e-l	4.68e-l	5.91e-l	6.70e-l
100	2.20e-4	7.46e-4	4.68e-3	2.67e-2	7.93e-2	2.15e-l	4.92e-l	6.48e-l	7.53e-l
200	2.83e-4	7.30e-4	3.60e-3	1.81e-2	5.23e-2	1.55e-l	4.46e-l	6.76e-l	8.49e-l
300	2.68e-4	6.46e-4	3.03e-3	1.43e-2	4.19e-2	1.21e-l	3.81e-l	6.45e-l	8.76e-l
500	2.50e-4	5.51e-4	2.43e-3	1.13e-2	3.20e-2	9.16e-2	2.94e-l	5.61e-l	8.85e-l
700	2.21e-4	4.76e-4	2.10e-3	9.68e-3	2.76e-2	7.79e-2	2.49e-l	4.88e-l	8.75e-l
1000	1.89e-4	4.12e-4	1.78e-3	8.41e-3	2.44e-2	6.79e-2	2.09e-l	4.15e-l	8.48e-l

E_0 (eV)	0°	20°	40°	50°	60°	70°	75°	77.5°	80°	82.5°	85°
1000	1.86e-4	5.43e-4	5.39e-3	1.40e-2	4.05e-2	1.14e-l	2.05e-l		4.10e-l		8.49e-l
3000	7.79e-5	3.43e-4	3.09e-3	9.18e-3	3.03e-2	8.05e-2	1.41e-l	1.91e-l	2.61e-l	3.79e-l	6.30e-l

Be –> Be

Average depth (mean range) in Ä of Be implanted in Be
zl = 4. ml= 9.01. z2= 4. m2= 9.01. sbe=3.38 eV. rho = 1.80 g/cm**3
ef=3.33 eV. esb = 3.38 eV. kk0=kk0r=2. kdeel=kdee2 = 3. ipot=ipotr=l (KrC), ca=1.00
program : trvmc
ne = 24, na=10

Bo(eV)	0ᵘ	15ᵘ	30ᵘ	45°	55ᵘ	65ᵘ	75°	80°	85°
5	6.00E-1	5.00E-1	5.00E-1	4.00E-1	4.00E-1	3.00E-1	3.00E-1	3.00E-1	3.00E-1
6	8.00E-1	7.00E-1	6.00E-1	5.00E-1	4.00E-1	4.00E-1	3.00E-1	3.00E-1	3.00E-1
7	9.00E-1	9.00E-1	8.00E-1	6.00E-1	5.00E-1	4.00E-1	3.00E-1	3.00E-1	3.00E-1
8	1.10E+0	1.00E+0	9.00E-1	7.00E-1	5.00E-1	4.00E-1	3.00E-1	3.00E-1	3.00E-1
9	1.20E+0	1.10E+0	1.00E+0	7.00E-1	6.00E-1	4.00E-1	3.00E-1	3.00E-1	3.00E-1
10	1.30E4-0	1.20E+0	1.00E + 0	8.00E-1	6.00E-1	5.00E-1	3.00E-1	3.00E-1	3.00E-1
11	1.40E+0	1.30E4-0	1.10E + 0	9.00E-1	7.00E-1	5.00E-1	4.00E-1	3.00E-1	3.00E-1
12	1.50E+0	1.40E4-0	1.20E + 0	9.00E-1	7.00E-1	5.00E-1	4.00E-1	3.00E-1	3.00E-1
13	1.70E4-0	1.60E+0	1.30E4-0	1.00E4-0	8.00E-1	5.00E-1	4.00E-1	3.00E-1	3.00E-1
15	1.90E+0	1.80E-J-0	1.50E4-0	1.10E+0	8.00E-1	6.00E-1	4.00E-1	3.00E-1	3.00E-1
17	2.10E+0	2.00E+0	1.70E + 0	1.30E+0	9.00E-1	7.00E-1	4.00E-1	4.00E-1	3.00E-1
20	2.40E + 0	2.30E+0	2.00E + 0	1.50E+0	1.10E+0	8.00E-1	5.00E-1	4.00E-1	4.00E-1
25	2.90E + 0	2.80E4-0	2.40E + 0	1.80E4-0	1.40E4-0	1.00E + 0	6.00E-1	5.00E-1	4.00E-1
30	3.40E + 0	3.20E+0	2.80E4-0	2.20E-J-0	1.70E4-0	1.20E + 0	8.00E-1	6.00E-1	5.00E-1
40	4.20E + 0	4.10E+0	3.60E4-0	2.90E4-0	2.30E+0	1.80E + 0	1.20E+0	9.00E-1	8.00E-1
50	5.00E+0	4.80E4-0	4.30E4-0	3.50E+0	3.00E4-0	2.40E + 0	1.70E+0	1.30E + 0	1.10E4-0
70	6.60E+0	6.40E+0	5.70E4-0-	4.80E+0	4.00E+0	3.30E + 0	2.60E+0	2.10E + 0	1.80E + 0
100	8.70E+0	8.40E + 0	7.50E4-0	6.40E4-0	5.50E4-0	4.70E+0	3.70E4-0	3.20E+0	2.70E + 0
200	1.48E + 1	1.43E4-1	1.29E+1	1.10E+1	9.50E4-0	8.10E + 0	6.70E4-0	6.00E+0	5.00E + 0
300	2.06E + 1	1.99E+1	1.80E4-1	1.52E+1	1.31E4-1	1.12E+1	9.40E4-0	8.50E+0	7.40E + 0
500	3.15E + 1	3.05E+1	2.76E+1	2.33E+1	2.01E+1	1.70E+1	1.44E + 1	1.32E + 1	1.17E + 1
700	4.23E4-1	4.10E4-1	3.70E+1	3.12E+1	2.69E+1	2.27E+1	1.91E + 1	1.76E + 1	1.58E+1
1000	5.84E4-1	5.65E+1	5.11E4-1	4.30E4-1	3.68E+1	3.08E+1	2.59E + 1	2.38E + 1	2.18E4-1

Be —> Be

Sputtering yield of Be by Be
z1 = 4, m1= 9.01, z2= 4, m2 = 9.01, *sbe=2.00 eV.* rho = 1.85 g/cm**3
ef=1.98 eV, *esb=2.00 eV,* ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=1 (KrC)
program : trspvlcn
ne= 8, na= 5

E_0 (eV)	20°	35°	45°	60°	75°
20					8.10e-2
50			5.25e-1		2.46e-1
100			9.49e-1		5.30e-1
20.0	5.38e-1	9.38e-1	1.32e-0		1.20e-0
500	6.28e-1	1.06e-0	1.50e-0		1.85e-0
1000	5.95e-1	9.84e-1	1.40e-0		3.94e-0
2000	5.69e-1		1.23e-0	2.30e-0	
5000			9.30e-1	1.85e-0	3.89e-0

Sputtered energy of Be by Be
ne= 8, na= 5

E_0 (eV)	20°	35°	45°	60°	75°
20					1.90e-2
50			5.62e-2		4.66e-2
100			6.65e-2		7.48e-2
200	1.23e-2	3.24e-2	5.71e-2		1.12e-1
500	9.13e-3	2.32e-2	3.97e-2		1.38e-1
1000	6.40e-3	1.58e-2	2.69e-2		1.19e-1
2000	4.15e-3		1.71e-2	4.31e-2	
5000			1.05e-2	2.64e-2	6.26e-2

Particle reflection coefficient of Be backscattered from Be
z1 = 4, m1= 9.01, z2= 4, m2= 9.01, *sbe=2.00 eV,* rho = 1.85 g/cm**3
ef=1.98 eV, *esb=2.00 eV,* ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=1 (KrC)
program : trspvlcn
ne=10, na= 6

Eq(eV)	20°	35°	45°	60°	70°	75°
15				5.67e-2		1.38e-1
20			3.98e-2	1.43e-1		6.58e-1
30				2.90e-1		
50			1.70e-1	3.91e-1		8.70e-1
100			1.36e-1	3.56e-1		8.46e-1
200	1.22e-2	4.50e-2	9.23e-2	2.56e-1	5.16e-1	7.43e-1
500	9.40e-3	2.93e-2	5.46e-2	1.68e-1	3.53e-1	5.29e-1
1000	8.13e-3	2.20e-2	4.52e-2	1.34e-1	2.74e-1	4.03e-1
2000	5.10e-3	1.56e-2	3.10e-2	1.10e-1		
5000			2.29e-2	8.38e-2		2.83e-1

Energy reflection coefficient of Be backscattered from Be
ne=10, na= 6

Eq(eV)	20°	35°	45°	60°	70°	75°
15				1.47e-2		4.68e-2
20			8.19e-3	4.25e-2		3.05e-1
30				9.84e-2		
50			4.25e-2	1.49e-1		5.44e-1
100			3.27e-2	1.39e-1		5.69e-1
200	9.81e-4	6.34e-3	2.05e-2	9.31e-2	2.75e-1	4.93e-1
500	7.60e-4	4.28e-3	1.05e-2	5.20e-2	1.64e-1	3.12e-1
1000	6.91e-4	2.98e-3	8.41e-3	3.88e-2	1.13e-1	2.11e-1
2000	4.40e-4	2.26e-2	5.72e-3	3.15e-2		
5000			4.26e-3	2.27e-2		1.24e-1

Average depth (mean range) in Å of Be implanted in Be
ne=10, na= 8

E_0 (eV)	20°	35°	45°	60°	70°	75°	80°	85°
15				5.70e-1		3.40e-1	2.90e-1	
20			1.12e+0	7.30e-1		4.05e-1	3.40e-1	3.10e-1
30				1.16e+0		6.40e-1	5.10e-1	4.30e-1
50			2.89e+0	2.14e+0		1.42e+0	1.08e+0	8.80e-1
100			5.32e4-0	4.16e+0		3.02e+0	2.53e+0	2.09e+0
200	1.23e+1	1.07e+1	9.55e+0	7.51e+0	6.33e+0	5.67e+0	5.12e+0	4.39e+0
500	2.72e-f-1	2.38e+1	2.12e+1	1.66e+1	1.39e+1	1.27e+1	1.17e+1	9.81e+0
1000	5.11e+1	4.49e4-1	4.00e+1	3.08e+1	2.60e+1	2.37e+1	2.18e+1	1.92e+1
2000	1.01e+2	8.81e+1	7.78e+1	6.0.9e+1		4.51e+1	4.15e+1	3.77e+1
5000			1.95e+2	1.49e+2	1.08e+2	1.09e+2	9.89e+1	9.00e+1

Be –> Be

Be on Be, Maxwellian velocity distribution, sheath potential 0 kT
zl = 4, ml= 9.01, z2= 4, m2= 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=3.33 eV, esb=3.38 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx
ne= 14

kT(eV)	Y	Y_E	E_{sp}	R_N	B_s	E.b	range
2.4	4.40e-4	2.86e-4	3.12e + 0	1.69e-3	1.69e-3	4.81e + 0	2.40e-l
3	1.13e-3	6.80e-4	3.62e+0	4.20e-3	4.02e-3	5.73e+0	3.36e-l
4	3.24e-3	1.74e-3	4.30e-j-0	l.lle-2	9.65e-3	6.95e-{-0	4.89e-l
5	6.74e-3	3.25e-3	4.82e+0	2.11e-2	1.69e-2	8.04e-|-0	6.41e-l
7	1.79e-2	7.16e-3	5.61e+0	4.36e-2	3.23e-2	1.04e-H	9.20e-l
10	4.10e-2	1.39e-2	6.80e + 0	7.92e-2	5.42e-2	1.38e+l	1.34e-f-0
20	1.33e-l	2.97e-2	8.94e + 0	1.53e-l	9.Ole-2	2.35e4-l	2.69e+0
50	3.60e-l	4.57e-2	1.27e+l	1.99e-l	9.82e-2	4.94e-|-l	6.30e + 0
100	5.82e-l	4.76e-2	1.64e + l	1.96e-l	8.89e-2	9.11e-H	1.13e+l
200	7.89e-l	4.38e-2	2.21e+l	1.70e-l	7.34e-2	1.72e+2	2.00e + l
500	1.00e-0	3.43e-2	3.41e4-l	1.27e-l	4.82e-2	3.79e-)-2	4.40e-|-l
1000	1.05e-0	2.60e-2	4.98e+l	1.07e-l	4.12e-2	7.69e-j-2	8.57e+l
2000	9.84e-l	1.76e-2	7.06e + l	8.87e-2	3.19e-2	1.42e+3	1.66e+2
5000	7.67e-l	8.68e-3	1.14e4-2	6.66e-2	2.27e-2	3.43e+3	4.14e+2

Be on Be, Maxwellian velocity distribution, sheath potential 3 kT
ne=12

kT(eV)	Y	Y_E	Esp	R 7V	Rfi	Eb	range
1.4	1.43e-4	3.82e-5	1.87e+0	1.63e-4	7.18e-5	3.08e-j-0	6.63e-l
2	7.05e-4	1.82e-4	2.58e + 0	1.10e-3	4.52e-4	4.12e-f-0	1.03e+0
3	4.10e-3	9.43e-4	3.45e + 0	4.89e-3	1.75e-3	5.38e-|-0	1.54e-}-0
5	2.13e-2	3.83e-3	4.50e + 0	l,.51e-2	4.57e-3	7.59e+0	2.47e + 0
10	9.07e-2	1.02e-2	5.64e + 0	2.69e-2	6.22e-3	1.16e-|-l	4.43e+0
20	2.02e-l	1.45e-2	7.18e-f-0	2.76e-2	5.13e-3	1.86e4-l	7.65e+0
50	3.39e-l	1.45e-2	1.07e + l	2.23e-2	3.43e-3	3.84e4-l	1.59e-|-l
100	4.05e-l	1.22e-2	1.50e + l	1.72e-2	2.54e-3	7.37e + l	2.83e+l
200	4.38e-l	9.26e-3	2.12e-f-l	1.32e-2	1.94e-3	1.47e+2	5.27e-J-l
500	4.10e-l	5.46e-3	3.33e + l	8.17e-3	1.19e-3	3.65e+2	1.26e + 2
1000	3.29e-l	3.12e-3	4.74e + l	4.71e-3	7.19e-4	7.64e+2	2.52e+2
2000	2.52e-l	1.59e-3	6.32e + l	2.67e-3	4.12e-4	1.54e-f-3	5.14e-}-2

Be on Be, Maxwellian velocity distribution, sheath potential 9 kT
ne=14

kT(eV)	Y	Y_E	E sp	R_N	B E	E_b	range
1.4	8.07e-4	l.lle-4	2.12e+0	6.22e-4	1.28e-4	3.18e+0	1.77e+0
1.5	1.15e-3	1.59e-4	2.27e + 0	8.40e-4	1.72e-4	3.38e-f-0	1.88e+0
2	4.13e-3	5.16e-4	2.75e-|-0	2.47e-3	4.67e-4	4.16e+0	2.42e + 0
3	1.67e-2	1.64e-3	3.25e-f-0	5.86e-3	9.56e-4	5.39e+0	3.41e+0
5	5.34e-2	3.86e-3	3.97e+0	1.Ole-2	l,33e-3	7.27e+0	5.14e+0
10	1.36e-l	6.49e-3	5.24e-|-0	1.22e-2	1.31e-3	1.19e + l	8.83e+0
20	2.24e-l	7.71e-3	7.58e4-0	1.23e-2	1.16e-3	2.07e + l	1.52e+l
50	3.18e-l	6.61e-3	1.14e+l	8.60e-3	7.35e-4	4.70e + l	3.26e + l
100	3.39e-l	5.06e-3	1.64e4-l	6.57e-3	5.88e-4	9.84e+l	6.09e+l
200	3.28e-l	3.50e-3	2.35e + l	4.11e-3	3.91e-4	2.09e+2	1.18e+2
500	2.63e-l	1.78e-3	3.72e-f-l	2.Ole-3	2.18e-4	5.97e+2	2.99e+2
1000	2.00e-l	9.36e-4	5.15e+l	6.76e-4	6.79e-5	l.lle-}-3	6.06e+2
2000	1.47e-l	4.98e-4	7.48e + l	6.57e-4	6.40e-5	2.14e-|-3	1.21e+3
5000	9.14e-2	1.67e-4	1.00e+2				2.80e-f-3

N -> Be

Sputtering yield of Be by N
zl= 7, ml = 14.01, z2= 4, m2= 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne=16, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10			6.00E-6	4.36E-5	6.72E-5	1.22E-4	1.72E-4	1.65E-4	1.43E-4
12		8.67E-7	3.97E-5	1.75E-4	4.81E-4	9.51E-4	1.04E-3	8.36E-4	6.57E-4
15	1.13E-6	1.16E-5	1.72E-4	1.26E-3	3.59E-3	5.69E-3	4.37E-3	3.01E-3	2.07E-3
20	1.30E-5	1.26E-4	1.42E-3	9.69E-3	2.04E-2	2.37E-2	1.36E-2	8.05E-3	4.73E-3
25	1.32E-4	6.48E-4	5.96E-3	2.95E-2	5.03E-2	5.10E-2	2.53E-2	1.33E-2	6.72E-3
27	2.23E-4	1.08E-3	9.07E-3	4.01E-2	6.49E-2	6.37E-2	3.04E-2	1.55E-2	7.40E-3
30	4.97E-4	2.10E-3	1.51E-2	5.89E-2	8.96E-2	8.43E-2	3.88E-2	1.84E-2	8.20E-3
40	2.72E-3	8.91E-3	4.55E-2	1.36E-1	1.84E-1	1.63E-1	6.78E-2	2.81E-2	9.70E-3
50	7.94E-3	2.07E-2	8.48E-2	2.20E-1	2.86E-1	2.48E-1	9.91E-2	3.73E-2	1.03E-2
70	2.53E-2	5.31E-2	1.66E-1	3.79E-1	4.82E-1	4.24E-1	1.67E-1	5.58E-2	1.06E-2
100	6.02E-2	1.05E-1	2.71E-1	5.69E-1	7.39E-1	6.80E-1	2.82E-1	8.75E-2	1.14E-2
140	1.08E-1	1.69E-1	3.79E-1	7.53E-1	1.00E + 0	9.94E-1	4.54E-1	1.38E-1	1.23E-2
200	1.72E-1	2.45E-1	4.86E-1	9.37E-1	1.29E+0	1.40E+0	7.38E-1	2.33E-1	1.53E-2
300	2.47E-1	3.29E-1	5.97E-1	1.12E+0	1.59E4-0	1.89E4-0	1.23E+0	4.34E-1	2.22E-2
500	3.38E-1	4.27E-1	7.15E-1	1.31E4-0	1.90E4-0	2.49E+0	2.12E+0	9.55E-1	4.64E-2
1000	4.48E-1	5.36E-1	8.32E-1	1.46E4-0	2.18E+0	3.11E4-0	3.51E4-0	2.38E+0	1.83E-1

Sputtered energy of Be by N
ne=16, na= 9

B_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10			6.00E-6	4.36E-5	6.72E-5	1.22E-4	1.72E-4	1.65E-4	1.43E-4
12		8.67E-7	3.97E-5	1.75E-4	4.81E-4	9.51E-4	1.04E-3	8.36E-4	6.57E-4
15	1.13E-6	1.16E-5	1.72E-4	1.26E-3	3.59E-3	5.69E-3	4.37E-3	3.01E-3	2.07E-3
20	1.30E-5	1.26E-4	1.42E-3	9.69E-3	2.04E-2	2.37E-2	1.36E-2	8.05E-3	4.73E-3
25	1.32E-4	6.48E-4	5.96E-3	2.95E-2	5.03E-2	5.10E-2	2.53E-2	1.33E-2	6.72E-3
27	2.23E-4	1.08E-3	9.07E-3	4.01E-2	6.49E-2	6.37E-2	3.04E-2	1.55E-2	7.40E-3
30	4.97E-4	2.10E-3	1.51E-2	5.89E-2	8.96E-2	8.43E-2	3.88E-2	1.84E-2	8.20E-3
40	2.72E-3	8.91E-3	4.55E-2	1.36E-1	1.84E-1	1.63E-1	6.78E-2	2.81E-2	9.70E-3
50	7.94E-3	2.07E-2	8.48E-2	2.20E-1	2.86E-1	2.48E-1	9.91E-2	3.73E-2	1.03E-2
70	2.53E-2	5.31E-2	1.66E-1	3.79E-1	4.82E-1	4.24E-1	1.67E-1	5.58E-2	1.06E-2
100	6.02E-2	1.05E-1	2.71E-1	5.69E-1	7.39E-1	6.80E-1	2.82E-1	8.75E-2	1.14E-2
140	1.08E-1	1.69E-1	3.79E-1	7.53E-1	1.00E4-0	9.94E-1	4.54E-1	1.38E-1	1.23E-2
200	1.72E-1	2 45E-1	4.86E-1	9.37E-1	1.29E+0	1.40E+0	7.38E-1	2.33E-1	1.53E-2
300	2.47E-1	3.29E-1	5.97E-1	1.12E+0	1.59E + 0	1.89E+0	1.23E+0	4.34E-1	2.22E-2
500	3.38E-1	4.27E-1	7.15E-1	1.31E+0	1.90E+0	2.49E4-0	2.12E+0	9.55E-1	4.64E-2
1000	4.48E-1	5.36E-1	8.32E-1	1.46E4-0	2.18E4-0	3.11E4-0	3.51E+0	2.38E+0	1.83E-1

N -> Be

Particle reflection coefficient of N backscattered from Be
zl = 7, ml= 14.01, z2= 4, m2= 9.01. sbe=3.38 eV. rho = 1.80 g/cm**3
ef=0.95 eV. esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : trvmc
ne=16, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10		2.50E-7	1.77E-4	9.43E-3	5.26E-2	1.64E-1	3.19E-1	3.83E-1	4.23E-1
12		3.87E-6	1.01E-3	2.36E-2	9.69 E-2	2.58E-1	4.60E-1	5.38E-1	5.84E-1
15		4.59E-5	3.58E-3	5.11E-2	1.69E-1	3.84E-1	6.26E-1	7.13E-1	7.59E-1
20	8.00E-6	3.66E-4	9.76E-3	9.50E-2	2.63E-1	5.26E-1	7.87E-1	8.67E-1	9.07E-1
25	4.03E-5	8.48E-4	1.56E-2	1.25E-1	3.20E-1	6.00E-1	8.57E-1	9.30E-1	9.62E-1
27	5.88E-5	1.04E-3	1.73E-2	1.33E-1	3.33E-1	6.17E-1	8.74E-1	9.42E-1	9.72E-1
30	9.43E-5	1.28E-3	1.93E-2	1.42E-1	3.48E-1	6.35E-1	8.89E-1	9.55E-1	9.81E-1
40	1.76E-4	1.83E-3	2.28E-2	1.52E-1	3.64E-1	6.57E-1	9.12E-1	9.73E-1	9.93E-1
50	2.22E-4	2.05E-3	2.32E-2	1.48E-1	3.56E-1	6.53E-1	9.18E-1	9.78E-1	9.96E-1
70	2.92E-4	2.13E-3	2.10E-2	1.31E-1	3.24E-1	6.23E-1	9.15E-1	9.82E-1	9.98E-1
100	2.98E-4	2.00E-3	1.81E-2	1.07E-1	2.75E-1	5.67E-1	8.98E-1	9.81E-1	9.99E-1
140	3.75E-4	1.82E-3	1.50E-2	8.61E-2	2.26E-1	4.99E-1	8.67E-1	9.77E-1	9.99E-1
200	3.33E-4	1.52E-3	1.25E-2	6.77E-2	1.80E-1	4.20E-1	8.16E-1	9.66E-1	9.99E-1
300	4.12E-4	1.51E-3	9.97E-3	5.23E-2	1.39E-1	3.37E-1	7.32E-1	9.40E-1	9.99E-1
500	3.35E-4	1.29E-3	7.62E-3	3.89E-2	1.04E-1	2.54E-1	6.01E-1	8.72E-1	9.98E-1
1000	4.00E-4	9.30E-4	5.28E-3	2.71E-2	7.38E-2	1.85E-1	4.43E-1	7.11E-1	9.90E-1

Energy reflection coefficient of N backscattered from Be
ne=16, na= 9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10		1.99E-8	1.71E-5	1.47E-3	1.15E-2	4.78 E-2	1.16E-1	1.52E-1	1.76E-1
12		2.77E-7	1.07E-4	3.83E-3	2.17E-2	7.87E-2	1.79E-1	2.29E-1	2.62E-1
15		3.22E-6	4.04E-4	8.78E-3	3.95E-2	1.24E-1	2.65E-1	3.34E-1	3.78E-1
20	2.63E-7	2.63E-5	1.10E-3	1.71E-2	6.54E-2	1.83E-1	3.73E-1	4.62E-1	5.19E-1
25	1.77E-6	6.02E-5	1.74E-3	2.29E-2	8.27E-2	2.21E-1	4.42E-1	5.45E-1	6.11E-1
27	2.53E-6	7.19E-5	1.93E-3	2.45E-2	8.74E-2	2.32E-1	4.62E-1	5.70E-1	6.39E-1
30	4.05E-6	8.60E-5	2.11E-3	2.61E-2	9.27E-2	2.44E-1	4.87E-1	6.01E-1	6.74E-1
40	6.55E-6	1.11E-4	2.38E-3	2.79E-2	9.95E-2	2.65E-1	5.37E-1	6.68E-1	7.52E-1
50	7.43E-6	1.12E-4	2.27E-3	2.66E-2	9.79E-2	2.70E-1	5.62E-1	7.07E-1	7.99E-1
70	7.99E-6	1.00E-4	1.86E-3	2.25E-2	8.80E-2	2.61E-1	5.81E-1	7.48E-1	8.52E-1
100	6.73E-6	7.96E-5	1.42E-3	1.72E-2	7.19E-2	2.36E-1	5.79E-1	7.71E-1	8.91E-1
140	7.97E-6	6.54E-5	1.08E-3	1.27E-2	5.58E-2	2.02E-1	5.58E-1	7.78E-1	9.15E-1
200	5.84E-6	4.99E-5	8.10E-4	9.22E-3	4.13E-2	1.62E-1	5.16E-1	7.70E-1	9.32E-1
300	8.36E-6	5.08E-5	6.00E-4	6.55E-3	2.91E-2	1.19E-1	4.47E-1	7.40E-1	9.42E-1
500	5.38E-6	4.18E-5	4.50E-4	4.47E-3	1.97E-2	8.04E-2	3.40E-1	6.62E-1	9.44E-1
1000	9.43E-6	3.43E-5	3.20E-4	3.03E-3	1.27E-2	5. 16 E-2	2.18E-1	4.93E-1	9.25E-1

Average depth (mean range) in Ä of N implanted in Be
ne=16, na= 9

_E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	9.00E-1	9.00E-1	7.00E-1	5.00E-1	4.00E-1	2.00E-1	1.00E-1	1.00E-1	1.00E-1
12	1.10E+0	1.00E+0	9.00E-1	6.00E-1	4.00E-1	3.00E-1	1.00E-1	1.00E-1	1.00E-1
15	1.40E + 0	1.30E+0	1.10E + 0	8.00E-1	6.00E-1	3.00E-1	2.00E-1	1.00E-1	1.00E-1
20	1.90E+0	1.80E+0	1.50E + 0	1.10E+0	8.00E-1	5.00E-1	3.00E-1	2.00E-1	1.00E-1
25	2.30E+0	2.20E+0	1.8.0E + 0	1.40E+0	1.10E+0	7.00E-1	4.00E-1	3.00E-1	2.00E-1
27	2.40E+0	2.30E4-0	2.00E4-0	1.50E+0	1.20E+0	8.00E-1	5.00E-1	3.00E-1	2.00E-1
30	2.70E+0	2.50E+0	2.20E + 0	1.60E+0	1.30E+0	9.00E-1	6.00E-1	4.00E-1	3.00E-1
40	3.40E+0	3.20E-I-0	2.80E-J-0	2.20E-J-0	1.80E+0	1.30E4-0	9.00E-1	6.00E-1	4.00E-1
50	4.10E+0	3.90E+0	3.40E + 0	2.70E+0	2.20E4-0	1.70E-J-0	1.2OE4-O	9.00E-1	6.00E-1
70	5.30E+0	5.00E-J-0	4.40E4-0	3.50E+0	3.00E+0	2.40E-J-0	1.70E+0	1.30E+0	9.00E-1
100	6.90E4-0	6.60E+0	5.80E4-0	4.70E+0	4.00E-J-0	3.20E4-0	2.40E4-0	1.90E+0	1.30E-J-0
140	8.40E+0	9.00E+0	7.50E-J-0	6.10E-J-0	5.20E+0	4.20E+0	3.30E+0	2.70E4-0	1.90E + 0
200	1.14E4-1	1.09E+1	9.70E + 0	8.00E4-0	6.70E4-0	5.60E-J-0	4.40E-I-0	3.70E+0	2.80E+0
300	1.53E4-1	1.47E4-1	1.31E4-1	1.08E+1	9.10E+0	7.60E + 0	6.10E+0	5.30E+0	4.20E4-0
500	2.25E + 1	2.16E+1	1.94E-J-1	1.60E4-1	1.35E+1	1.11E+1	9.10E+0	8.10E+0	6.50E4-0
1000	3.89E+1	3.75E+1	3.36E4-1	2.77E+1	2.33E + 1	1.91E4-1	1.54E4-1	1.40E+1	1.17E+1

O → Be

Sputtering yield of Be by O
zl = 8, ml = 16.00, z2= *4*, m2= 9.01, sbe=3.38 eV, rho=1.80 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kkO= kkOr=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program : trvmc
only low fluence!
ne=19, na= 1

Eq(eV)	0°
18	4.89e-6
20	1.36e-5
22	3.03e-5
25	9.18e-5
30	3.71e-4
40	2.16e-3
45	4.03e-3
50	6.41e-3
60	1.34e-2
70	2.22e-2
100	6.06e-2
140	1.02e-l
200	1.65e-l
300	2.35e-l
500	3.50e-l
1000	4.97e-l
2000	5.81e-l
5000	6.10e-l
10000	5.24e-l

Sputtered energy of Be by O
ne=10, na= 1

E_0(eV)	0°
18	1.71e-7
20	4.99e-7
22	1.19e-6
25	3.72e-6
30	1.54e-5
40	8.78e-5
45	1.60e-4
50	2.46e-4
60	4.80e-4
70	7.55e-4

Particle reflection coefficient of O backscattered from Be
zl= 8, ml = 16.00, z2= 4, m2= 9.01, sbe=3.38 eV, rho = 1.80 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
only low fluence!
ne=10, na= 1

E_o(eV)	0°
18	4.20e-8
20	2.24e-7
22	1.12e-6
25	3.40e-6
30	1.05e-5
40	2.57e-5
45	3.85e-5
50	5.60e-5
60	5.80e-5
70	3.00e-5

Energy reflection coefficient of O backscattered from Be
ne=10, na= 1

E_0(eV)	0°
18	1.70e-9
20	8.69e-9
22	4.52e-8
25	1.34e-7
30	3.68e-7
40	9.16e-7
45	1.18e-6
50	1.64e-6
60	1.30e-6
70	1.41e-6

Average depth (mean range) in Ä of O implanted in Be
ne = 10. na= 1

E_0(eV)	0°
18	1.62e+0
20	1.80e+0
22	1.97e+0
25	2.22ed-0
30	2.60e+0
40	3.32e+0
45	3.65e-{-0
50	3.96e+0
60	4.57e+0
70	5.13e4-0

Ne —> Be

Sputtering yield of Be by Ne
zl = 10, ml= 20.18, z2= 4. m2= 9.01. sbe=3.38 eV. rho=1.80 g/cm**3
ef=0.20 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : trvmc
ne=26, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10			4.40e-7			9.78e-6	6.67e-6	2.08e-6	
11			3.38e-6	3.66e-5	4.64e-5	4.27e-5	2.45e-5	7. 14e-6	1.33e-7
12		5.59e-8	1.18e-5	8.78e-5	1.10e-4	1.26e-4	7.28e-5	2.15e-5	9.00e-7
13	7.45e-9	3.13e-7	2.83e-5	1.62e-4	2.33e-4	3.24e-4	1.81e-4	4.81e-5	4.00e-7
14	3.91e-8	1.07e-6	5.68e-5	2.68e-4	4.62e-4	7.00e-4	3.57e-4	9.21e-5	2.50e-6
15	1.20e-7	2.14e-6	9.76e-5	4.38e-4	8.77e-4	1.36e-3	6.33e-4	1.56e-4	3.52e-6
17	8.18e-7	1.14e-5	2.38e-4	1.07e-3	2.61e-3 '	3.69e-3	1.47e-3	3.45e-4	9.40e-6
20	5.80e-6	4.91e-5	6.31e-4	3.59e-3	8.54e-3	1.04e-2	3.59e-3	8.33e-4	2.13e-5
22	1.54e-5	1.07e-4	1.14e-3	6.69e-3	1.49e-2	1.67e-2	5.51e-3	1.20e-3	3.43e-5
25	4.73e-5	2.66e-4	2.53e-3	1.41e-2	2.79e-2	2.88e-2	8.96e-3	1.99e-3	5.78e-5
30	1.99e-4	8.77e-4	7.12e-3	3.32e-2	5.81e-2	5.47e-2	1.63e-2	3.52e-3	1.03e-4
35	5.66e-4	2.16e-3	1.47e-2	6.Ole-2	9.45e-2	8.59e-2	2.59e-2	5.42e-3	1.61e-4
40	1.28e-3	4.28e-3	2.55e-2	9.16e-2	1.38e-l	1.23e-l	3.64e-2	7.64e-3	2.23e-4
45	2.44e-3	7.47e-3	3.91e-2	1.28e-l	1.81e-l	1.62e-l	4.91e-2	1.00e-2	2.82e-4
50	4.08e-3	1.16e-2	5.44e-2	1.64e-l	2.32e-l	2.03e-l	6.09e-2	1.27e-2	3.49e-4
60	9.11e-3	2.24e-l	8.93e-2	2.44e-l	3.34e-l	2.90e-l	9.Ole-2	1.85e-2	4.86e-4
70	1.63e-2	3.61e-2	1.26e-l	3.18e-l	4.35e-l	3.82e-l	1.23e-l	2.53e-2	6.19e-4
80	2.75e-2								
100	4.51e-2	8.23e-2	2.26e-l	5.12e-l	7.02e-l	6.51e-l	2.25e-l	4.84e-2	1.09e-3
150	9.80e-2	1.55e-l	3.57e-l	7.56e-l	1.06e-0	1.07e-0	4.41e-l	1.03e-l	2.13e-3
200	1.50e-l	2.20e-l	4.58e-l	9.36e-l	1.33e-0	1.43e-0	6.80e-l	1.716-1	3. 33e-3
300	2.40e-l	3.27e-l	6.10e-l	1.18e-0	1.71e-0	2.03e-0	1.19e-0	3.50e-l	7.10e-3
500	3.72e-l	4.72e-l	7.98e-l	1.47e-0	2.17e-0	2.83e-0	2.18e-0	8.37e-l	2.11e-2
700	4.58e-l	5.67e-l	9.13e-l	1.64e-0	2.44e-0	3.33e-0	3.04e-0	1.43e-0	4.59e-2
1000	5.44e-l	6.56e-l	1.02e-0	1.80e-0	2.68e-0	3.81e-0	4.00e-0	2.33e-0	1.12e-l
3000	7.00e-l								

Sputtered energy of Be by Ne
ne=24, na= 9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10			1.19e-8			1.10e-6	1.Ole-6	3.08e-7	
11			1.27e-7	2.37e-6	4.08e-6	5.07e-6	3.67e-6	1.12e-6	1.96e-8
12		1.52e-9	4.90e-7	6.11e-6	1.05e-5	1.58e-5	l.lle-5	3.49e-6	1.49e-7
13	1.4e-10	8.29e-9	1.26e-6	1.21e-5	2.39e-5	4.26e-5	2.82e-5	7.95e-6	5.45e-8
14	9.3e-10	2.71e-8	2.73e-6	2.11e-5	4.96e-5	9.50e-5	5.78e-5	1.56e-5	4.46e-7
15	2.47e-9	7.18e-8	4.86e-6	3.64e-5	9.81e-5	1.91e-4	1.05e-4	2.73e-5	5.54e-7
17	2.32e-8	3.97e-7	1.30e-5	9.73e-5	3.19e-4	5.61e-4	2.64e-4	6.26e-5	1.46e-6
20	1.78e-7	1.89e-6	3.83e-5	3.67e-4	1.14e-3	1.73e-3	6.77e-4	1.58e-4	3.26e-6
22	4.86e-7	4.33e-6	7.41e-5	7.17e-4	2.08e-3	2.87e-3	1.08e-3	2.35e-4	5.25e-6
25	1.54e-6	1.17e-5	1.75e-4	1.59e-3	4.05e-3	5.11e-3	1.80e-3	3.99e-4	8.90e-6
30	7.04e-6	4.04e-5	5.35e-4	3.91e-3	8.69e-3	1.Ole-2	3.37e-3	6.97e-4	1.52e-5
35	2.Ole-5	1.04e-4	1.13e-3	7.13e-3	1.43e-2	1.60e-2	5.35e-3	1.06e-3	2.26e-5
40	4.63e-5	2.08e-4	1.96e-3	1.09e-2	2.09e-2	2.28e-2	7.57e-3	1.48e-3	2.96e-5
45	8.74e-5	3.61e-4	2.98e-3	1.51e-2	2.73e-2	3.00e-2	9.96e-3	1.87e-3	3.63e-5
50	1.44e-4	5.52e-4	4.08e-3	1.88e-2	3.43e-2	3.72e-2	1.22e-2	2.35e-3	4.27e-5
60	3.10e-4	1.03e-3	6.37e-3	2.69e-2	4.74e-2	5.10e-2	1.75e-2	3.30e-3	5.48e-5
70	5.29e-4	1.58e-3	8.64e-3	3.35e-2	5.88e-2	6.47e-2	2.30e-2	4.29e-3	6.36e-5
100	1.32e-3	3.17e-3	1.35e-2	4.65e-2	8.23e-2	9.57e-2	3.81e-2	7.22e-3	9.03e-5
150	2.53e-3	5.16e-3	1.78e-2	5.56e-2	9.96e-2	1.28e-l	6.43e-2	1.35e-2	1.34e-4
200	3.47e-3	6.48e-3	1.97e-2	5.86e-2	1.04e-l	1.44e-l	8.68e-2	2.04e-2	1.86e-4
300	4.67e-3	7.95e-3	2.15e-2	5.88e-2	1.05e-l	1.58e-l	1.23e-l	3.66e-2	3.37e-4
500	5.69e-3	8.89e-3	2.18e-2	5.56e-2	9.89e-2	1.60e-l	1.63e-l	7.05e-2	9.18e-4
700	5.96e-3	9.06e-3	2.11e-2	5.23e-2	9.31e-2	1.53e-l	1.82e-l	9.99e-2	1.96e-3
1000	5.97e-3	8.85e-3	2.00e-2	4.86e-2	8.65e-2	1.45e-l	1.90e-l	1.33e-l	4.85e-3

Ne -> Be

Particle reflection coefficient of Ne backscattered from Be
zl = 10, ml= 20.18, z2= 4, m2 = 9.01. sbe=3.38 eV. rho = 1.80 g/cm**3
ef=0.20 eV. esb=0.00 eV, ca=1.00. kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : trvmc
ne=24. na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	2.81E-3	1.01E-2	5.76E-2	2.62E-1	5.23E-1	8.09E-1	9.74E-1	9.97E-1	1.00E + 0
11	2.16E-3	8.46E-3	5.28E-2	2.55E-1	5.18E-1	8.08E-1	9.74E-1	9.97E-1	1.00E+0
12	1.64E-3	7.08E-3	4.88E-2	2.48E-1	5.12E-1	8.07E-1	9.74E-1	9.97E-1	1.00E4-0
13	1.28E-3	5.97E-3	4.54E-2	2.41E-1	5.08E-1	8.05E-1	9.75E-1	9.97E-1	1.00E4-0
14	1.00E-3	5.11E-3	4.25E-2	2.36E-1	5.03E-1	8.04E-1	9.75E-1	9.97E-1	1.00E4-0
15	7.95E-4	4.38E-3	4.01E-2	2.31E-1	4.99E-1	8.02E-1	9.75E-1	9.97E-1	1.00E + 0
17	5.15E-4	3.38E-3	3.62E-2	2.22E-1	4.91E-1	7.99E-1	9.75E-1	9.97E-1	1.00E4-0
20	2.90E-4	2.48E-3	3.20E-2	2.11E-1	4.80E-1	7.94E-1	9.76E-1	9.97E-1	1.00E + 0
22	2.09E-4	2.08E-3	2.99E-2	2.05E-1	4.74E-1	7.91E-1	9.75E-1	9.98E-1	1.00E + 0
25	1.37E-4	1.69E-3	2.71E-2	1.96E-1	4.64E-1	7.85E-1	9.75E-1	9.98E-1	1.00E+0
30	8.62E-5	1.34E-3	2.37E-2	1.84E-1	4.48E-1	7.75E-1	9.75E-1	9.98E-1	1.00E4-0
35	7.06E-5	1.14E-3	2.10E-2	1.71E-1	4.32E-1	7.64E-1	9.73E-1	9.98E-1	1.00E+0
40	6.03E-5	1.03E-3	1.90E-2	1.62E-1	4.15E-1	7.52E-1	9.72E-1	9.98E-1	1.00E + 0
45	5.62E-5	8.75E-4	1.71E-2	1.50E-1	4.03E-1	7.41E-1	9.70E-1	9.98E-1	1.00E4-0
50	5.09E-5	8.22E-4	1.57E-2	1.41E-1	3.87E-1	7.29E-1	9.69E-1	9.97E-1	1.00E+0
60	4.43E-5	6.54E-4	1.32E-2	1.25E-1	3.59E-1	7.05E-1	9.64E-1	9.97E-1	1.00E4-0
70	3.79E-5	5.71E-4	1.13E-2	1.11E-1	3.33E-1	6.81E-1	9.59E-1	9.97E-1	1.00E+0
100	2.43E-5	3.80E-4	7.60E-3	8.29E-2	2.71E-1	6.11E-1	9.42E-1	9.96E-1	1.00E4-0
150	2.08E-5	2.71E-4	5.22E-3	5.69E-2	2.02E-1	5.17E-1	9.07E-1	9.92E-1	1.00E+0
200	1.58E-5	2.22E-4	3.79E-3	4.35E-2	1.60E-1	4.45E-1	8.68E-1	9.86E-1	1.00E+0
300	1.46E-5	1.76E-4	2.97E-3	3.13E-2	1.14E-1	3.45E-1	7.86E-1	9.69E-1	1.00E+0
500	1.75E-5	1.47E-4	2.17E-3	2.19E-2	7.81E-2	2.43E-1	6.53E-1	9.18E-1	1.00E4-0
700	1.95E-5	1.34E-4	1.81E-3	1.74E-2	6.32E-2	2.00E-1	5.55E-1	8.59E-1	9.99E-1
1000	1.33E-5	1.29E-4	1.52E-3	1.38E-2	5.13E-2	1.61E-1	4.64E-1	7.69E-1	9.97E-1

Energy reflection coefficient of Ne backscattered from Be
ne=24. na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.04E-7	1.43E-5	8.08E-4	1.46E-2	6.57E-2	2.11E-1	4.82E-1	6.48E-1	7.99E-1
11	1.17E-7	1.60E-5	8.64E-4	1.53E-2	6.81E-2	2.16E-1	4.91E-1	6.57E-1	8.09E-1
12	1.33E-7	1.78E-5	9.09E-4	1.59E-2	7.10E-2	2.21E-1	5.00E-1	6.65E-1	8.17E-1
13	1.62E-7	1.93E-5	9.46E-4	1.65E-2	7.19E-2	2.25E-1	5.07E-1	6.73E-1	8.25E-1
14	2.18E-7	2.09E-5	9.76E-4	1.69E-2	7.35E-2	2.29E-1	5.14E-1	6.80E-1	8.31E-1
15	2.96E-7	2.25E-5	1.00E-3	1.73E-2	7.48E-2	2.32E-1	5.20E-1	6.86E-1	8.37E-1
17	4.76E-7	2.57E-5	1.04E-3	1.78E-2	7.71E-2	2.38E-1	5.31E-1	6.98E-1	8.48E-1
20	6.38E-7	2.86E-5	1.07E-3	1.83E-2	7.93E-2	2.45E-1	5.45E-1	7.13E-1	8.61E-1
22	7.13E-7	2.90E-5	1.08E-3	1.84E-2	8.01E-2	2.48E-1	5.52E-1	7.21E-1	8.68E-1
25	6.66E-7	2.83E-5	1.07E-3	1.84E-2	8.11E-2	2.52E-1	5.61E-1	7.31E-1	8.77E-1
30	7.03E-7	2.62E-5	1.01E-3	1.81E-2	8.11E-2	2.55E-1	5.73E-1	7.46E-1	8.89E-1
35	7.21E-7	2.38E-5	9.43E-4	1.74E-2	7.99E-2	2.57E-1	5.81E-1	7.56E-1	8.97E-1
40	6.93E-7	2.18E-5	8.68E-4	1.66E-2	7.82E-2	2.55E-1	5.87E-1	7.65E-1	9.04E-1
45	6.30E-7	1.84E-5	7.71E-4	1.57E-2	7.67E-2	2.54E-1	5.91E-1	7.72E-1	9.10E-1
50	5.49E-7	1.69E-5	7.06E-4	1.49E-2	7.43E-2	2.52E-1	5.94E-1	7.77E-1	9.15E-1
60	4.51E-7	1.25E-5	5.78E-4	1.31E-2	6.92E-2	2.46E-1	5.97E-1	7.85E-1	9.23 E-l
70	3.56E-7	1.03E-5	4.82E-4	1.16E-2	6.41E-2	2.38E-1	5.95E-1	7.90E-1	9.29E-1
100	2.39E-7	6.24E-6	2.94E-4	8.20E-3	5.14E-2	2.12E-1	5.87E-1	7.99E-1	9.39E-1
150	1.60E-7	4.06E-6	1.70E-4	5.11E-3	3.51E-2	1.75E-1	5.57E-1	7.96E-1	9.48E-1
200	9.92E-8	2.85E-6	1.17E-4	3.53E-3	2.66E-2	1.45E-l	5.23E-1	7.87E-1	9.52E-1
300	8.47E-8	2.27E-6	8.25E-5	2.27E-3	1.70E-2	1.04E-1	4.55E-1	7.58E-1	9.55 E-l
500	1.10E-7	1.96E-6	5.83E-5	1.44E-3	1.01E-2	6.35E-2	3.50E-1	6.89E-1	9.53E-1
700	1.29E-7	1.91E-6	4.95E-5	1.10E-3	7.62E-3	4.85E-2	2.78E-1	6.19E-1	9.49E-1
1000	1.29E-7	2.03E-6	4.40 E-5	8.63E-4	5.85E-3	3.62E-2	2.16E-1	5.28E-1	9.39E-1

Average depth (mean range) in Ä of Ne implanted in Be
ne=24, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	9.62E-1	8.78E-1	7.76E-1	7.00 E-l	6.00E-1	5.00E-1	4.00 E-l	3.00E-1	2.00E-1
11	1.03E+0	9.55E-1	8.42E-1	7.00E-1	6.00E-1	5.00E-1	4.00E-1	3.00E-1	1.00E-1
12	1.11E+0	1.03E+0	9.08E-1	8.00E-1	7.00E-1	6.00E-1	4.00E-1	3.00E-1	1.00E-1
13	1.19E+0	1.11E+0	9.76E-1	8.00 E-l	7.00E-1	6.00E-1	4.00E-1	3.00E-1	2.00E-1
14	1.27E+0	1.19E+0	1.05E+0	9.00E-1	8.00E-1	6.00E-1	5.00E-1	3.00E-1	2.00E-1
15	1.36E+0	1.28E+0	1.12E + 0	9.00E-1	8.00E-1	7.00 E-l	5.00E-1	4.00E-1	2.00E-1
17	1.54E+0	1.46E+0	1.26E+0	1.00E4-0	9.00E-1	7.00 E-l	5.00 E-l	4.00E-1	2.00E-1
20	1.82E+0	1.72E+0	1.48E + 0	1.20E+0	1.00E+0	8.00E-1	6.00E-1	4.00E-1	2.00E-1
22	1.99E4-0	1.88E+0	1.62E+0	1.30E4-0	1.10E+0	9.00E-1	6.00E-1	5.00E-1	2.00E-1
25	2.23E4-0	2.12E+0	1.82E+0	1.40E+0	1.20E+0	1.00E4-0	7.00E-1	5.00E-1	3.00E-1
30	2.62E+0	2.49E+0	2.14E + 0	1.70E+0	1.40E4-0	1.10E + 0	8.00E-1	6.00E-1	4.00E-1
35	3.00E+0	2.85E + 0	2.45E+0	1.90E+0	1.60E+0	1.30E4-0	9.00E-1	7.00E-1	4.00E-1
40	3.34E+0	3.18E+0	2.74E + 0	2.20E+0	1.80E+0	1.40E+0	1.00E+0	8.00E-1	6.00E-1
45	3.68E+0	3.50E+0	3.02E4-0	2.40E+0	2.00E+0	1.60E + 0	1.10E+0	9.00E-1	5.00E-1
50	3.99E4-0	3.81E+0	3.29E4-0	2.60E+0	2.10E4-0	1.70E+0	1.30E+0	1.00E4-0	5.00E-1
60	4.59E + 0	4.38E+0	3.80E + 0	3.00E+0	2.50E4-0	2.00E + 0	1.50E+0	1.20E+0	8.00 E-l
70	5.15E + 0	4.92E4-0	4.28E4-0	3.40E+0	2.80E+0	2.20E + 0	1.70E+0	1.30E4-0	9.00E-1
100	6.65E+0	6.37E+0	5.57E + 0	4.40E+0	3.60E+0	2.90E4-0	2.30E+0	1.80E+0	1.30E+0
150	8.81E+0	8.46E+0	7.43E + 0	5.90E4-0	4.90E+0	4.00E4-0	3.10E+0	2.60E+0	1.80E+0
200	1.07E + 1	1.03E+1	9.08E + 0	7.30E+0	6.00E4-0	4.90E + 0	3.90E4-0	3.20E+0	2.30E+0
300	1.41E + 1	1.36E+1	1.20E+1	9.70E+0	8.00E+0	6.40E+0	5.10E4-0	4.40E+0	3.50E4-0
500	2.01E4-1	1.94E4-1	1.72E+1	1.40E+1	1.15E+1	9.30E-J-0	7.40E+0	6.6OE4-O	5.10E+0
700	2.55E+1	2.46E+1	2.19E+1	1.78E-H	1.47E+1	1.18E4-1	9.30E+0	8.30E4-0	7.00E4-0
1000	3.31E + 1	3.20E+1	2.85E+1	2.32E+1	1.92E+1	1.53E4-1	1.21E+1	1.09E+1	9.00E+0

Ar —> Be

Sputtering yield of Be by Ar
z1 = 18, m1= 39.95. z2= 4. m2= 9.01. sbe=3.38 eV. rho=1.80 g/cm**3
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = 1 (KrC)
program : trvmc
ne=25, na= 9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
13				2.60e-7	8.90e-7	8.35e-7	1.07e-6	4.80e-7	
14				2.39e-6	4.69e-6	4.33e-6	5.37e-6	1.91e-6	
15			7.83e-7	2.25e-5	3.14e-5	2.60e-5	1.66e-5	4.82e-6	
16			3.14e-6	4.89e-5	6.85e-5	6.80e-5	4.39e-5	1.23e-5	
17			8.57e-6	8.55e-5	1.25e-4	1.48e-4	9.74e-5	2.85e-5	
18			1.71e-5	1.36e-4	2.12e-4	2.87e-4	1.93e-4	5.23e-5	1.80e-6
20		1.14e-6	4.85e-5	2.93e-4	5.25e-4	8.85e-4	5.55e-4	1.40e-4	3.98e-6
22		4.14e-6	1.15e-4	5.51e-4	1.23e-3	2.25e-3	1.21e-3	3.03e-4	8.70e-6
25	9.80e-7	1.64e-5	2.73e-4	1.40e-3	3.45e-3	6.31e-3	3.02e-3	6.97e-4	2.05e-5
30	1.18e-5	7.63e-5	8.35e-4	5.09e-3	1.25e-2	1.91e-2	8.09e-3	1.84e-3	5.23e-5
35	5.22e-5	2.46e-4	2.24e-3	1.26e-2	2.91e-2	3.99e-2	1.59e-2	3.50e-3	1.05e-4
40	1.48e-4	6.29e-4	4.94e-3	2.48e-2	5.33e-2	6.71e-2	2.63e-2	5.89e-3	1.76e-4
45	3.43e-4	1.30e-3	8.96e-3	4.12e-2	8.22e-2	1.01e-1	3.83e-2	8.57e-3	2.66e-4
50	6.98e-4	2.36e-3	1.44e-2	6.12e-2	1.18e-1	1.38e-1	5.28e-2	1.18e-2	3.50e-4
60	2.02e-3	5.80e-3	2.99e-2	1.10e-1	1.95e-1	2.25e-1	8.65e-2	1.90e-2	5.71e-4
70	4.36e-3	1.13e-2	4.99e-2	1.64e-1	2.82e-1	3.22e-1	1.24e-1	2.82e-2	8.30e-4
100	1.83e-2	3.79e-2	1.24e-1	3.29e-1	5.44e-1	6.30e-1	2.59e-1	5.83e-2	1.72e-3
150	5.72e-2	9.76e-2	2.45e-1	5.65e-1	9.13e-1	1.12e-0	5.23e-1	1.28e-1	3.62e-3
200	1.01e-1	1.59e-1	3.51e-1	7.56e-1	1.20e-0	1.54e-0	8.81e-1	2.15e-1	6.01e-3
300	1.91e-1	2.69e-1	5.28e-1	1.05e-0	1.64e-0	2.22e-0	1.40e-0	4.23e-1	1.23e-2
500	3.49e-1	4.49e-1	7.86e-1	1.46e-0	2.24e-0	3.21e-0	2.58e-0	9.51e-1	3.31e-2
700	4.71e-1	5.87e-1	9.68e-1	1.74e-0	2.65e-0	3.93e-0	3.65e-0	1.60e-0	6.52e-2
1000	6.07e-1	7.36e-1	1.16e-0	2.03e-0	3.07e-0	4.65e-0	5.01e-0	2.64e-0	1.36e-1
3000	9.00e-1								
5000	1.06e-0								

Sputtered energy of Be by Ar
ne=23, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
13				9.75e-9	4.49e-8	6.19e-8	9.51e-8	4.58e-8	
14				8.70e-8	2.38e-7	3.27e-7	4.68e-7	1.76e-7	
15			1.72e-8	9.43e-7	1.76e-6	2.05e-6	1.67e-6	5.09e-7	
16			8.72e-8	2.17e-6	4.05e-6	5.52e-6	4.45e-6	1.34e-6	
17			2.28e-7	3.98e-6	7.77e-6	1.24e-5	1.00e-5	3.19e-6	
18			4.90e-7	6.61e-6	1.41e-5	2.48e-5	2.03e-5	5.75e-6	1.56e-7
20		2.53e-8	1.55e-6	1.54e-5	3.70e-5	8.09e-5	6.12e-5	1.61e-5	3.80e-7
22		9.68e-8	3.93e-6	3.07e-5	9.34e-5	2.17e-4	1.39e-4	3.60e-5	8.76e-7
25	1.89e-8	4.14e-7	1.03e-5	8.67e-5	3.03e-4	6.52e-4	3.69e-4	8.62e-5	2.10e-6
30	2.75e-7	2.11e-6	3.58e-5	3.56e-4	1.14e-3	2.12e-3	1.06e-3	2.38e-4	5.40e-6
35	1.23e-6	7.52e-6	1.05e-4	9.40e-4	2.76e-3	4.66e-3	2.13e-3	4.62e-4	1.07e-5
40	3.64e-6	2.02e-5	2.45e-4	1.93e-3	5.18e-3	8.02e-3	3.60e-3	7.69e-4	1.76e-5
45	8.67e-6	4.36e-5	4.61e-4	3.23e-3	8.07e-3	1.22e-2	5.21e-3	1.12e-3	2.58e-5
50	1.78e-5	7.94e-5	7.52e-4	4.83e-3	1.15e-2	1.67e-2	7.21e-3	1.51e-3	3.31e-5
60	5.17e-5	1.99e-4	1.56e-3	8.63e-3	1.90e-2	2.71e-2	1.17e-2	2.42e-3	5.04e-5
70	1.11e-4	3.83e-4	2.55e-3	1.25e-2	2.69e-2	3.81e-2	1.65e-2	3.47e-3	6.78e-5
100	4.26e-4	1.17e-3	5.80e-3	2.29e-2	4.74e-2	6.89e-2	3.24e-2	6.58e-3	1.15e-4
150	1.19e-3	2.68e-3	1.00e-2	3.38e-2	6.83e-2	1.05e-1	5.84e-2	1.27e-2	1.88e-4
200	1.92e-3	3.91e-3	1.28e-2	3.96e-2	7.79e-2	1.27e-1	8.12e-2	1.96e-2	2.62e-4
300	3.09e-3	5.49e-3	1.59e-2	4.48e-2	8.48e-2	1.46e-1	1.18e-1	3.42e-2	4.24e-4
500	4.48e-3	7.27e-3	1.82e-2	4.71e-2	8.64e-2	1.54e-1	1.67e-1	6.55e-2	9.72e-4
700	5.21e-3	7.94e-3	1.90e-2	4.71e-2	8.50e-2	1.53e-1	1.92e-1	9.60e-2	1.80e-3
1000	5.58e-3	8.31e-3	1.91e-2	4.61e-2	8.24e-2	1.48e-1	2.09e-1	1.31e-1	3.89e-3

Ar —> Be

Particle reflection coefficient of Ar backscattered from Be
zl = 18. ml = 39.95. z2= 4, m2 = 9.01. sbe=3.38 eV. rho = 1.80 g/cm**3
ef=0.20 eV. esb=0.00 eV. ca=1.00. kk0=kk0r=2. kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne=24. na= 8

Eq(eV)	15°	30°	45°	55°	65°	75°	80°	85°
10	4.00e-7	1.00e-3	4.73e-2	2.55e-l	6.78e-l	9.67e-l	9.97e-l	1.00e-0
13			4.86e-2	2.69e-l	6.98e-l	9.72e-l	9.98e-l	
14			4.77e-2	2.68e-l	6.99e-l	9.72e-l	9.98e-l	
15		5.69e-4	4.21e-2	2.53e-l	6.85e-l	9.70e-l	9.98e-l	1.00e-0
16		5.24e-4	4.15e-2	2.52e-l	6.86e-l	9.71e-l	9.98e-l	1.00e-0
17		5.Ole-4	4.10e-2	2.51e-l	6.87e-l	9.71e-l	9.98e-l	1.00e-0
18		4.81e-4	4.06e-2	2.51e-l	6.87e-l	9.72e-l	9.98e-l	1.00e-0
20	4.00e-8	4.58e-4	3.99e-2	2.49e-l	6.87e-l	9.72e-l	9.98e-l	1.00e-0
22	2.20e-7	4.57e-4	3.91e-2	2.48e-l	6.86e-l	9.73e-l	9.98e-l	1.00e-0
25	4.00e-7	4.45e-4	3.81e-2	2.44e-l	6.83e-l	9.73e-l	9.98e-l	1.00e-0
30	5.00e-7	4.34e-4	3.62e-2	2.38e-l	6.77e-l	9.73e-l	9.98e-l	1.00e-0
35	4.50e-7	3.98e-4	3.39e-2	2.29e-l	6.68e-l	9.72e-l	9.98e-l	1.00e-0
40	4.67e-7	3.66e-4	3.19e-2	2.20e-l	6.59e-l	9.71e-l	9.98e-l	1.00e-0
45	1.00e-7	3.57e-4	2.99e-2	2.12e-l	6.48e-l	9.70e-l	9.98e-l	1.00e-0
50	3.50e-7	3.11e-4	2.78e-2	2.02e-l	6.37e-l	9.68e-l	9.98e-l	1.00e-0
60	1.00e-6	2.54e-4	2.37e-2	1.85e-l	6.14e-l	9.64e-l	9.98e-l	1.00e-0
70	3.33e-7	2.08e-4	2.05e-2	1.68e-l	5.93e-l	9.61e-l	9.98e-l	1.00e-0
100	1.00e-7	1.32e-4	1.36e-2	1.29e-l	5.27e-l	9.46e-l	9.97e-l	1.00e-0
150		8.09e-5	8.10e-3	8.63e-2	4.30e-l	9.16e-l	9.94e-l	1.00e-0
200		5.63e-5	5.64e-3	6.25e-2	3.58e-l	8.81e-l	9.90e-l	1.00e-0
300		4.07e-5	3.56e-3	3.99e-2	2.61e-l	8.11e-l	9.80e-l	1.00e-0
500		2.90e-5	2.39e-3	2.39e-2	1.67e-l	6.73e-l	9.45e-l	1.00e-0
700		2.05e-5	1.88e-3	1.83e-2	1.24e-l	5.71e-l	8.98e-l	1.00e-0
1000		2.20e-5	1.48e-3	1.40e-2	9.57e-2	4.65e-l	8.23e-l	9.99e-l

Energy reflection coefficient of Ar backscattered from Be
ne=24, na= 8

B_0 (eV)	15°	30°	45°	55°	65°	75°	80°	85°
10		2.36e-6	9.15e-4	1.44e-2	1.03e-l	3.73e-l	5.64e-l	7.65e-l
13			1.Ole-3	1.58e-2	l.lle-1	3.93e-l	5.88e-l	
14			1.05e-3	1.62e-2	1.14e-l	3.99e-l	5.94e-l	
15		4.53e-6	1.18e-3	1.71e-2	1.17e-l	4.04e-l	6.01e-l	7.96e-l
16		4.75e-6	1.21e-3	1.74e-2	1.18e-l	4.09e-l	6.06e-l	8.00e-l
17		5.10e-6	1.24e-3	1.77e-2	1.20e-l	4.14e-l	6.12e-l	8.05e-l
18		5.34e-6	1.26e-3	1.80e-2	1.22e-l	4.18e-l	6.16e-l	8.09e-l
20		5.68e-6	1.30e-3	1.84e-2	1.24e-l	4.25e-l	6.25e-l	8.16e-l
22	1.93e-9	6.03e-6	1.31e-3	1.87e-2	1.26e-l	4.32e-l	6.33e-l	8.22e-l
25	2.96e-9	6.22e-6	1.33e-3	1.90e-2	1.29e-l	4.41e-l	6.44e-l	8.30e-l
30	3.21e-9	6.22e-6	1.30e-3	1.90e-2	1.31e-l	4.52e-l	6.58e-l	8.41e-l
35	2.57e-9	5.74e-6	1.25e-3	1.88e-2	1.33e-l	4.61e-l	6.69e-l	8.51e-l
40	3.75e-9	5.30e-6	1.19e-3	1.83e-2	1.33e-l	4.67e-l	6.78e-l	8.59e-l
45	1.12e-9	5.04e-6	1.13e-3	1.77e-2	1.33e-l	4.72e-l	6.86e-l	8.66e-l
50	1.66e-9	4.12e-6	1.04e-3	1.72e-2	1.31e-l	4.76e-l	6.93e-l	8.72e-l
60	7.99e-9	3.38e-6	8.71e-4	1.57e-2	1.28e-l	4.81e-l	7.03e-l	8.82e-l
70	1.90e-9	2.59e-6	7.43e-4	1.44e-2	1.25e-l	4.84e-l	7.10e-l	8.89e-l
100		1.29e-6	4.59e-4	1.09e-2	1.12e-l	4.81e-l	7.24e-l	9.04e-l
150		6.60e-7	2.31e-4	6.83e-3	8.95e-2	4.65e-l	7.30e-l	9.18e-l
200		4.45e-7	1.38e-4	4.53e-3	7.18e-2	4.40e-l	7.26e-l	9.25e-l
300		2.72e-7	6.98e-5	2.38e-3	4.84e-2	3.93e-l	7.10e-l	9.31e-l
500		1.92e-7	3.88e-5	1.10e-3	2.59e-2	3.02e-l	6.59e-l	9.34e-l
700		8.85e-8	2.92e-5	7.54e-4	1.64e-2	2.41e-l	6.02e-l	9.32e-l
1000		7.30e-8	2.16e-5	5.30e-4	1.14e-2	1.80e-l	5.25e-l	9.25e-l

Average depth (mean range) in Ä of Ar implanted in Be
ne=22, na= 9

B_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.30E + 0	1.30E+0	1.20E-J-0	l.OOE+O	8.00E-1	6.00E-1	5.00E-1	4.00E-1	2.00E-1
15	2.10E+0	2.00E+0	1.80E + 0	1.30E+0	1.10E+0	8.00E-1	6.00E-1	5.00E-1	4.00E-1
16	2.30E4-0	1.90E4-0	1.80E4-0	1.40E+0	1.10E+0	9.00E-1	7.00 E-l	5.00E-1	2.00E-1
17	2.40E+0	2.00E4-0	2.00E+0	1.50E+0	1.20E-J-0	9.00E-1	7.00E-1	5.00E-1	2.00 E-l
18	2.50E+0	2.40E+0	2.10E + 0	1.60E+0	1.20E+0	9.00E-1	7.00E-1	6.00 E-l	3.00 E-l
20	2.70E+0	2.60E+0	2.20E + 0	1.70E+0	1.30E+0	1.00E+0	8.00E-1	6.00E-1	4.00E-1
22	2.90E + 0	2.80E+0	2.40E + 0	1.80E+0	1.40E+0	1.10E+0	8.00E-1	6.00E-1	4.00E-1
25	3.30E + 0	3.10E+0	2.70E + 0	2.00E-+-0	1.50E-I-0	1.20E + 0	9.00E-1	7.00E-1	6.00E-1
30	3.70E+0	3.60E+0	3.10E + 0	2.30E4-0	1.80E+0	1.30E + 0	1.00E4-0	8.00E-1	6.00E-1
35	4.20E+0	4.00E4-0	3.50E + 0	2.60E4-0	2.00E+0	1.50E + 0	1.10E4-0	1.00E+0	6.00E-1
40	4.60E+0	4.40E+0	3.80E + 0	2.80E+0	2.20E+0	1.60E4-0	1.20E+0	1.10E+0	8.00E-1
45	5.00E + 0	4.80E+0	4.10E+0	3.10E4-0	2.40E+0	1.80E + 0	1.30E+0	1.10E+0	7.00E-1
50	5.30E-J-0	5.10E+0	4.40E4-0	3.30E-J-0	2.50E+0	1.90E + 0	1.50E4-0	1.20E+0	1.10E+0
60	6.00E+0	5.70E+0	5.00E + 0	3.70E+0	2.90E+0	2.20E + 0	1.70E4-0	1.40E+0	1.00E+0
70	6.60E + 0	6.30E+0	5.50E + 0	4.20E+0	3.20E4-0	2.40E + 0	1.80E+0	1.60E+0	1.10E+0
100	8.20E+0	7.90E+0	6.90E+0	5.30E4-0	4.00E4-0	3.10E4-0	2.30E+0	1.90E4-0	1.40E-I-0
150	1.04E + 1	1.00E+1	8.80E+0	6.80E4-0	5.30E4-0	4.00E + 0	3.00E+0	2.60E+0	1.40E+0
200	1.23E + 1	1.19E+1	1.04E+1	8.10E+0	6.30E + 0	4.70E + 0	3.60E+0	3.10E4-0	2.80E4-0
300	1.56E4-1	1.50E+1	1.33E+1	1.05E+1	8.20E-J-0	6.10E-f-0	4.70E4-0	4.00E+0	4.20E+0
500	2.11E+1	2.03E+1	1.80E+1	1.43E+1	1.13E+1	8.40E4-0	6.40E+0	5.60E+0	4.40B+0
700	2.57E-H	2.48E-J-1	2.20E+1	1.76E+1	1.40E+1	1.04E+1	7.70E+0	6.80E + 0	6.00E+0
1000	3.19E+1	3.07E+1	2.74E+1	2.20E-H	1.76E + 1	1.31E-H	9.70E+0	8.50E4-0	7.10E+0

D -> B

Sputtering yield of B by D
z1 = 1, m1 = 2.01. z2= 5, m2 = 10.81, sbe=5.73 eV. rho=2.35 g/cm**3
ef=0.95 eV. esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdee1 = kdee2 = 3, ipot=ipotr=1 (KrC)
program : testvmcx, trspvlcn, TPP 9/82
ne=10. na=14

Eo(eV)	0°	10°	20°	30°	40°	50°	60°	65°	70°	75°	80°	82°	85°	88°
30	1.17e-3	1.25e-3	1.47e-3	1.81e-3	2.23e-3	2.29e-3	1.97e-3	1.62e-3	1.15e-3	7.05e-4	3.21e-4			
50	6.66e-3	6.78e-3	7.80e-3	1.00e-2	1.32e-2	1.78e-2	2.22e-2	2.23e-2	2.03e-2	1.40e-2	5.85e-3		1.17e-3	
100	1.46e-2	1.57e-2	1.78e-2	2.24e-2	3.23e-2	5.10e-2	7.69e-2	8.90e-2	9.82e-2	8.32e-2	3.79e-2		3.69e-3	
200	1.95e-2													
400	2.05e-2		2.60e-2	3.67e-2	5.24e-2	7.93e-2	1.29e-1		2.08e-1	2.53e-1	2.41e-1		3.82e-2	
500	1.87e-2	2.16e-2	2.57e-2	3.52e-2	5.18e-2	7.86e-2	1.28e-1		2.06e-1	2.55e-1	2.68e-1	2.20e-1	6.09e-2	
1000	1.66e-2													
5000	6.97e-3													
8000	5.43e-3		6.36e-3		1.19e-2	1.77e-2	2.88e-2		5.79e-2	8.04e-2	1.30e-1		2.41e-1	1.73e-1
100000											1.34e-2		3.90e-2	8.93e-2

Sputtered energy of B by D
program : testvmcx, trspvlcn
ne=10, na=14

E_0 (eV)	0°	10°	20°	30°	40°	50°	60°	65°	70°	75°	80°	82°	85°	88°
30	6.71e-5	7.42e-5	8.99e-5	1.28e-4	1.68e-4	1.90e-4	1.78e-4	1.54e-4	1.09e-4	7.02e-5	3.26e-5			
50	4.48e-4	4.76e-4	5.76e-4	7.99e-4	1.11e-3	1.62e-3	2.29e-3	2.41e-3	2.35e-3	1.75e-3	8.24e-4		1.72e-4	
100	9.26e-4	9.78e-4	1.13e-3	1.50e-3	2.22e-3	3.88e-3	6.45e-3	8.21e-3	1.02e-2	9.74e-3	5.10e-3		5.83e-4	
200	9.17e-4													
400	6.45e-4		8.92e-4	1.33e-3	1.96e-3	3.29e-3	5.80e-3		1.06e-2	1.38e-2	1.51e-2		3.22e-3	
500	4.95e-4	6.28e-4	7.28e-4	1.08e-3	1.66e-3	2.90e-3	5.37e-3		9.45e-3	1.22e-2	1.43e-2	1.26e-2	4.39e-3	
1000	3.05e-4													
5000	3.68e-5													
8000	1.91e-5		2.87e-5		8.94e-5	1.40e-4	2.56e-4		6.29e-4	8.34e-4	1.50e-3		2.52e-3	1.61e-3
100000										4.95e-5		1.59e-4	2.72e-4	

Particle reflection coefficient of D backscattered from B
z1= 1, m1= 2.01, z2= 5, m2= 10.81, sbe=5.73 eV, rho=2.35 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdee1 = kdee2=3, ipot=ipotr=1 (KrC)
program : testvmcx, trspvlcn
ne=10, na=14

Eo(eV)	0°	10°	20°	30°	40°	50°	60°	65°	70°	75°	80°	82°	85°	88°
30	2.68e-1	2.76e-1	3.02e-1	3.48e-1	4.17e-1	5.25e-1	6.75e-1	7.63e-1	8.54e-1	9.29e-1	9.76e-1			
50	2.27e-1	2.35e-1	2.58e-1	2.96e-1	3.54e-1	4.47e-1	5.84e-1	6.79e-1	7.87e-1	8.96e-1	9.69e-1		9.95e-1	
100	1.86e-1	1.90e-1	2.09e-1	2.42e-1	2.91e-1	3.67e-1	4.79e-1	5.59e-1	6.63e-1	8.04e-1	9.39e-1		9.96e-1	
200	1.48e-1													
400	1.11e-1		1.29e-1	1.54e-1	1.96e-1	2.59e-1	3.43e-1		4.76e-1	5.73e-1	7.33e-1		9.74e-1	
500	9.68e-2	1.05e-1	1.13e-1	1.39e-1	1.86e-1	2.43e-1	3.30e-1		4.56e-1	5.46e-1	6.95e-1	7.93e-1	9.59e-1	
1000	6.40e-2													
5000	1.14e-2													
8000	5.96e-3		8.01e-3		2.04e-2	4.26e-2	9.04e-2		1.96e-1	2.85e-1	4.03e-1		5.83e-1	8.74e-1
100000											7.82e-2		2.71e-1	5.28e-1

Energy reflection coefficient of D backscattered from B
ne=10, na=14

E_0 (eV)	0°	10°	20°	30°	40°	50°	60°	65°	70°	75°	80°	82°	85°	88°
30	9.67e-2	1.02e-1	1.18e-1	1.48e-1	2.00e-1	2.93e-1	4.46e-1	5.48e-1	6.67e-1	7.82e-1	8.71e-1			
50	7.97e-2	8.37e-2	9.74e-2	1.20e-1	1.61e-1	2.34e-1	3.66e-1	4.70e-1	6.02e-1	7.53e-1	8.79e-1		9.40e-1	
100	6.30e-2	6.50e-2	7.53e-2	9.33e-2	1.25e-1	1.77e-1	2.73e-1	3.54e-1	4.70e-1	6.49e-1	8.48e-1		9.56e-1	
200	4.83e-2													
400	3.43e-2		4.21e-2	5.37e-2	7.54e-2	1.11e-1	1.69e-1		2.81e-1	3.83e-1	5.83e-1		9.29e-1	
500	2.95e-2	3.19e-2	3.58e-2	4.75e-2	6.95e-2	1.02e-1	1.59e-1		2.61e-1	3.55e-1	5.35e-1	6.66e-1	9.07e-1	
1000	1.78e-2													
5000	2.57e-3													
8000	1.29e-3		1.78e-3		4.20e-3	9.06e-3	2.11e-2		5.59e-2	9.68e-2	1.72e-1		3.41e-1	7.63e-1
100000											6.80e-3		3.98e-2	1.78e-1

Average depth (mean range) of D implanted in B
ne=10, na=14

Eo(eV)	0°	10°	20°	30°	40°	50°	60°	65°	70°	75°	80°	82°	85°	88°
30	8.57e+0	8.52e+0	8.37e+0	8.13e+0	7.85e+0	7.51e+0	7.18e+0	7.03e+0	6.79e+0	6.62e+0	6.41e+0			
50	1.29e+1	1.28e+1	1.26e+1	1.22e+1	1.17e+1	1.11e+1	1.06e+1	1.03e+1	1.00e+1	9.79e+0	9.43e+0		9.11e+0	
100	2.31e+1	2.29e+1	2.25e+1	2.17e+1	2.07e+1	1.96e+1	1.85e+1	1.80e+1	1.74e+1	1.71e+1	1.67e+1		1.64e+1	
200	4.28e+1													
400	5.17e+1		7.87e+1	7.55e+1	7.11e+1	6.64e+1	6.18e+1		5.73e+1	5.58e+1	5.44e+1		5.27e+1	
500	1.01e+2	1.00e+2	9.76e+1	9.33e+1	8.75e+1	8.16e+1	7.54e+1		7.00e+1	6.73e+1	6.60e+1	6.51e+1	6.57e+1	
1000	1.98e+2													
5000	9.16e+2													
8000	1.38e+3		1.30e+3		1.07e+3	9.25e+2	7.68e+2		6.27e+2	5.65e+2	5.17e+2		4.86e+2	4.80e+2
100000											1.49e+3		1.07e+3	9.25e+2

D -+B

D on B. Maxwellian velocity distribution, sheath potential 3 kT
zl= 1. ml= 2.00. z2= 5. m2 = 10.81. sbe=5.73 eV. rho=2.35 g/cm**3 ef=0.98 eV. esb = 1.00 eV, ca=1.00. kk0=kk0r=2.
kdeel = kdee2=3. ipot=ipotr= 1 (KrC)
program : testvmcx
ne=12

kT(eV)	Y	Ye	E_{sp}	R_N	Re	Eb	range
3	6.34e-5	8.86e-6	2.10e + 0	4.15e-l	1.82e-l	6.58e + 0	4.85e + 0
4	3.81e-4	4.76e-5	2.50e4-0	3.78e-l	1.64e-l	8.64e + 0	6.02e+0
5	1.21e-3	1.36e-4	2.81e + 0	3.51e-l	1.49e-l	1.06e + l	7.14e+0
10	9.12e-3	8.30e-4	4.55e + 0	2.82e-l	1.13e-l	2.01e + l	1.23e4-l
20	2.14e-2	1.47e-3	6.86e4-0	2.27e-l	8.70e-2	3.83e + l	2.19e + l
30	2.64e-2	1.58e-3	8.98e4-0	2.05e-l	7.69e-2	5.64e + l	3.14e + l
50	3.10e-2	1.44e-3	1.16e + l	1.74e-l	6.30e-2	9.04eH-l	4.95e + l
100	3.12e-2	9.72e-4	1.56e + l	1.34e-l	4.52e-2	1.69e + 2	9.48e + l
200	2.63e-2	5.84e-4	2.22e + l	9.36e-2	2.88e-2	3.08e + 2	1.83e+2
500	1.64e-2	1.69e-4	2.57e + l	4.44e-2	1.15e-2	6.50e + 2	4.36e + 2
1000	1.10e-2	7.26e-5	3.31e + l	2.09e-2	4.67e-3	1.12e+3	8.19e + 2
2000	6.35e-3	3.02e-5	4.75e4-l	7.85e-3	1.61e-3	2.05e+3	1.47e+3

B ->B

Sputtering yield of B by B
zl = 5. ml = 10.81. z2= 5, m2 = 10.81. sbe=5.73 eV. rho=2.35 g/cm**3
ef=5.68, esb=5.73, ca=1.00. kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, trspvmc. TPP 9/82
ne= 9. na=13

Eo(eV)	0°	15°	20°	30°	40°	45°	50°	60°	65°	70°	75°	80°	85°
50	2.56e-3												
70	7.84e-3												
100	2.10e-2												
200	7.44e-2												
500	1.52e-1												
1000	2.12e-1	2.80e-1		4.56e-1		8.27e-1		1.50e-0	1.79e-0	2.04e-0	2.09e-0	1.55e-0	3.41e-1
2000	2.50e-1		3.44e-1		6.75e-1		1.02e-0	1.54e-0		2.29e-0		2.51e-0	8.19e-1
5000	2.13e-1												
10000	2.10e-1												

Sputtered energy of B by B
program: testvmcx. trspvmc
ne= 9. na=13

E0 (eV)	0°	15°	20°	30°	40°	45°	50°	60°	65°	70°	75°	80°	85°
50	1.29e-4												
70	3.74e-4												
100	8.40e-4												
200	2.40e-3												
500	3.39e-3												
1000	3.51e-3	5.56e-3		1.28e-2		3.14e-2		7.18e-2	9.02e-2	1.11e-1	1.26e-1	1.09e-1	2.95e-2
2000	2.82e-3		5.23e-3		1.70e-2		3.04e-2	5.34e-2		8.90e-2		1.11e-1	4.47e-2
5000	1.53e-3												
10000	9.83e-4												

Particle reflection coefficient of B backscattered from B
zl= 5, ml= 10.81, z2= 5, m2= 10.81. sbe=5.73 eV. rho=2.35 g/cm**3
ef=5.68, esb=5.73, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, trspvmc
ne= 9, na=13

E0 (eV)	0°	15°	20°	30°	40°	45°	50°	60°	65°	70°	75°	80°	85°
50	4.45e-4												
70	8.65e-4												
100	1.88e-3												
200	3.90e-3												
500	5.17e-3												
1000	4.45e-3	7.30e-3		2.41e-2		5.72e-2		1.59e-1	2.20e-1	3.17e-1	4.54e-1	6.82e-1	9.51e-1
2000	2.85e-3		6.20e-3		3.03e-2		6.48e-2	1.29e-1		2.64e-1		5.57e-1	8.93e-1
5000	2.00e-3												
10000	7.00e-4												

Energy reflection coefficient of B backscattered from B
ne= 9, na=13

E0 (eV)	0°	15°	20°	30°	40°	45°	50°	60°	65°	70°	75°	80°	85°
50	3.05e-5												
70	5.38e-5												
100	1.23e-4												
200	1.98e-4												
500	2.55e-4												
1000	2.60e-4	5.38e-4		2.61e-3		1.04e-2		4.49e-2	7.82e-2	1.34e-1	2.43e-1	4.82e-1	8.52e-1
2000	1.57e-4		5.40e-4		4.16e-3		1.29e-2	3.52e-2		1.06e-1		3.56e-1	7.85e-1
5000	1.07e-4												
10000	5.68e-5												

Average depth (mean range) in Å of B implanted in B
ne= 9, na=13

E0 (eV)	0°	15°	20°	30°	40°	45°	50°	60°	65°	70°	75°	80°	85°
50	3.67e+0												
70	4.77e+0												
100	6.25e+0												
200	1.05e+1												
500	2.33e+1												
1000	4.13e+1	3.76e+1		3.38e+1		2.88e-f-l		2,29e+1	2.09e+1	1.92e-}-l	1.76e+1	1.62e+1	1.44e+1
2000	7.26e-}-l		6.84e+1		5.69e+1		4.97e+1	4.21e-}-l		3.54e+1		2.87e+1	2.76e+1
5000	1.76e+2												
10000	3.56e+2												

B B

B on B. Maxwellian velocity distribution, sheath potential 0 kT
zl = 5, ml= 10.81. z2= 5. m2= 10.81, sbe=5.73 eV, rho=2.35 g/cm**3
ef=5.68 eV, esb = 5.73 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2 = 3, ipot=ipotr=l (KrC)
program: testvmcx
ne=12

kT(eV)	Y	YjS	E sp	R A r	Re	E fe	range
4	4.51e-4	2.92e-4	5.18e+0	1.58e-3	1.61e-3	8.15e + 0	3.29e-l
5	1.12e-3	6.88e-4	6.11e + 0	3.89e-3	3.67e-3	9.41e4-0	4.34e-l
7	4.07e-3	2.16e-3	7.31e+0	1.19e-2	1.04e-2	1.22e+l	6.35e-l
10	1.18e-2	5.21e-3	8.87e4-0	2.93e-2	2.30e-2	1.57e+l	9.17e-l
20	5.67e-2	1.74e-2	1.23e + l	9.08e-2	5.91e-2	2.60e + l	1.80e-0
50	2.12e-l	3.70e-2	1.74e+l	1.70e-l	9.17e-2	5.38e + l	4.27e+0
100	3.90e-l	4.50e-2	2.31e-H	1.87e-l	8.90e-2	9.57e + l	7.76e+0
200	6.02e-l	4.67e-2	3.10e + l	1.75e-l	7.72e-2	1.76e+2	1.37e + l
500	8.52e-l	3.84e-2	4.55e-f-l	1.42e-l	5.74e-2	4.09e+2	2.98e + l
1000	9.66e-l	3.25e-2	6.66e + l	1.15e-l	4.44e-2	7.64e+2	5.45e + l
2000	9.76e-l	2.35e-2	9.68e + l	1.03e-l	3.80e-2	1.48e+3	1.06e+2
5000	8.49e-l	1.30e-2	1.52e+2	7.89e-2	2.69e-2	3.40e+3	2.55e+2

B on B, Maxwellian velocity distribution, sheath potential 3 kT
zl = 5, ml = 10.81, z2= 5. m2= 10.81, sbe=5.73 eV, rho=2.35 g/cm**3
ef=5.68 eV, esb=5.73 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: testvmcx
ne=10

kT(eV)	Y	Y b	E sp	R/v	R b	E &	range
3	4.69e-4	1.32e-4	4.21e+0	6.34e-4	2.63e-4	6.22e+0	1.07e + 0
5	3.97e-3	9.51e-4	5.99e4-0	4.59e-3	1.60e-3	8.69e+0	1.74e+0
10	2.99e-2	4.70e-3	7.85e + 0	1.71e-2	4.81e-3	1.41e + l	3.17e+0
20	1.03e-l	1.04e-2	1.01e4-l	2.50e-2	5.30e-3	2.12e + l	5.51e+0
50	2.38e-l	1.35e-2	1.42e + l	2.24e-2	3.72e-3	4.16e-f-l	1.13e + l
100	3.30e-l	1.32e-2	2.00e+l	2.30e-2	3.47e-3	7.52e + l	1.96e+l
200	3.81e-l	1.07e-2	2.81e + l	1.29e-2	1.97e-3	1.52e+2	3.50e4-l
500	4.03e-l	7.22e-3	4.48e4-l	1.1le-2	1.60e-3	3.60e+2	8.04e+l
1000	3.55e-l	4.50e-3	6.32e+l	7.18e-3	9.66e-4	6.73e+2	1.58e+2
2000	2.88e-l	2.58e-3	8.98e4-l	3.99e-3	5.72e-4	1.44e+3	3.17e+2

B on B, Maxwellian velocity distribution, sheath potential 9 kT
zl=s 5, ml= 10.81, z2= 5, m2= 10.81, sbe=5.73 eV, rho=2.35 g/cm**3
ef=5.68 eV, esb=5.73 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne=ll

kT(eV)	Y	Y R	E sp	R?7	Re	Efc	range
2	2.89e-4	4.40e-5	3.35e+0	2.33e-4	5.28e-5	4.99e+0	1.75e + 0
5	1.36e-2	1.37e-3	5.54e4-0	4.57e-3	7.31e-4	8.80e + 0	3.74e+0
10	5.97e-2	3.95e-3	7.28e+0	9.30e-3	1.20e-3	1.42e + l	6.39e+0
20	1.33e-l	6.10e-3	1.01e+l	1.16e-2	1.16e-3	2.21e + l	1.09e + l
50	2.34e-l	6.89e-3	1.62e + l	9.38e-3	8.83e-4	5.18e + l	2.25e + l
100	2.85e-l	6.06e-3	2.34e+l	7.68e-3	6.51e-4	9.33e+l	4.04e4-l
200	2.99e-l	4.34e-3	3.19e + l	5.60e-3	5.22e-4	2.05e+2	7.59e + l
500	3.06e-l	5.15e-3	3.71e + l	7.50e-3	8.96e-4	2.64e+2	7.58e+l
1000	2.33e-l	1.50e-3	7.07e + l	8.38e-4	1.03e-4	1.35e+3	3.73e+2
2000	1.78e-l	8.35e-4	1.03e+2	5.54e-4	2.77e-5	1.10e+3	7.52e+2
5000	1.13e-l	3.04e-4	1.48e4-2				1.80e+3

O → B

Sputtering yield of B by O
zl= 8, ml= 16.00, z2= 5, m2= 10.81, sbe=5.90 eV, rho=2.35 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: IPP 9/82
only low fluence!
ne= 5, na=l

E_0 (eV)	0°
150	3.75e-2
300	1.14e-l
1000	2.77e-l
3000	3.87e-l
6000	4.16e-l

H -> C

Sputtering yield of C by H
zl = 1, ml= 1.01. z2= 6. m2 = 12.01. sbe=7.41 eV. *rho=1.85 g/cm**3*
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=:3. ipot=ipotr = l (KrC)
program : trvmc
ne— 9, na= 9

E 0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
40	9.00E-6	1.33E-5	2.19E-5	2.97E-5	2.98E-5	1.67E-5	1.20E-6		
50	1.75E-4	2.80E-4	3.08E-4	3.91E-4	3.76E-4	2.15E-4	1.13E-4	2.00E-5	3.33E-6
70	1.23E-3	1.35E-3	1.66E-3	2.10E-3	2.39E-3	2.36E-3	1.32E-3	5.17E-4	8.66E-5
100	2.92E-3	2.98E-3	3.93E-3	5.19E-3	6.96E-3	9.20E-3	8.58E-3	4.74E-3	6.72E-4
140	4.42E-3	4.88E-3	6.40E-3	8.76E-3	1.36E-2	1.98E-2	2.47E-2	1.68E-2	2.41E-3
200	5.84E-3	6.35E-3	8.34E-3	1.31E-2	1.93E-2	3.04E-2	4.66E-2	3.87E-2	6.34E-3
300	7.05E-3	7.58E-3	1.04E-2	1.66E-2	2.58E-2	4.31E-2	6.95E-2	6.98E-2	1.52E-2
500	6.76E-3	7.54E-3	1.08E-2	1.89E-2	2.91E-2	4.94E-2	8.73 E-2	1.03E-1	3.86E-2
1000	5.68E-3	6.50E-3	1.00E-2	1.88E-2	2.93E-2	4.87E-2	9.06E-2	1.20E-1	9.05E-2

Sputtered energy of C by H
ne= 9, na= 9

E 0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
40	1.26e-7	2.04e-7	4.00e-7	6.52e-7	6.78e-7	3.46e-7	1.73e-8		
50	6.48E-6	8.13E-6	9.31E-6	1.37E-5	1.37E-5	9.00E-6	3.89E-6	5.62E-7	1.19E-7
70	5.02E-5	5.57E-5	7.25E-5	9.81E-5	1.17E-4	1.20E-4	6.79 E-5	2.77E-5	4.79E-6
100	1.27E-4	1.34E-4	1.86E-4	2.60E-4	3.59E-4	5.14E-4	5.21E-4	3.24E-4	5.08E-5
140	1.94E-4	2.16E-4	2.86E-4	4.10E-4	6.72E-4	1.07E-3	1.51E-3	1.20E-3	1.94E-4
200	2.35E-4	2.68E-4	3.51E-4	5.70E-4	9.01E-4	1.50E-3	2.73E-3	2.56E-3	4.96E-4
300	2.55E-4	2.67E-4	3.95E-4	6.47E-4	1.03E-3	1.86E-3	3.46E-3	3.91E-3	1.08E-3
500	1.79E-4	2.10E-4	3.03E-4	5.70E-4	9.38E-4	1.72E-3	3.34E-3	4.48E-3	2.04E-3
1000	1.00E-4	1.15E-4	1.91E-4	3.94E-4	6.74E-4	1.18E-3	2.43E-3	3.45E-3	3.18E-3

Particle reflection coefficient of H backscattered from C
zl= 1. ml = 1.01, z2= 6, m2= 12.01, sbe=7.41 eV, *rho=1.85 g/cm**3*
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC) program : trvmc
ne=ll, na= 9

E 0 (eV)	0°	15“	30°	45 u	55°	65°	75°	80°	85°
10	4.79E-1	5.02E-1	5.62E-1	6.71E-1	7.65E-1	8.61E-1	9.40E-1	9.62E-1	9.74E-1
20	4.07E-1	4.27E-1	4.82E-1	5.85E-1	6.88E-1	8.14E-1	9.34E-1	9.70E-1	9.86E-1
40	3.58E-1	3.74E-1	4.11E-1	4.99E-1	5.93E-1	7.61E-1	8.99E-1	9.63E-1	9.92E-1
50	3.39E-1	3.54E-1	4.02E-1	4.76E-1	5.64E-1	7.27E-1	9.06E-1	9.72E-1	9.96E-1
70	3.05E-1	3.20E-1	3.63E-1	4.42E-1	5.25E-1	6.47E-1	8.41E-1	9.44E-1	9.93E-1
100	2.79 E-l	2.92E-1	3.33E-1	4.12E-1	4.86E-1	6.02E-1	7.92E-1	9.20E-1	9.92E-1
140	2.53E-1	2.66E-1	3.08E-1	3.82E-1	4.56E-1	5.59E-1	7.42E-1	8.86E-1	9.90E-1
200	2.26E-1	2.38E-1	2.78E-1	3.50E-1	4.24E-1	5.25E-1	6.88E-1	8.38E-1	9.85E-1
300	1.94E-1	2.05E-1	2.44E-1	3.17E-1	3.88E-1	4.83E-1	6.34E-1	7.75E-1	9.73E-1
500	1.53E-1	1.63E-1	2.01E-1	2.71E-1	3.43 E-l	4.36E-1	5.73 E-l	6.97E-1	9.35E-1
1000	9.81E-2	1.08E-1	1.39E-1	2.03E-1	2.75E-1	3.72E-1	5.10E-1	6.17E-1	8.41E-1

Energy reflection coefficient of H backscattered from C
ne=ll. na= 9

E 0 (eV)	0°	15°	30°	45 u	55°	65°	75 6	80°	85 u
10	2.44E-1	2.64E-1	3.19E-1	4.29E-1	5.35E-1	6.59E-1	7.77E-1	8.16E-1	8.40E-1
20	1.98E-1	2.13E-1	2.59E-1	3.58E-1	4.70 E-l	6.26E-1	8.01E-1	8.65E-1	8.99E-1
40	1.67E-1	1.79E-1	2.08E-1	2.84E-1	3.77E-1	5.73E-1	7.69E-1	8.75E-1	9.30E-1
50	1.55E-1	1.66E-1	2.02E-1	2.64E-1	3.50E-1	5.35E-1	7.82E-1	8.92E-1	9.43E-1
70	1.35B-1	1.44E-1	1.74E-1	2.37E-1	3.13E-1	4.46E-1	6.98E-1	8.54E-1	9.42E-1
100	1.20E-1	1.28E-1	1.55E-1	2.13E-1	2.78 E-l	3.96E-1	6.36E-1	8.22E-1	9.44E-1
140	1.05E-1	1.13E-1	1.39E-1	1.92E-1	2.52E-1	3.53 E-l	5.72 E-l	7.76E-1	9.44E-1
200	9.07E-2	9.75E-2	1.21E-1	1.69E-1	2.25E-1	3.18E-1	5.06E-1	7.12E-1	9.38E-1
300	7.42E-2	8.02E-2	1.02E-1	1.45E-1	1.97E-1	2.78E-1	4.42E-1	6.26E-1	9.19E-1
500	5.48E-2	5.95E-2	7.77E-2	1.16E-1	1.63E-1	2.34E-1	3.71E-1	5.24E-1	8.64E-1
1000	3.14E-2	3.54E-2	4.77E-2	7.69E-2	1.15E-1	1.79E-1	3.00E-1	4.14E-1	7.21E-1

Average depth (mean range) in Ä of H implanted in C
ne=ll. na= 9

E 0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	6.30E+0	6.30E+0	6.10E + 0	6.00E+0	5.90E + 0	5.70E + 0	5.50E+0	5.50E4-0	5.40E + 0
20	1.02E + 1	1.01E+1	9.90E + 0	9.50E4-0	9.30E+0	9.10E+0	8.80E+0	8.70E + 0	8.60E + 0
40	1.68E + 1	1.66E+1	1.61E+1	1.55E+1	1.50E+1	1.46E+1	1.42E + 1	1.41E4-1	1.38E+1
50	1.98E+1	1.96E+1	1.90E+1	1.82E-}-!	1.76E + 1	1.71E+1	1.66E + 1	1.62E + 1	1.61E+1
70	2.55E-J-1	2.52E-J-1	2.44E+1	2.34E+1	2.26E + 1	2.18E+1	2.11E + 1	2.09E + 1	2.05E + 1
100	3.37E + 1	3.32E+1	3.21E4-1	3.06E+1	2.95E + 1	2.83E + 1	2.73E + 1	2.72E+1	2.65E + 1
140	4.39E+1	4.34E+1	4.18E+1	3.96E+1	3.79E + 1	3.65E-J-1	3.53E4-1	3.49E + 1	3.45E4-1
200	5.89B4-1	5.80E-J-1	5.59E+1	5.24E4-1	5.03E + 1	4.81E-J-1	4.62E-J-1	4.55E+1	4.55E-J-1
300	8.23E+1	8.11E+1	7.78E+1	7.30E+1	6.90E + 1	6.57E+1	6.30E4-1	6.20E-J-1	6.12E + 1
500	1.27E + 2	1.25E+2	1.19E + 2	1.10E+2	1.04E+2	9.78E + 1	9.23E4-1	9.06E + 1	9.09E + 1
1000	2.34E+2	2.28E+2	2.15E + 2	1.95E+2	1.81E+2	1.67E+2	1.56E+2	1.50E4-2	1.50E-J-2

$H \rightarrow C$

Sputtering yield of C by H
zl = 1, ml = 1.00. z2 = 6. m2= 12.01. sbe = 7.41 eV. *rho= 2.20 g/cm**3*
ef=1.80 eV. esb = 2.26 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2 = 3. ipot=ipotr=l (KrC)
alpha=0.00
program : trspvmc
ne= 5. na= 1. n(dx)=8

E_0 (eV)	dx = 10 Ä	50 A	100 A	300 A	500 A	1000 A	2000 A	5000 A
1000	1.45e-3	3.12e-3	5.49e-3	5.31e-3	5.34e-3	6.50e-3		6.50e-3
5000	1.65e-3	2.16e-3	1.80e-3		2.66e-3	2.19e-3	2.55e-3	
10000	1.20e-3	1.51e-3	1.33e-3		1.61e-3	1.72e-3		
20000	8.75e-4	8.44e-4	1.16e-3		1.16e-3	1.38e-3		
40000	5.17e-4	6.99e-4	5.91e-4					

Sputtered energy of C by H
ne= 5, na= 1, n(dx)=8

E_0 (eV)	dx=10 Ä	50 A	100 Ä	300 Ä	500 Ä	1000 Ä	2000 A	5000 Ä
1000	1.87e-5	5.34e-5	1.1le-4	8.97e-5	1.09e-4	1.18e-4		1.18e-4
5000	6.15e-6	8.11e-6	5.89e-6		1.01e-5	1.07e-5	1.18e-5	
10000	3.22e-6	3.30e-6	4.36e-6		6.17e-6	4.24e-6		
20000	1.34e-6	1.14e-6	1.46e-6		1.80e-6	2.84e-6		
40000	4.71e-7	7.37e-7	5.02e-7					

Particle reflection coefficient of H backscattered from C
ne= 5, na= 1. n(dx)=8

E_0 (eV)	dx=10 Ä	50 A	100 A	300 A	500 A	1000 A	2000 A	5000 A
1000	4.21e-3	3.31e-2	7.32e-2	1.03e-l	1.01e-l	9.80e-2		9.80e-2
5000	2.64e-4	1.24e-3	3.05e-3		1.66e-2	1.74e-2	1.66e-2	
10000	5.96e-5	3.68e-4	6.52e-4		4.99e-3	6.33e-3		
20000	1.67e-5	9.27e-5	1.48e-4		1.09e-3	2.28e-3		
40000	4.38e-6	1.50e-5	4.85e-5					

Energy reflection coefficient of H backscattered from C
ne= 5, na= 1, n(dx)=8

E_0 (eV)	dx=10 A	50 A	100 A	300 A	500 A	1000 A	2000 A	5000 A
1000	3.05e-3	1.70e-2	2.72e-2	3.33e-2	3.27e-2	3.20e-2		3.20e-2
5000	2.02e-4	7.716-4	1.67e-3		4.10e-3	4.47e-3	4.24e-3	
10000	4.55e-5	2.51e-4	3.75e-4		1.44e-3	1.58e-3		
20000	1.32e-5	6.74e-5	9.98e-5		3.89e-4	5.85e-4		
40000	3.48e-6	1.14e-5	2.84e-5					

Average depth (mean range) in Äof H implanted in C
ne= *4, na*= 1. n(dx)=7

Eq (eV)	dx = 50 A	100 A	300 A	500 A	1000 A	2000 A	5000 A
1000	6.88e+0	4.49e4-l	1.68e + 2	1.98e+2	1.96e+2		1.96e-f-2
5000		6.85e-l		2.62e + 2	6.99e-}-2	7.99e-f-2	
10000				1.93e + 2	6.24e+2		
20000				4.54e+l	4.27e+2		

H → C

Transmission sputtering yield of C by H
z1 = 1. m1 = 1.00, z2 = 6, m2 = 12.01, sbe=7.41 eV, *rho= 2.20 g/cm**3*
ef=1.80 eV, esb=2.26 eV, ca=1.00, kk0=kk0r=2, kdee1 = kdee2=3, ipot=ipotr = 1 (KrC)
alpha=0.00
program : trspvmc
ne= 5, na= 1, n(dx)=6

Eo(eV)	dx=10 Å	50 A	100 Å	300 A	500 A	1000 A
1000	2.20e-2	2.99e-2	3.38e-2	6.03e-3	3.38e-2	
5000	6.40e-3	1.02e-2	1.20e-2		1.94e-2	1.19e-2
10000	3.39e-3	5.46e-3	6.55e-3		9.93e-3	1.64e-2
20000	1.78e-3	2.71e-3	3.35e-3		4.20e-3	7.07e-3
40000	8.79e-4	1.36e-3	1.71e-3			

Transmission sputtered energy of C by H
ne= 5, na= 1, n(dx)=6

E_0(eV)	dx=10 A	50 A	100 A	300 A	500 A	1000 A
1000	1.07e-3	1.22e-3	1.18e-3	9.09e-5	1.18e-3	
5000	1.37e-4	2.16e-4	2.66e-4		2.47e-4	5.16e-5
10000	4.83e-5	1.02e-4	9.98e-5		1.47e-4	1.23e-4
20000	1.53e-5	3.49e-5	4.81e-5		6.22e-5	6.25e-5
40000	4.76e-6	1.07e-5	2.23e-5			

Particle transmission coefficient of H transmitted through C
ne= 5, na= 1, n(dx)=6

Eo(eV)	dx = 10 A	50 A	100 A	300 A	500 A	1000 A
1000	9.95e-1	9.64e-1	8.91e-1	1.65e-1	5.04e-5	
5000	9.99e-1	9.98e-1	9.96e-1		9.27e-1	2.70e-1
10000	1.00e-0	9.99e-1	9.99e-1		9.91e-1	9.29e-1
20000	1.00e-0	1.00e-0	9.99e-1		9.98e-1	9.93e-1
40000	1.00e-0	1.00e-0	1.00e-0			

Energy transmission coefficient of H transmitted through C
ne= 5, na= 1, n(dx)=6

E_0(eV)	dx = 10 A	50 A	100 A	300 A	500 A	1000 A
1000	9.66e-1	8.14e-1	6.01e-1	3.05e-2	1.93e-6	
5000	9.88e-1	9.40e-1	8.81e-1		4.23e-1	2.60e-2
10000	9.92e-1	9.59e-1	9.19e-1		6.20e-1	2.92e-1
20000	9.94e-1	9.72e-1	9.44e-1		7.33e-1	5.01e-1
40000	9.96e-1	9.80e-1	9.60e-1			

$D \rightarrow C$

Sputtering yield of C by D
zl = 1, ml = 2.01. z2= 6. m2= 12.01, sbe=7.41 eV. *rho=1.85 g/cm**3*
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2 = 3. ipot=ipotr=l (KrC) program : trvmc
ne=12., na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
30	8.58E-5	1.12E-4	1.78E-4	2.30E-4	2.08E-4	1.12E-4	2.55E-5	8.60E-6	2.56E-6
33	2.16e-4					3.29e-4			
40	7.35E-4	9.15E-4	1.26E-3	1.72E-3	2.21E-3	1.80E-3	7.60E-4	3.12E-4	9.35E-5
50	1.96E-3	2.33E-3	3.09E-3	4.58E-3	5.87E-3	5.95E-3	4.15E-3	1.76E-3	4.45E-4
70	4.79E-3	5.19E-3	7.01E-3	1.13E-2	1.57E-2	2.14E-2	1.78E-2	8.60E-3	1.57E-3
100	8.18E-3	8.77E-3	1.21E-2	1.96E-2	3.08E-2	4.59E-2	4.78E-2	2.72E-2	4.04E-3
140	1.10E-2	1.21E-2	1.68E-2	2.88E-2	4.40E-2	7.03E-2	8.63E-2	5.73E-2	8.17E-3
200	1.32E-2	1.48E-2	2.41E-2	3.56E-2	5.93E-2	9.10E-2	1.21E-1	9.76E-2	1.41E-2
300	1.47E-2	1.66E-2	2.40E-2	4.33E-2	6.81E-2	1.13E-1	1.63E-1	1.51E-1	2.94E-2
500	1.44E-2	1.72E-2	2.72E-2	4.58E-2	7.39E-2	1.20E-1	1.89E-1	2.12E-1	7.29E-2
1000	1.30E-2	1.49E-2	2.36E-2	4.18E-2	6.49E-2	1.08E-1	1.90E-1	2.35E-1	1.72E-1
2000	1.02E-2			3.45E-2			1.88E-1	2.22E-1	2.45E-1

Sputtered energy of C by D
ne=12., na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
30	3.32E-6	4.76E-6	8.71E-6	1.27E-5	1.21E-5	6.80E-6	1.71E-6	6.29E-7	2.24E-7
33	9.15e-6					2.31e-5			
40	3.58E-5	5.17E-5	8.06E-5	1.26E-4	1.81E-4	1.54E-4	6.87E-5	2.90E-5	8.69E-6
50	1.18E-4	1.50E-4	2.19E-4	3.60E-4	5.08E-4	5.70E-4	4.41E-4	1.95E-4	5.31E-5
70	3.26E-4	3.50E-4	5.33E-4	9.23E-4	1.38E-3	2.05E-3	2.04E-3	1.10E-3	2.26E-4
100	5.27E-4	5.96E-4	8.80E-4	1.50E-3	2.56E-3	4.29E-3	5.49E-3	3.55E-3	5.71E-4
140	6.77E-4	7.50E-4	1.09E-3	2.03E-3	3.31E-3	5.93E-3	8.75 E-3	6.73E-3	1.14E-3
200	7.12E-4	8.00E-4	1.18E-3	2.19E-3	3.99E-3	6.60E-3	1.04E-2	9.95E-3	1.73E-3
300	6.56E-4	7.50E-4	1.12E-3	2.23E-3	3.84E-3	7.15E-3	1.15E-2	1.19E-2	3.08 E-3
500	5.02E-4	5.80E-4	1.03E-3	1.87E-3	3.19E-3	5.90E-3	1.01E-2	1.26E-2	5.40E-3
1000	2.94E-4	3.70E-4	5.70E-4	1.17E-3	2.01E-3	3.61E-3	6.82E-3	9.28E-3	7.69E-3
2000	1.39E-4			6.56E-4			4.66E-3	5.72E-3	6.93E-3

D → C

Particle reflection coefficient of D backscattered from C
zl = 1, ml= 2.01, z2= 6. m2 = 12.01. sbe = 7.41 eV. *rho=1.85 g/cm**3*
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program : trvmc
ne=14, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	3.74E-1	3.99E-1	4.70E-1	6.00E-1	7.09E-1	8.29E-1	9.23E-1	9.51E-1	9.66E-1
20	3.13E-1	3.32E-1	3.92E-1	5.10E-1	6.29E-1	7.79E-1	9.21E-1	9.64E-1	9.84E-1
30	2.81E-1	2.99E-1	3.52E-1	4.57E-1	5.70E-1	7.27E-1	9.03E-1	9.63E-1	9.89E-1
33	2.75e-l					7.13e-l			
40	2.62E-1	2.77E-1	3.28E-1	4.23E-1	5.29E-1	6.83E-1	8.82E-1	9.59E-1	9.91E-1
50	2.48E-1	2.62E-1	3.09E-1	4.01E-1	4.99E-1	6.49E-1	8.60E-1	9.52E-1	9.92E-1
70	2.27E-1	2.41E-1	2.86E-1	3.71E-1	4.59E-1	5.99E-1	8.20E-1	9.37E-1	9.92E-1
100	2.07E-1	2.19E-1	2.62E-1	3.39E-1	4.26E-1	5.48E-1	7.65E-1	9.10E-1	9.91E-1
140	1.88E-1	2.00E-1	2.41E-1	3.17E-1	3.97E-1	5.11E-1	7.10E-1	8.69E-1	9.90E-1
200	1.69E-1	1.80E-1	2.19E-1	2.96E-1	3.66E-1	4.75E-1	6.56E-1	8.24E-1	9.84E-1
300	1.48E-1	1.57E-1	1.95E-1	2.64E-1	3.40E-1	4.38E-1	6.04E-1	7.53E-1	9.71E-1
500	1.20E-1	1.28E-1	1.63E-1	2.27E-1	3.01E-1	3.98E-1	5.48E-1	6.79E-1	9.32E-1
1000	8.00E-2	8.85E-2	1.20E-1	1.82E-1	2.51E-1	3.52E-1	4.96E-1	6.03E-1	8.31E-1
2000	4.53E-2			1.31E-1			4.19E-1	5.59E-1	7.53E-1

Energy reflection coefficient of D backscattered from C
ne=14, na= 9

Bq(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.47E-1	1.64E-1	2.18E-1	3.29E-1	4.39E-1	5.76E-1	7.11E-1	7.60E-1	7.89E-1
20	1.21E-1	1.34E-1	1.76E-1	2.73E-1	3.89E-1	5.59E-1	7.58E-1	8.34E-1	8.78E-1
30	1.06E-1	1.17E-1	1.53E-1	2.35E-1	3.40E-1	5.13E-1	7.51E-1	8.53E-1	9.08E-1
33	1.03e-l					5.00E-1			
40	9.73E-2	1.07E-1	1.39E-1	2.11E-1	3.06E-1	4.72E-1	7.32E-1	8.56E-1	9.23E-1
50	9.10E-2	9.92E-2	1.29E-1	1.96E-1	2.81E-1	4.38E-1	7.09E-1	8.53E-1	9.32E-1
70	8.20E-2	8.97E-2	1.17E-1	1.76E-1	2.49E-1	3.89E-1	6.62E-1	8.38E-1	9.41E-1
100	7.33E-2	8.02E-2	1.04E-1	1.56E-1	2.22E-1	3.40E-1	5.99E-1	8.06E-1	9.46E-1
140	6.55E-2	7.18E-2	9.43E-2	1.43E-1	2.01E-1	3.04E-1	5.35E-1	7.54E-1	9.47E-1
200	5.73E-2	6.34E-2	8.42E-2	1.30E-1	1.81E-1	2.74E-1	4.75E-1	6.93E-1	9.41E-1
300	4.95E-2	5.36E-2	7.22E-2	1.13E-1	1.63E-1	2.43E-1	4.15E-1	6.05E-1	9.22E-1
500	3.83E-2	4.22E-2	5.79E-2	9.24E-2	1.37E-1	2.10E-1	3.54E-1	5.10E-1	8.67E-1
1000	2.37E-2	2.70E-2	3.95E-2	6.77E-2	1.06E-1	1.71E-1	2.96E-1	4.18E-1	7.23E-1
2000	1.22E-2			4.29E-2			2.26E-1	3.53E-1	6.08E-1

Average depth (mean range) in Ä of D implanted in C
ne=13, na= 9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	5.20E4-0	5.20E+0	5.00E+0	4.80E+0	4.60E4-0	4.40E4-0	4.20E+0	4.10E+0	4.00E+0
20	8.60E4-0	8.50E4-0	8.20E+0	7.90E4-0	7.60E+0	7.30E+0	6.90E+0	6.70E+0	6.60E4-0
33	1.25e+l					1.03e+l			
40	1.45E4-1	1.43E+1	1.38E+1	1.30E+1	1.25E+1	1.19E+1	1.14E+1	1.10E + 1	1.07E + 1
50	1.72E + 1	1.70E+1	1.64E+1	1.54E+1	1.48E4-1	1.41E+1	1.34E4-1	1.30E4-1	1.27E + 1
70	2.26E + 1	2.22E4-1	2.14E+1	2.01E+1	1.90E4-1	1.82E+1	1.73E + 1	1.69E4-1	1.63E4-1
100	3.02E + 1	2.97E-H	2.84E+1	2.67E+1	2.53E + 1	2.39E+1	2.30E + 1	2.24E + 1	2.16E + 1
140	4.01E + 1	3.95E+1	3.77E4-1	3.52E+1	3.33E4-1	3.16E+1	3.01E4-1	2.96E4-1	2.88E + 1
200	5.48E + 1	5.39E4-1	5.13E+1	4.76E+1	4.49E + 1	4.26E+1	4.04E + 1	3.94E+1	3.87E + 1
300	7.88E + 1	7.74E+1	7.36E+1	6.79E4-1	6.38E4-1	5.95E + 1	5.65E4-1	5.55E + 1	5.47E + 1
500	1.26E+2	1.24E4-2	1.16E4-2	1.07E+2	1.00E+2	9.34E+1	8.72E-H	8.55E + 1	8.28E + 1
1000	2.45E+2	2.39E+2	2.24E4-2	2.02E+2	1.86E+2	1.70E4-2	1.57E+2	1.52E+2	1.51E+2
2000	3.91E4-2			3.11E+2			2.13E+2	2.20E+2	2.14E+2

D → C

D on C. Maxwellian velocity distribution, sheath potential 0 kT
zl = 1. ml = 2.01, z2=6, m2= 12.01, sbe=7.42 eV, rho=2.26 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 10

kT(eV)	Y	Y E	Esp	R A r	Re	Bfe	range
8	2.22e-4	5.85e-5	4.23e+0	5.92e-l	3.53e-l	9.53e4-0	5.31e4-0
10	5.87e-4	1.45e-4	4.95e+0	5.82e-l	3.41e-l	1.17e + 0	6.45e + 0
14	1.81e-3	3.82e-4	5.90e+0	5.61e-l	3.19e-l	1.60e + l	8.52e + 0
20	4.43e-3	8.30e-4	7.48e-f-0	5.31e-l	2.94e-l	2.21e + l	1.12e+l
30	1.07e-2	1.66e-3	9.28e+0	4.93e-l	2.63e-l	3.21e + l	1.56e + l
50	2.18e-2	2.68e-3	1.23e + l	4.44e-l	2.28e-l	5.14e4-l	2.34e+l
100	3.99e-2	3.04e-3	1.52e+l	3.81e-l	1.85e-l	9.72e + l	4.15e + l
200	5.32e-2	2.88e-3	2.16e+l	3.23e-l	1.48e-l	1.82e+2	7.62e4-l
500	5.86e-2	1.79e-3	3.07e + l	2.52e-l	1.04e-l	4.14e4-2	1.73e + 2
1000	5.40e-2	1.05e-3	3.92e + l	2.02e-l	7.32e-2	7.30e + 2	3.22e + 2

D on C. Maxwellian velocity distribution, sheath potential 3 kT
zl = 1, ml = 2.01, z2 = 6, m2= 12.01, sbe = 7.42 eV, rho=2.26 g/cm**3
ef=0.98 eV, esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l(KrC)
program: testvmcx
ne= 16

kT(eV)	Y	Ye	E sp	R N	Re	E h	range
5	2.27e-4	2.70e-5	2.97e-0	3.72e-l	1.64e-l	1.10e + l	7.91e+0
5	2.36e-4	2.79e-5	2.96e-0	3.71e-l	1.64e-l	1.10e+l	7.92e+0
7	1.17e-3	1.19e-4	3.56e-0	3.37e-l	1.45e-l	1.51e+l	1.09e+l
10	3.67e-3	3.61e-4	4.91e-0	3.06e-l	1.28e-l	2.10e+l	1.34e + l
10	3.72e-3	3.47e-4	4.66e-0	3.05e-l	1.28e-l	2.09e-{-l	1.34e-f-l
14	7.36e-3	6.46e-4	6.15e-0	2.78e-l	1.14e-l	2.87e-}-l	1.75e-|-l
20	1.19e-2	8.93e-4	7.50e-0	2.54e-l	1.01e-l	4.00e-}-l	2.35e+l
20	1.25e-2	9.47e-4	7.59e-0	2.54e-l	1.02e-l	4.00e+l	2.35e-H
30	1.70e-2	l.lle-3	9.66e-0	2.26e-l	8.80e-2	5.83e-{-l	3.30e + l
40	2.15e-2	1.27e-3	1.18e + l	2.08e-l	7.97e-2	7.65e + l	4.25e + l
50	1.99e-2	1.Ole-3	1.27e + l	1.95e-l	7.74e-2	9.43e + l	5.16e + l
50	2.23e-2	1.18e-3	1.32e+l	1.95e-l	7.32e-2	9.41e + l	5.19e + l
100	2.35e-2	8.68e-4	1.85e + l	1.56e-l	5.53e-2	1.78e+2	9.78e-}-l
200	2.17e-2	4.91e-4	2.27e-|-l	1.12e-l	3.65e-2	3.26e4-2	1.87e+2
500	1.48e-2	2.10e-4	3.54e + l	5.76e-2	1.55e-2	6.73e+2	4.42e-f-2
1000	9.49e-3	7.33e-5	3.86e + l	2.81e-2	6.54e-3	1.17e+3	8.31e4-2

D on C, Maxwellian velocity distribution, sheath potential 3 kT
zl = 1, ml= 2.01, z2 = 6, m2 = 12.01, *sbe=4-4* *rho=1.85 g/cm**3*
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l(KrC)
program: trspvmc
ne=12

kT(eV)	Y	Ye	Esp	R?7	Re	Eb	range
2	1.77e-5		1.20e+0	4.46e-l		4.56e4-0	4.37e + 0
3	3.38e-4		1.71e-f-0	4.01e-l		6.77e+0	5.96e-{-0
4	1.33e-3		2.16e-|-0	3.69e-l		8.88e-]-0	7.42e + 0
5	2.95e-3		2.55e-{-0	3.46e-l		1.09e+l	8.81e+0
7	7.69e-3		3.26e+0	3.15e-l		1.50e-f-l	1.15e-|-l
10	1.48e-2		4.15e + 0	2.87e-l		2.06e-f-l	1.53e-t-l
14	2.26e-2		5.13e-|-0	2.64e-l		2.87e+l	2.02e + l
20	2.98e-2		6.30e+0	2.42e-l		4.02e+l	2.73e + l
50	4.03e-2		1.OOe+ l	1.89e-l		9.49e+l	6.15e-f-l
100	3.96e-2		1.36e-}-l	1.49e-l		1.79e+2	1.17e-|-2
200	3.30e-2		1.77e + l	1.09e-l		3.27e-}-2	2.25e + 2
500	2.20e-2		2.44e-f-l	5.66e-2		6.83e-|-2	5.34e+2

D on C, Maxwellian velocity distribution, sheath potential 3 kT
zl = 1, ml= 2.01, z2=6. m2= 12.01, sbe = 7.40, *rho=2.00 g/cm**3*
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l(KrC)
program: testvmcx
ne= 2

kT(eV)	Y	Ye	Egp	R?7	R £■	Eb	range
1000	8.85e-3	7.47e-5	4.22e-H	2.80e-2	6.63e-3	1.19e4-3	9.32e+2
2000	5.54e-3	3.08e-5	5.57e+l	1.12e-2	2.34e-3	2.08e+3	1.69e+3

T → C

Sputtering yield of C by T
zl = 1. ml= 2.01, z2= 6, m.2= 12.01, sbe=7.41 eV, *rho=1.85 g/cm**3*
ef=0.98 eV. esb = 1.00 eV, ca=1.00. kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne=12, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
20			6.00E-6	7.80E-6					
25	4.70E-5	7.40E-5	1.43E-4	2.15E-4	1.82E-4	1.25E-4	4.14E-5	1.80E-5	7.00E-6
30	2.44E-4	3.25E-4	6.09E-4	9.78E-4	1.06E-3	9.45E-4	4.38E-4	2.30E-4	9.49E-5
40	1.23E-3	1.50E-3	2.56E-3	4.41E-3	6.15E-3	6.65E-3	4.37E-3	2.14E-3	6.37E-4
50	2.76E-3	3.50E-3	5.36E-3	9.16E-3	1.36E-2	1.77E-2	1.32E-2	6.16E-3	1.48E-3
70	6.05E-3	6.87E-3	1.03E-2	1.97E-2	3.02E-2	4.49E-2	3.92E-2	1.98E-2	3.57E-3
100	9.44E-3	1.14E-2	1.71E-2	3.20E-2	5.24E-2	7.87E-2	8.63E-2	4.77E-2	6.94E-3
140	1.28E-2	1.39E-2	2.25E-2	4.44E-2	6.92E-2	1.11E-1	1.38E-1	8.51E-2	1.17E-2
200	1.54E-2	1.76E-2	2.96E-2	5.58E-2	8.79E-2	1.41E-1	1.91E-1	1.45E-1	2.02E-2
300	1.75E-2	2.06E-2	3.29E-2	6.32E-2	1.02E-1	1.67E-1	2.35E-1	2.16E-1	4.29E-2
500	1.87E-2	2.23E-2	3.60E-2	6.58E-2	1.05E-1	1.73E-1	2.64E-1	2.92E-1	9.97E-2
1000	1.68E-2	2.02E-2	3.32E-2	5.98E-2	9.56E-2	1.61E-1	2.70E-1	3.40E-1	2.36E-1

Sputtered energy of C by T
ne=12, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
20			2.08e-7	5.59e-7					
25	2.26E-6	4.13E-6	9.81E-6	1.69E-5	1.57E-5	1.19E-5	4.67E-6	1.98E-6	9.39E-7
30	1.41E-5	2.14E-5	4.68E-5	8.94E-5	1.07E-4	1.03E-4	5.25E-5	2.85E-5	1.22E-5
40	8.27E-5	1.10E-4	2.18E-4	4.34E-4	6.94E-4	8.32E-4	6.24E-4	3.26E-4	1.02E-4
50	1.96E-4	2.70E-4	4.72E-4	9.44E-4	1.57E-3	2.29E-3	2.02E-3	1.07E-3	2.71E-4
70	4.54E-4	5.56E-4	8.91E-4	1.93E-3	3.24E-3	5.71E-3	6.29E-3	3.55E-3	6.91E-4
100	6.68E-4	8.18E-4	1.39E-3	2.88E-3	5.26E-3	9.12E-3	1.24E-2	7.74E-3	1.36E-3
140	8.37E-4	9.27E-4	1.58E-3	3.49E-3	6.22E-3	1.14E-2	1.72E-2	1.25E-2	2.16E-3
200	8.51E-4	1.07E-3	1.83E-3	3.86E-3	6.77E-3	1.27E-2	2.00E-2	1.75E-2	3.16E-3
300	8.36E-4	1.02E-3	1.73E-3	3.66E-3	6.79E-3	1.21E-2	1.98E-2	2.09E-2	5.34E-3
500	6.78E-4	8.14E-4	1.42E-3	3.03E-3	5.23E-3	9.51E-3	1.69E-2	2.09E-2	8.60E-3
1000	3.92E-4	5.01E-4	9.10E-4	1.98E-3	3.55E-3	6.45E-3	1.18E-2	1.52E-2	1.25E-2

T -*C

Particle reflection coefficient of T backscattered from C
zl = 1. ml = 2.01. z2= 6. m2 = 12.01. sbe=7.41 eV. *rho=1.85 g/cm**3*
ef=0.98 eV, esb=1.00 eV, ca=1.00. kkO=kkOr=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : trvmc
ne=13. na= 9

E 0 (eV)	0°	15 °	30 °	45 °	55°	65°	75 °	80°	85°
10	2.89E-1	3.13E-1	3.90E-1	5.32E-1	6.58E-1	7.92E-1	9.04E-1	9.38E-1	9.56E-1
20	2.41E-1	2.61E-1	3.24E-1	4.50E-1	5.82E-1	7.49E-1	9.10E-1	9.59E-1	9.81E-1
25	2.26E-1	2.44E-1	3.03E-1	4.20E-1	5.48E-1	7.21E-1	9.01E-1	9.59E-1	9.85E-1
30	2.14E-1	2.32E-1	2.86E-1	3.98E-1	5.20E-1	6.94E-1	8.91E-1	9.58E-1	9.87E-1
40	1.97E-1	2.13E-1	2.63E-1	3.66E-1	4.78E-1	6.49E-1	8.69E-1	9.53E-1	9.89E-1
50	1.85E-1	1.99E-1	2.47E-1	3.42E-1	4.48E-1	6.10E-1	8.46E-1	9.47E-1	9.91E-1
70	1.67E-1	1.82E-1	2.25E-1	3.11E-1	4.08E-1	5.60E-1	8.01E-1	9.30E-1	9.91E-1
100	1.52E-1	1.62E-1	2.05E-1	2.85E-1	3.73E-1	5.09E-1	7.43E-1	9.03E-1	9.90E-1
140	1.37E-1	1.49E-1	1.87E-1	2.64E-1	3.44E-1	4.69E-1	6.86E-1	8.60E-1	9.88E-1
200	1.21E-1	1.32E-1	1.68E-1	2.44E-1	3.19E-1	4.36E-1	6.27E-1	8.07E-1	9.83E-1
300	1.05E-1	1.16E-1	1.52E-1	2.22E-1	2.95E-1	4.04E-1	5.74E-1	7.35E-1	9.67E-1
500	8.46E-2	9.52E-2	1.27E-1	1.93E-1	2.63E-1	3.63E-1	5.21E-1	6.60E-1	9.27E-1
1000	5.77E-2	6.59E-2	9.38E-2	1.55E-1	2.20E-1	3.18E-1	4.69E-1	5.83E-1	8.24E-1

Energy reflection coefficient of T backscattered from C
ne=13. na= 9

Bq(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85 °
10	8.56E-2	9.98E-2	1.48E-1	2.53E-1	3.64E-1	5.05E-1	6.50E-1	7.05E-1	7.38E-1
20	7.31E-2	8.38E-2	1.21E-1	2.12E-1	3.27E-1	5.02E-1	7.17E-1	8.03E-1	8.53E-1
25	6.81E-2	7.77E-2	1.12E-1	1.94E-1	3.04E-1	4.82E-1	7.19E-1	8.20E-1	8.77E-1
30	6.42E-2	7.31E-2	1.04E-1	1.80E-1	2.83E-1	4.61E-1	7.15E-1	8.29E-1	8.93E-1
40	5.83E-2	6.62E-2	9.40E-2	1.61E-1	2.52E-1	4.22E-1	6.98E-1	8.35E-1	9.22E-1
50	5.41E-2	6.14E-2	8.68E-2	1.47E-1	2.30E-1	3.87E-1	6.77E-1	8.34E-1	9.24E-1
70	4.87E-2	5.53E-2	7.74E-2	1.30E-1	2.01E-1	3.42E-1	6.27E-1	8.19E-1	9.36E-1
100	4.37E-2	4.85E-2	6.92E-2	1.16E-1	1.78E-1	2.97E-1	5.64E-1	7.88E-1	9.42E-1
140	3.87E-2	4.40E-2	6.23E-2	1.05E-1	1.61E-1	2.63E-1	5.02E-1	7.37E-1	9.44E-1
200	3.42E-2	3.86E-2	5.56E-2	9.60E-2	1.44E-1	2.36E-1	4.38E-1	6.70E-1	9.38E-1
300	2.90E-2	3.39E-2	4.96E-2	8.59E-2	1.31E-1	2.12E-1	3.84E-1	5.83E-1	9.18E-1
500	2.30E-2	2.68E-2	4.05E-2	7.19E-2	1.14E-1	1.82E-1	3.30E-1	4.91E-1	8.61E-1
1000	1.46E-2	1.78E-2	2.81E-2	5.47E-2	8.88E-2	1.52E-1	2.78E-1	3.99E-1	7.20E-1

Average depth (mean range) in Ä of T implanted in C
ne=13, na= 9

E 0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	4.60E4-0	4.50E+0	4.40E + 0	4.10E4-0	3.90B+0	3.60E4-0	3.30E+0	3.20E+0	3.00E4-0
20	7.70E+0	7.60E4-0	7.30E + 0	6.80E4-0	6.50E4-0	6.10E4-0	5.70E+0	5.50E4-0	5.30E+0
25	9.20E+0	9.00E+0	8.60E+0	8.10E+0	7.60E4-0	7.20E+0	6.70E4-0	6.50E4-0	6.20E + 0
30	1.05E + 1	1.04E4-1	9.90E4-0	9.20E4-0	8.70E4-0	8.20E4-0	7.70E+0	7.40E + 0	7.10E+0
40	1.32E + 1	1.29E+1	1.23E+1	1.15E+1	1.08E+1	1.02E+1	9.50E+0	9.20E+0	8.80E4-0
50	1.57E + 1	1.54E+1	1.47E+1	1.36E4-1	1.28E+1	1.21E4-1	1.13E+1	1.09E4-1	1.05E + 1
70	2.06E4-1	2.02E + 1	1.92E+1	1.77E+1	1.66E+1	1.57E4-1	1.47E + 1	1.42E + 1	1.34E4-1
100	2.77E4-1	2.72E+1	2.58E+1	2.38E4-1	2.22E+1	2.09E+1	1.95E4-1	1.89E4-1	1.79E + 1
140	3.71E + 1	3.63E+1	3.44E + 1	3.16E+1	2.96E + 1	2.74E4-1	2.59E+1	2.50E + 1	2.43E + 1
200	5.08E4-1	5.02E4-1	4.72E4-1	4.31E+1	4.01E+1	3.73E4-1	3.47E+1	3.43E + 1	3.28E4-1
300	7.41E + 1	7.26E4-1	6.83E+1	6.24E+1	5.75E4-1	5.27E + 1	4.96E+1	4.81E + 1	4.60E + 1
500	1.21E+2	1.18E+2	1.11E4-2	1.00E+2	9.22E + 1	8.47E + 1	7.82E + 1	7.66E + 1	7.44E + 1
1000	2.42E+2	2.35E + 2	2.19E + 2	1.95E+2	1.76E+2	1.62E4-2	1.47E+2	1.43E+2	1.39E+2

T -> C

T on C. Maxwellian velocity distribution, sheath potential 3 kT
zl = 1. ml = 3.02, z2 = 6, m2= 12.01. sbe=7.42 eV, rho=2.26 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 9

kT(eV)	Y	Y_E	E_{sp}	R/V	Rfi	Eb	range
7	2.13e-3	2.79e-4	4.51e+0	2.72e-l	9.87e-2	1.27e + l	9.11e + 0
10	6.00e-3	6.80e-4	5.66e + 0	2.42e-l	8.51e-2	1.76e + l	1.20e+l
14	1.15e-2	1.12e-3	6.79e+0	2.19e-l	7.62e-2	2.43e + l	1.58e+l
20	1.76e-2	1.46e-3	8.32e+0	1.98e-l	6.67e-2	3.37e + l	2.13e + l
30	2.33e-2	1.69e-3	1.08e + l	1.75e-l	5.88e-2	5.03e + l	3.03e+l
50	2.95e-2	1.73e-3	1.47e + l	1.50e-l	4.97e-2	8.28e + l	4.80e + l
100	3.23e-2	1.34e-3	2.07e + l	1.19e-l	3.77e-2	1.58e + 2	9.29e + l
200	3.05e-2	7.91e-4	2.60e+l	8.55e-2	2.60e-2	3.04e + 2	1.84e+2
500	1.96e-2	3.21e-4	4.10e + l	4.71e-2	1.20e-2	6.36e+2	4.57e + 2

T on C, Maxwellian velocity distribution, sheath potential 3 kT
zl= 1, ml = 3.02, z2 = 6, m2 = 12.01. *sbe=4-4°* *rho=1.85 g/cm**3*
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l(KrC)
program: trspvmc
ne= 9

kT(eV)	Y	Y_E	E_{sp}	R_N	Rß	Rb	range
2	7.83e-5		1.75e4-0	3.63e-l		3.77e+0	3.74e+0
3	7.40e-4		2.27e+0	3.29e-l		5.65e4-0	5.22e+0
5	5.04e-3		3.12e + 0	2.79e-l		9.22e+0	7.81e + 0
7	1.19e-2		3.81e+0	2.51e-l		1.26e+l	1.02e+l
10	2.13e-2		4.68e-J-0	2.24e-l		1.77e+l	1.37e + l
15	3.27e-2		5.88e + 0	2.00e-l		2.61e+l	1.93e + l
20	3.98e-2		6.90e4-0	1.84e-l		3.44e+l	2.48e + l
30	4.76e-2		8.37e+0	1.65e-l		5.08e+l	3.55e + l
50	5.28e-2		1.07e + l	1.43e-l		8.31e+l	5.71e+l

He C

Sputtering yield of G by He
zl = 2, ml = 4.00. z2 = 6, m2 = 12.01. sbe = 7.41 eV, *rho=1.85 g/cm**3*
ef=0.20 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc
ne=22., na= 9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
20	2.42E-6	7.10E-6	2.05E-5	2.04E-5	1.09E-5	3.84E-6	8.64E-7	4.00E-7	
25	4.20E-5	7.14E-5	1.51E-4	1.95E-4	1.68E-4	1.23E-4	3.83E-5	6.98E-6	
27	1.00E-4	1.51E-4	2.98E-4	4.29E-4	4.34E-4	3.45E-4	1.18E-4	1.97E-5	
30	2.40E-4	3.68E-4	7.02E-4	1.10E-3	1.25E-3	1.12E-3	3.84E-4	6.08E-5	
35	7.20E-4	9.99E-4	1.97E-3	3.33E-3	4.17E-3	4.04E-3	1.39E-3	2.13E-4	
40	1.50E-3	2.03E-3	3.86E-3	7.20E-3	9.33E-3	9.26E-3	3.22E-3	4.72E-4	2.18E-6
50	3.83E-3	5.03E-3	9.12E-3	1.75E-2	2.45E-2	2.59E-2	9.71E-3	1.53E-3	6.43E-6
60	6.84E-3	8.61E-3	1.50E-2	2.94E-2	4.31E-2	4.73E-2	1.95E-2	3.40E-3	1.38E-5
70	1.01E-2	1.22E-2	2.07E-2	4.13E-2	6.23E-2	7.14E-2	3.30E-2	6.27E-3	2.35E-5
100	1.83E-2	2.23E-2	3.70E-2	7.36E-2	1.13E-1	1.44E-1	8.37E-2	2.02E-2	8.40E-5
140	2.63E-2	3.22E-2	5.31E-2	1.02E-1	1.61E-1	2.19E-1	1.58E-1	4.81E-2	2.64E-4
200	3.45E-2	4.23E-2	7.04E-2	1.35E-1	2.07E-1	2.95E-1	2.65E-1	1.04E-1	9.49E-4
300	4.28E-2	5.36E-2	8.65E-2	1.64E-1	2.50E-1	3.68E-1	3.90E-1	2.13E-1	4.03E-3
400	4.75E-2	5.80E-2	9.45E-2	1.76E-1	2.71E-1	4.05E-1	4.79E-1	3.19E-1	1.09E-2
500	5.05E-2	6.12E-2	9.96E-2	1.83E-1	2.81E-1	4.24E-1	5.33E-1	4.12E-1	2.25E-2
700	5.17E-2	6.30E-2	1.03E-1	1.87E-1	2.90E-1	4.38E-1	5.99E-1	5.41E-1	6.42E-2
1000	5.19E-2	6.28E-2	1.00E-1	1.86E-1	2.84E-1	4.36E-1	6.38E-1	6.58E-1	1.59E-1
2000	4.69E-2	5.63E-2	8.84E-2	1.56E-1	2.44E-1	3.93E-1	6.38E-1	7.58E-1	4.93E-1
3000	4.24E-2	4.91E-2	7.56E-2	1.36E-1	2.11E-1	3.45E-1	5.91E-1	7.49E-1	6.73E-1
5000	3.40E-2	4.00E-2	5.79E-2	1.07E-1	1.66E-1	2.74E-1	4.98E-1	6.83E-1	7.92E-1
10000	2.43E-2	2.76Er2	4.04E-2	6.84E-2	1.05E-1	1.81E-1	3.50E-1	5.23E-1	7.67E-1
20000	1.66E-2	1.85E-2	2.65E-2	4.13E-2	6.32E-2	1.07E-1	2.23E-1	3.48E-1	6.10E-1

Sputtered energy of 0 by He
ne=22, na= 9

Bo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
20	1.Ole-7	3.72e-7	1.39e-6	1.79e-6	1.08e-6	4.62e-7	1.30e-7	6.71e-8	
25	2.34E-6	4.64E-6	1.26E-5	1.96E-5	1.95E-5	1.55E-5	5.29E-6	1.01E-6	
27	1.00E-5	1.03E-5	2.54E-5	4.41E-5	5.02E-5	4.51E-5	1.68E-5	2.93E-6	
30	2.00E-5	2.64E-5	6.29E-5	1.20E-4	1.55E-4	1.56E-4	5.88E-5	9.52E-6	
35	5.00E-5	7.71E-5	1.87E-4	3.85E-4	5.51E-4	6.02E-4	2.40E-4	3.96E-5	
40	1.10E-4	1.62E-4	3.78E-4	8.55E-4	1.27E-3	1.49E-3	6.06E-4	9.43E-5	4.38E-7
50	2.80E-4	4.09E-4	8.88E-4	2.11E-3	3.44E-3	4.31E-3	1.96E-3	3.36E-4	1.43E-6
60	5.00E-4	7.04E-4	1.46E-3	3.44E-3	5.95E-3	7.81E-3	4.01E-3	7.58E-4	3.12E-6
70	7.40E-4	9.74E-4	1.92E-3	4.71E-3	8.36E-3	1.15E-2	6.75 E-3	1.41E-3	5.35E-6
100	1.29E-3	1.66E-3	3.09E-3	7.41E-3	1.35E-2	2.11E-2	1.56E-2	4.41E-3	1.85E-5
140	1.68E-3	2.14E-3	4.10E-3	9.20E-3	1.68E-2	2.77E-2	2.57E-2	9.23E-3	5.45E-5
200	1.95E-3	2.48E-3	4.58E-3	1.05E-2	1.85E-2	3.12E-2	3.55E-2	1.67E-2	1.74E-4
300	2.01E-3	2.61E-3	4.74E-3	1.04E-2	1.86E-2	3.12E-2	• 4.04E-2	2.64E-2	6.41E-4
400	1.93E-3	2.46E-3	4.69E-3	9.93E-3	1.74E-2	2.97E-2	4.17E-2	3.26E-2	1.49E-3
500	1.85E-3	2.24E-3	4.24E-3	9.43E-3	1.63E-2	2.77E-2	4.09E-2	3.61E-2	2.66E-3
700	1.55E-3	2.00E-3	3.72E-3	8.13E-3	1.41E-2	2.44E-2	3.74E-2	3.82E-2	6.07E-3
1000	1.26E-3	1.65E-3	3.16E-3	6.94E-3	1.22E-2	1.99E-2	3.29E-2	3.68E-2	1.11E-2
2000	7.40E-4	9.80E-4	1.89E-3	4.03E-3	7.17E-3	1.29E-2	2.30E-2	2.88E-2	2.07E-2
3000	5.30E-4	6.60E-4	1.28E-3	2.96E-3	5.17E-3	9.62E-3	1.77E-2	2.27E-2	2.10E-2
5000	2.90E-4	3.90E-4	7.30E-4	1.72E-3	3.14E-3	6.01E-3	1.18E-2	1.62E-2	1.81E-2
10000	1.20E-4	1.70E-4	3.30E-4	7.60E-4	1.36E-3	2.80E-3	6.03E-3	9.09E-3	1.19E-2
20000	5.00E-5	8.00E-5	1.60E-4	3.10E-4	5.90E-4	1.10E-3	2.77E-3	4.37E-3	6.88 E-3

He —> C

Particle reflection coefficient of He back-scattered from C
zl = 2. ml = 4.00. z2= 6. m2= 12.01. sbe=7.41 eV. *rho=1.85 g/cm**3*
ef=0.20 eV. esb=0.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC) program : trvmc
ne=24.. na= 9

Eo (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	4.09E-1	4.44E-1	5.37E-1	6.93E-1	8.16E-1	9.31E-1	9.92E-1	9.99E-1	1.00E+0
15	3.40E-1	3.72E-1	4.64E-1	6.29E-1	7.66E-1	9.08E-1	9.89E-1	9.99E-1	1.00E+0
20	2.96E-1	3.24E-1	4.10E-1	5.73E-1	7.21E-1	8.82E-1	9.86E-1	9.99E-1	l.OOEffO
25	2.66E-1	2.91E-1	3.70E-1	5.27E-1	6.80E-1	8.56E-1	9.81E-1	9.98E-1	1.00E+0
27	2.56E-1	2.80E-1	3.57E-1	5.12E-1	6.64E-1	8.45E-1	9.79E-1	9.98E-1	1.00E4-0
30	2.44E-1	2.67E-1	3.40E-1	4.90E-1	6.43E-1	8.30E-1	9.76E-1	9.98E-1	1.00E+0
35	2.27E-1	2.48E-1	3.18E-1	4.60E-1	6.12E-1	8.05E-1	9.71E-1	9.97E-1	l.OOEffO
40	2.14E-1	2.34E-1	2.99E-1	4.35E-1	5.83E-1	7.82E-1	9.64E-1	9.97E-1	1.00E+0
50	1.94E-1	2.13E-1	2.73E-1	3.96E-1	5.37E-1	7.39E-1	9.50E-1	9.95E-1	1.00E+0
60	1.80E-1	1.98E-1	2.54E-1	3.68E-1	5.02E-1	7.00E-1	9.36E-1	9.93E-1	1.00E+0
70	1.69E-1	1.86E-1	2.38E-1	3.47E-1	4.72E-1	6.68E-1	9.19E-1	9.91E-1	1.00E+0
100	1.47E-1	1.61E-1	2.07E-1	3.04E-1	4.14E-1	5.91E-1	8.71E-1	9.80E-1	1.00E+0
140	1.30E-1	1.44E-1	1.85E-1	2.72E-1	3.70E-1	5.30E-1	8.09E-1	9.61E-1	1.00E + 0
200	1.13E-1	1.25E-1	1.64E-1	2.43E-1	3.30E-1	4.70E-1	7.33E-1	9.25E-1	1.00E+0
300	9.74E-2	1.08E-1	1.42E-1	2.16E-1	2.99E-1	4.24E-1	6.50E-1	8.61E-1	9.99E-1
400	8.73E-2	9.60E-2	1.31E-1	2.00E-1	2.76E-1	3.90E-1	5.98E-1	8.04E-1	9.96E-1
500	7.99E-2	8.84E-2	1.19E-1	1.86E-1	2.61E-1	3.74E-1	5.64E-1	7.58E-1	9.92E-1
700	6.87E-2	7.68E-2	1.07E-1	1.71E-1	2.40E-1	3.48E-1	5.24E-1	6.91E-1	9.78E-1
1000	5.75E-2	6.43E-2	9.36E-2	1.53E-1	2.20E-1	3.24E-1	4.90E-1	6.33E-1	9.42E-1
2000	3.79E-2	4.37E-2	6.71E-2	1.19E-1	1.82E-1	2.81E-1	4.33E-1	5.54E-1	8.17E-1
3000	2.78E-2	3.36E-2	5.18E-2	9.82E-2	1.58E-1	2.56E-1	4.07E-1	5.21E-1	7.44E-1
5000	1.74E-2	2.07E-2	3.56E-2	7.22E-2	1.26E-1	2.19E-1	3.69E-1	4.79E-1	6.69E-1
10000	7.81E-3	9.70E-3	1.72E-2	4.20E-2	8.14E-2	1.64E-1	3.12E-1	4.27E-1	6.01E-1
20000	3.21E-3	3.99E-3	7.13E-3	1.83E-2	4.27E-2	1.05E-1	2.48E-1	3.66E-1	5.47E-1

Energy reflection coefficient of He backscattered from C
ne=24.. na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	9.49E-2	1.16E-1	1.79E-1	3.20E-1	4.49E-1	6.35E-1	8.31E-1	9.08E-1	9.61E-1
15	8.05E-2	9.76E-2	1.55E-1	2.82E-1	4.24E-1	6.23E-1	8.38E-1	9.20E-1	9.70E-1
20	7.02E-2	8.46E-2	1.35E-1	2.55E-1	3.97E-1	6.03E-1	8.38E-1	9.25E-1	9.74E-1
25	6.28E-2	7.53E-2	1.20E-1	2.30E-1	3.70E-1	5.82E-1	8.34E-1	9.27E-1	9.77E-1
27	6.05E-2	7.23E-2	1.15E-1	2.22E-1	3.60E-1	5.73E-1	8.32E-1	9.27E-1	9.78E-1
30	5.74E-2	6.84E-2	1.08E-1	2.10E-1	3.45E-1	5.60E-1	8.28E-1	9.28E-1	9.78E-1
35	5.32E-2	6.31E-2	9.94E-2	1.94E-1	3.24E-1	5.38E-1	8.21E-1	9.28E-1	9.79E-1
40	4.99E-2	5.91E-2	9.27E-2	1.80E-1	3.04E-1	5.18E-1	8.12E-1	9.27E-1	9.80E-1
50	4.48E-2	5.29E-2	8.26E-2	1.59E-1	2.71E-1	4.80E-1	7.94E-1	9.24E-1	9.81E-1
60	4.13E-2	4.84E-2	7.56E-2	1.45E-1	2.47E-1	4.45E-1	7.75E-1	9.19E-1	9.81E-1
70	3.86E-2	4.53E-2	7.02E-2	1.33E-1	2.27E-1	4.17E-1	7.54E-1	9.14E-1	9.81E-1
100	3.31E-2	3.87E-2	5.93E-2	1.12E-1	1.90E-1	3.50E-1	6.97E-1	8.95E-1	9.81E-1
140	2.88E-2	3.41E-2	5.16E-2	9.72E-2	1.61E-1	2.98E-1	6.25E-1	8.65E-1	9.80E-1
200	2.50E-2	2.94E-2	4.54E-2	8.41E-2	1.38E-1	2.51E-1	5.38E-1	8.13E-1	9.77E-1
300	2.14E-2	2.50E-2	3.86E-2	7.32E-2	1.21E-1	2.15E-1	4.50E-1	7.29E-1	9.72E-1
400	1.91E-2	2.21E-2	3.57E-2	6.78E-2	1.10E-1	1.91E-1	3.95E-1	6.57E-1	9.66E-1
500	1.72E-2	2.02E-2	3.19E-2	6.20E-2	1.02E-1	1.80E-1	3.61E-1	5.97E-1	9.57E-1
700	1.49E-2	1.76E-2	2.83E-2	5.55E-2	9.19E-2	1.64E-1	3.21E-1	5.18E-1	9.31E-1
1000	1.22E-2	1.46E-2	2.46E-2	4.95E-2	8.28E-2	1.48E-1	2.89E-1	4.50E-1	8.77E-1
2000	7.71E-3	9.44E-3	1.68E-2	3.58E-2	6.46E-2	1.22E-1	2.38E-1	3.60E-1	7.01E-1
3000	5.47E-3	6.99E-3	1.24E-2	2.84E-2	5.36E-2	1.05E-1	2.13E-1	3.21E-1	5.99E-1
5000	3.22E-3	4.06E-3	7.89E-3	1.91E-2	3.89E-2	8.18E-2	1.78E-1	2.75E-1	4.95E-1
10000	1.33E-3	1.71E-3	3.39E-3	9.35E-3	2.08E-2	5.09E-2	1.29E-1	2.15E-1	3.95E-1
20000	5.10E-4	6.26E-4	1.23E-3	3.49E-3	8.71E-3	2.53E-2	8.03E-2	1.49E-1	3.09E-1

Average depth (mean range) in Ä of He implanted in C
ne=24.. na= 9

' E_0 (eV)	0ᵘ	15°	30°	45°	55ᵘ	65°	75°	80ᵘ	85ᵘ
10	3.10E+0	3.00E+0	2.90E4-0	2.70E+0	2.60E+0	2.40E + 0	2.10E+0	1.80E+0	1.40E+0
15	4.00E + 0	4.00E+0	3.80E + 0	3.60E+0	3.40E + 0	3.10E + 0	2.80E+0	2.50E+0	1.90E+0
20	4.90E + 0	4.80E+0	4.60E4-0	4.30E+0	4.10E+0	3.80E + 0	3.40E+0	3.10E+0	2.60E4-0
25	5.70E+0	5.60E+0-	5.40E + 0	5.00E+0	4.70E + 0	4.40E + 0	3.90E+0	3.60E+0	3.20E+0
27	6.00E4-0	5.90E+0	5.70E + 0	5.30E4-0	5.00E+0	4.60E-J-0	4.10E4-0	3.80E+0	3.20E4-0
30	6.50E4-0	6.40E+0	6.10E4-0	5.70E+0	5.40E + 0	5.00E + 0	4.50E+0	4.10E+0	3.70E+0
35	7.20E4-0	7.10E+0	6.80E + 0	6.30E+0	5.90E4-0	5.50E + 0	5.00E+0	4.60E+0	4.30E+0
40	8.00E4-0	7.80E4-0	7.50E + 0	6.90E4-0	6.50E4-0	6.00E + 0	5.40E+0	5.00E+0	4.40E+0
50	9.40E+0	9.20E+0	8.70E+0	8.1OE4-O	7.60E+0	7.10E+0	6.40E+0	5.90E4-0	4.90E4-0
60	1.07E+1	1.05E+1	1.00E+1	9.20E4-0	8.60E + 0	8.00E+0	7.30E+0	6.80E4-0	5.90E-f-0
70	1.20E + 1	1.18E+1	1.12E+1	1.03E+1	9.60E+0	8.90E4-0	8.10E+0	7.60E+0	6.70E+0
100	1.58E + 1	1.55E-J-1	1.47E+1	1.34E+1	1.24E + 1	1.15E+1	1.07E+1	1.00E+1	9.30E+0
140	2.07E + 1	2.02E+1	1.90E+1	1.73E-+1	1.61E4-1	1.49E+1	1.37E + 1	1.30E+1	1.14E+1
200	2.76E+1	2.70E4-1	2.54E+1	2.30E4-1	2.12E+1	1.95E+1	1.81E + 1	1.71E+1	1.55E+1
300	3.89E+1	3.80E4-1	3.56E4-1	3.22E+1	2.94E + 1	2.70E+1	2.49E + 1	2.42E4-1	2.23E + 1
400	5.01E+1	4.90E+1	4.56E+1	4.13E+1	3.77E+1	3.45E+1	3.17E + 1	3.04E+1	2.85E4-1
500	6.12E+1	5.98E+1	5.58E + 1	5.03E+1	4.60E + 1	4.16E+1	3.83E + 1	3.70E+1	3.50E + 1
700	8.35E+1	8.13E+1	7.56E + 1	6.75E+1	6.18E+1	5.58E4-1	5.08E + 1	4.89E + 1	4.73E + 1
1000	1.17E+2	1.14E+2	1.05E+2	9.39E+1	8.51E+1	7.66E+1	6.99E + 1	6.65E + 1	6.47E4-1
2000	2.29E4-2	2.23E+2	2.05E + 2	1.80E+2	1.62E+2	1.44E + 2	1.29E+2	1.23E4-2	1.19E+2
3000	3.42E + 2	3.32E+2	3.05E+2	2.64E+2	2.36E+2	2.07E + 2	1.83E+2	1.75E+2	1.68E+2
5000	5.66E+2	5.48E4-2	4.99E + 2	4.29E+2	3.76E4-2	3.26E + 2	2.82E+2	2.66E+2	2.54E+2
10000	1.10E-J-3	1.06E+3	9.61E+2	8.08E+2	6.94E+2	5.81E+2	4.87E+2	4.50E+2	4.26E4-2
20000	2.04E+3	1.97E+3	1.77E+3	1.47E+3	1.23E4-3	9.88E+2	7.84E+2	7.06E+2	6.55E+2

Be —> C

Sputtering yield of C by Be
zl = 4. ml= 9.01. z2= 6. m2= 12.01. sbe = 7.41 eV. rho = 2.26 g/cm**3
ef=7.35 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r = 2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc95
only low fluence!
ne = 8, na= 1

E_0 (eV)	0°[73]
30	1.20e-5
40	2.11e-4
50	9.28e-4
70	4.48e-3
100	1.25e-2
200	4.42e-2
500	1.07e-l
1000	1.40e-l

Sputtered energy of C by Be
ne= 8, na= 1

E_0 (eV)	0°
30	6.72e-7
40	1.41e-5
50	6.08e-5
70	2.65e-4
100	6.41e-4
200	1.74e-3
500	2.83e-3
1000	2.64e-3

Particle reflection coefficient of Be backscattered from C
zl= 4. ml= 9.01. z2= 6, m2= 12.01. sbe = 7.41 eV, rho = 2.26 g/cm**3
ef=7.35 eV, esb=0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc95
only low fluence!
ne = 8, na= 1

Ep(eV)	(F
30	2.86e-2
40	2.48e-2
50	2.46e-2
70	2.64e-2
100	2.68e-2
200	2.60e-2
500	2.02e-2
1000	1.39e-2

Energy reflection coefficient of Be backscattered from C
ne= 8, na= 1

Eo(eV)	0°
30	1.92e-3
40	2.44e-3
50	2.85e-3
70	3.27e-3
100	3.Ol e-3
200	2.56e-3
500	1.76e-3
1000	1.23e-3

Average depth (mean range) in Å Be implanted in C
ne= 8, na= 1

E_0 (eV)	0°
30	2.58e-|-0
40	3.40e + 0
50	4.16e+0
70	5.53e + 0
100	7.28e + 0
200	1.26e + l
500	2.64e + l
1000	4.77e+l

C → C

Sputtering yield of C by C
zl= 6, ml= 12.01. z2= 6. m2= 12.01, sbe=7.41 eV, *rho=1.85 g/cm**3*
ef=7.35 eV, esb=7.41 eV, ca=1.00, kk0= kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc, testvmcx
ne=19, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
8						5.00e-6	7.69e-6	8.99e-6	9.65e-6
10			5.00e-7	6.50e-6	2.07e-5	2.60e-5	3.81e-5	3.87e-5	3.78e-5
12			3.21e-6	2.36e-5	5.03e-5	7.39e-5	8.42e-5	8.64e-5	8.58e-5
15			1.10e-5	8.90e-5	1.47e-4	2.00e-4	2.36e-4	2.60e-4	2.64e-4
17						3.95e-4			
20		1.00e-5	8.10e-5	3.60e-4	6.74e-4	1.18e-3	1.73e-3	1.95e-3	2.05e-3
25	5.00e-6	3.10e-5	2.76e-4	1.28e-3	2.90e-3	5.02e-3	6.61e-3	7.13e-3	7.12e-3
30	1.83e-5	1.00e-4	8.15e-4	3.95e-3	8.02e-3	1.31e-2	1.55e-2	1.55e-2	1.60e-2
40	1.35e-4	5.96e-4	3.73e-3	1.56e-2	2.85e-2	4.06e-2	4.16e-2	3.40e-2	3.85e-2
45	2.74e-4								
50	5.21e-4	1.89e-3	1.04e-2	3.58e-2	5.81e-2	7.50e-2	7.57e-2	7.03e-2	6.37e-2
70	2.57e-3	7.31e-3	3.Ole-2	8.40e-2	1.34e-l	1.63e-l	1.51e-l	1.28e-l	1.10e-l
100	8.84e-3	1.96e-2	6.53e-2	1.66e-l	2.45e-l	2.89e-l	2.45e-l	1.99e-l	1.54e-l
140	2.13e-2	3.95e-2	l.lle-1	2.52e-l	3.74e-l	4.43e-l	3.65e-l	2.60e-l	1.83e-l
200	4.14e-2	6.76e-2	1.63e-l	3.49e-l	5.16e-l	6.33e-l	5.14e-l	3.53e-l	2.11e-l
300	7.16e-2	1.06e-l	2.27e-l	4.60e-l	6.83e-l	8.63e-l	7.42e-l	4.94e-l	2.42e-l
500	1.16e-l	1.61e-l	3.05e-l	5.98e-l	8.91e-l	1.18e-0	1.15e-0	7.92e-l	3.01e-l
1000	1.78e-l	2.28e-l	3.93e-l	7.38e-l	1.10e-0	1.55e-0	1.77e-0	1.45e-0	4.92e-l
1200	2.13E-1								

Sputtered energy of C by C
ne=19, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
8						6.25e-7	1.04e-6	1.27e-6	1.37e-6
10				5.76E-7	2.69E-6	3.92E-6	5.96E-6	6.31E-6	6.45E-6
12			2.79E-7	2.62E-6	6.69E-6	1.14E-5	1.47E-5	1.55E-5	1.59E-5
15			1.05E-6	1.07E-5	2.19E-5	3.46E-5	4.39E-5	5.10E-5	5.40E-5
17						7.13e-5			
20		7.29E-7	6.84E-6	4.83E-5	1.10E-4	2.30E-4	3.77E-4	4.42E-4	4.79E-4
25	2.49E-7	2.49E-6	2.94E-5	1.92E-4	5.19E-4	1.06E-3	1.61E-3	1.74E-3	1.80E-3
30	1.09E-6	7.99E-6	9.28E-5	6.15E-4	1.57E-3	2.94E-3	3.89E-3	4.07E-3	4.32E-3
40	8.28E-6	4.85E-5	4.35E-4	2.52E-3	5.71E-3	9.61R-3	1.12E-2	1.12E-2	1.10E-2
45	1.63e-5								
50	2.98E-5	1.49E-4	1.17E-3	5.77E-3	1.15E-2	1.80E-2	2.08E-2	2.00E-2	1.81E-2
70	1.32E-4	5.06E-4	3.08E-3	1.26E-2	2.47E-2	3.68E-2	4.01E-2	3.52E-2	3.10E-2
100	4.06E-4	1.21E-3	6.00E-3	2.19E-2	4.06E-2	5.90E-2	6.04E-2	5.14E-2	4.06E-2
140	8.92E-4	2.16E-3	8.86E-3	2.89E-2	5.32E-2	7.71E-2	7.89E-2	6.06E-2	4.48E-2
200	1.57E-3	3.26E-3	1.13E-2	3.40E-2	6.18E-2	9.29E-2	9.35 E-2	7.18E-2	4.66E-2
300	2.35E-3	4.40E-3	1.32E-2	3.67E-2	6.56E-2	1.01E-1	1.09E-1	8.23E-2	4.48E-2
500	3.12E-3	5.29E-3	1.39E-2	3.70E-2	6.52E-2	1.02E-1	1.25E-1	1.00E-1	4.32E-2
1000	3.48E-3	5.41E-3	1.30E-2	3.27E-2	5.68E-2	9.42E-2	1.26E-1	1.18E-1	4.88 E-2
1200	3.72E-3								

C → C

Particle reflection coefficient of C backscattered from C
zl= 6. ml = 12.01. z2= 6. m2= 12.01. sbe = 7.41 eV. *rho=1.85 g/cm**3*
ef=7.35 eV, esb=7.41 eV, ca=1.00. kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : trvmc. testvmcx
ne=18. na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10						6.67E-7		8.00E-8	1.20E-7
12					4.00E-8	7.91E-7	5.67E-6	9.98E-6	1.30E-5
15				5.00E-6	1.69E-5	1.07E-4	3.66E-4	5.13E-4	6.53E-4
17						6.76e-4			
20			7.00E-6	2.20E-4	1.14E-3	3.69E-3	8.11E-3	1.02E-2	1.17E-2
25		4.00E-6	1.38E-4	1.99E-3	7.19E-3	1.78E-2	3.26E-2	3.94E-2	4.35E-2
30	2.02E-6	3.46E-5	6.64E-4	6.27E-3	1.98E-2	4.43E-2	7.30E-2	8.64E-2	9.39E-2
40	2.82E-5	2.58E-4	3.16E-3	2.16E-2	5.60E-2	1.12E-1	1.75E-1	2.03E-1	2.20E-1
45	6.23e-5								
50	1.11E-4	7.41E-4	6.47E-3	3.74E-2	9.15E-2	1.81E-1	2.82E-1	3.25E-1	3.56E-1
70	4.23E-4	1.97E-3	1.30E-2	6.25E-2	1.43E-1	2.80E-1	4.51E-1	5.30E-1	5.76E-1
100	1.11E-3	3.76E-3	1.96E-2	7.98E-2	1.78E-1	3.51E-1	5.88E-1	6.89E-1	7.58E-1
140	2.14E-3	5.52E-3	2.34E-2	8.52E-2	1.83E-1	3.70E-1	6.34E-1	7.67E-1	8.53E-1
200	3.38E-3	7.28E-3	2.61E-2	8.48E-2	1.77E-1	3.50E-1	6.39E-1	7.91E-1	8.92E-1
300	4.36E-3	8.44E-3	2.53E-2	8.10E-2	1.62E-1	3.23E-1	6.08E-1	7.88E-1	9.18E-1
500	5.32E-3	8.91E-3	2.45E-2	7.09E-2	1.39E-1	2.73E-1	5.36E-1	7.40E-1	9.28E-1
1000	4.84E-3	7.34E-3	2.05E-2	5.91E-2	1.17E-1	2.24E-1	4.46E-1	6.36E-1	9.09E-1
1200	3.70E-3								

Energy reflection coefficient of C backscattered from C
ne=18. na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10						1.03E-7		1.50E-8	1.89E-8
12					6.97E-9	1.37E-7	1.11E-6	1.99E-6	2.57E-6
15				8.57E-7	2.73E-6	1.95E-5	7.67E-5	1.11E-4	1.45E-4
17						1.36e-4			
20			8.15E-7	3.51E-5	2.19E-4	8.51E-4	2.11E-3	2.78E-3	3.29E-3
25		1.95E-7	1.86E-5	3.63E-4	1.61E-3	4.77E-3	9.99E-3	1.28E-2	1.45E-2
30	1.34E-6	3.44E-6	9.73B-5	1.25E-3	4.93E-3	1.32E-2	2.49E-2	3.12E-2	3.48E-2
40	1.93E-6	2.59E-5	4.84E-4	4.83E-3	1.56E-2	3.79E-2	6.82E-2	8.34E-2	9.36E-2
45	1.08e-5								
50	7.52E-6	7.29E-5	9.88E-4	8.69E-3	2.69E-2	6.52E-2	1.18E-1	1.45E-1	1.64E-1
70	2.79E-5	1.89E-4	1.99E-3	1.46E-2	4.45E-2	1.09E-1	2.10E-1	2.62E-1	2.97E-1
100	6.78E-5	3.37E-4	2.82E-3	1.84E-2	5.61E-2	1.44E-1	3.00E-1	3.81E-1	4.43E-1
140	1.26E-4	4.75E-4	3.19E-3	1.91E-2	5.63E-2	1.55E-1	3.49E-1	4.70E-1	5.57E-1
200	1.98E-4	5.92E-4	3.44E-3	1.81E-2	5.19E-2	1.46E-1	3.69E-1	5.19E-1	6.41E-1
300	2.55E-4	6.40E-4	3.11E-3	1.60E-2	4.60E-2	1.31E-1	3.56E-1	5.43E-1	7.12E-1
500	2.94E-4	6.46E-4	2.90E-3	1.32E-2	3.58E-2	1.03E-1	3.02E-1	5.16E-1	7.63E-1
1000	2.72E-4	5.21E-4	2.30E-3	1.05E-2	2.84E-2	7.58E-2	2.33E-1	4.27E-1	7.75E-1
1200	1.98E-4								

Average depth (mean range) in Ä of C implanted in C
ne=19, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
8						5.02e-l	4.24e-l	3.97e-l	3.79e-l
10	1.28E+0	1.23E+0	1.lOE-j-O	9.28E-l	8.03E-1	6.90E-l	6.03E-1	5.72E-1	5.54E-1
12			1.23E+0	9.95E-1	8.08E-1	6.28E-1	4 83 E-l	4.33E-1	4.02E-1
15	1.81E+0	1.73E-J-0	1.54E + 0	1.24E4-0	9.36E-1	6.99E-1	5.13E-1	4.51E-1	4.11E-1
17						7.46e-l			
20	2.31E+0	2.21E + 0	1.95E + 0	1.48E+0	1.14E4-0	8.16E-1	5.71E-1	4.89E-1	4.38E-1
25	2.77E + 0	2.65E+0	2.30E + 0	1.75E+0	1.33E4-0	9.44E-1	6.36E-1	5.36E-1	4.74E-1
30	3.19E4-0	3.05E + 0	2.66E-J-0	2.03E + 0	1.50E + 0	1.10E+0	7.00E-1	6.00E-1	5.00E-1
40	3.97E+0	3.80E-J-0	3.32E-J-0	2.60E+0	2.00E+0	1.40E + 0	9.00E-1	8.00E-1	6.00E-1
45	4.34e+0								
50	4.69E4-0	4.49E+0	3.90E + 0	3.10E+0	2.40E+0	1.80E+0	1.10E-J-0	9.00E-1	8.00E-1
70	5.99E4-0	5.75E+0	5.10E-J-0	4.10E4-0	3.30E + 0	2.50E + 0	1.70E+0	1.40E + 0	1.20E+0
100	7.74E+0	7.40E+0	6.70E + 0	5.50E4-0	4.60E + 0	3.80E + 0	2.80E-J-0	2.30E + 0	1.90E4-0
140	9.84E + 0	9.50E+0	8.50E + 0	7.20E4-0	6.20E + 0	5.20E+0	4.00E+0	3.50E4-0	3.00E+0
200	1.27E4-1	1.23E+1	1.11E + 1	9.40E+0	8.20E4-0	6.90E + 0	5.70E+0	5.00E + 0	4.20E4-0
300	1.71E+1	1.65E4-1	1.50E + 1	1.27E+1	1.10E+1	9.40E + 0	7.90E+0	7.10E+0	6.00E + 0
500	2.51E+1	2.43E-J-1	2.20E+1	1.87E + 1	1.63E+1	1.38E+1	1.17E + 1	1.07E4-1	9.50E4-0
1000	4.34E4-1	4.20E+1	3.80E+1	3.22E+1	2.78E + 1	2.38E+1	2.03E + 1	1.85E+1	1.71E+1
1200	4.14E + 1								

C → C

Sputtering yield of C by C
zl = 6, ml = 12.01. z2 = 6, m2= 12.01. sbe=7.42 eV. rho = 2.26 g/cm**3
ef=7.37 eV. esb = 7.42 eV, ca=1.00. kk0=kk0r=2. kdeel=kdee2=3. ipot=ipotr=l (KrC)
program : testvmcx, trspvlcn. trvmc95, trvmc
ne=36, na= 7

Bo(eV)	0°	30°	45°	50°	70°	75°	85°
8					2.63e-6		
10					1.83e-5		
12					5.49e-5		
14					1.14e-4		
15					1.72e-4		
20					1.32e-3		
25	5.72e-6				5.72e-3		
28	1.15e-5						
30	1.94E-5				1.40e-2		
35	5.53e-5						
40	1.44e-4				4.16e-2		
45	2.97e-4						
50	5.33E-4				7.77e-2		
50	5.75e-4						
70	2.72E-3				1.55e-l		
100	9.31E-3				2.64e-l		
100	1.Ole-2						
150	2.65e-2						
200	4.51e-2				5.98c-1		
200	4.60e-2						
500	1.27E-1				1.27e-0		
500	1.30e-l						
1000	1.92E-1				1.81e-0		
1000	1.85e-l						
1200	2.13e-l						
2000	2.26e-l				2.16e-0		
2000	2.24e-l						
3000		4.59e-l	8.23e-l			2.68e-0	1.23e-0
3000			8.27e-l	1.03e-0			
5000	2.54e-l				2.35e-0		
5000	2.34e-l						
10000	2.25E-1				2.06e-0		
10000	2.12e-l			7.67e-l			
30000	1.60E-1				1.13e-0		
30000	1.56e-l						
100000	8.58e-2				4.39e-l		

Sputtered energy of C by C
ne=36., na= 7

E_0 (eV)	0°	30°	45°	50°	70°	75°	85°
8					3.50e-7		
10					2.67e-6		
12					8.99e-6		
14					2.04e-5		
15					3.07e-5		
20					2.69e-4		
25	6.76e-7				1.27e-3		
28	7.46e-7						
30	1.23E-6				3.30e-3		
35	3.69e-6						
40	8.84e-6				1.04e-2		
45	1.88e-5						
50	3.16E-5				1.97e-2		
50	3.43e-5						
70	1.42E-4				3.82e-2		
100	4.30E-4				6.00e-2		
100	4.89e-4						
150	1.04e-3						
200	1.62e-3				9.82e-2		
200	1.60e-3						
500	3.26E-3				1.22e-l		
500	3.19e-3						
1000	3.56E-3				1.13e-l		
1000	3.27e-3						
1200	3.73e-3						
2000	3.07e-3				9.71e-2		
2000	2.86e-3						
3000		9.06e-3	2.27e-2			1.07e-l	6.04e-2
3000			2.15e-2	2.92e-2			
5000	2.15e-3				7.36e-2		
5000	1.96e-3						
10000	1.32E-3				5.13e-2		
10000	1.24e-3			1.36e-2			
30000	4.66E-4				1.68e-2		
30000	5.03e-4						
100000	1.08e-4				2.34e-3		

C → C

Particle reflection coefficient of C backscattered from C
z1 = 6. m1 = 12.01. z2= 6. m2= 12.01. sbe=7.42 eV. rho = 2.26 g/cm**3
ef=7.37 eV. esb = 7.42 eV. ca=1.00, kk0=kk0r=2. kdeel =kdee2=3. ipot=ipotr = 1 (KrC)
program : testvmcx, trspvlcn. trvmc95. trvmc
ne = 34. na= 7

E_0 (eV)	0°	30°	45°	50°	70°	75°	85°
12					2.82e-6		
14					5.91e-5		
15					1.86e-4		
20					5.44e-3		
25	1.41e-7				2.61e-2		
28	4.65e-7						
30	1.45E-6				6.32e-2		
35	8.15e-6						
40	2.88e-5				1.58e-1		
45	6.58e-5						
50	1.14E-4				2.59e-1		
50	1.10e-4						
70	5.03E-4				4.13e-1		
100	1.25E-3				5.28e-1		
100	1.33e-3						
150	2.46e-3						
200	3.45e-3				5.42e-1		
200	3.03e-3						
500	5.29E-3				4.05e-1		
500	3.84e-3						
1000	5.04E-3				3.37e-1		
1000	4.04e-3						
1200	3.70e-3						
2000	3.95e-3				2.91e-1		
2000	3.56e-3						
3000		1.30e-2	4.01e-2			3.56e-1	8.28e-1
3000			4.19e-2	6.01e-2			
5000	1.60e-3				2.28e-1		
5000	1.82e-3						
10000	1.10E-3				1.88e-1		
10000	1.16e-3			3.75e-2			
30000	4.67E-4				1.46e-1		
30000	4.20e-4						
100000	5.79e-5				7.52e-2		

Energy reflection coefficient of C backscattered from C
ne=34. na= 7

E_0 (eV)	0°	30°	45°	50°	70°	75°	85°
12					1.47e-6		
14					1.16e-5		
15					3.82e-5		
20					1.31e-3		
25	3.63e-7				7.34e-3		
28	2.09e-7						
30	1.02E-7				1.99e-2		
35	6.11e-7						
40	2.05e-6				5.69e-2		
45	4.74e-6						
50	8.44E-6				1.01e-1		
50	1.22e-5						
70	3.40E-5				1.78e-1		
100	7.89E-5				2.48e-1		
100	8.64e-5						
150	1.51e-4						
200	2.08e-4				2.77e-1		
200	1.83e-4						
500	2.88E-4				1.94e-1		
500	2.02e-4						
1000	2.99E-4				1.44e-1		
1000	2.29e-4						
1200	1.09e-4						
2000	2.28e-4				1.14e-1		
2000	2.20e-4						
3000		1.44e-3	6.86e-3			1.63e-1	7.05e-1
3000			7.31e-3	1.22e-2			
5000	8.71e-5				8.49e-2		
5000	1.08e-4						
10000	6.68E-5				6.84e-2		
10000	5.59e-5			7.28e-3			
30000	1.27E-5				4.50e-2		
30000	2.22e-5						
100000	2.47e-6				1.54e-2		

$C \rightarrow C$

Average depth (mean range) in Ä of C implanted in C
zl = 6. ml = 12.01. z2= 6. m2= 12.01. sbe=7.42 eV. rho = 2.26 g/cm**3
ef=7.37 eV. esb = 7.42 eV. ca=1.00. kk0=kk0r=2 , kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx. trspvlcn. trvmc95. trvmc
ne=37., na= 7

E_0 (eV)	0°	30°	45°	50°	70°	75°	85°
8					2.59e-l		
10					3.16e-l		
12					3.46e-l		
14					3.67e-l		
15					3.76e-l		
20	1.46e+0				4.33e-l		
25	2.10e4-0				4.98e-l		
28	2.31e + 0						
30	2.45E+0				5.74e-l		
30	2.03e + 0						
35	2.78e+0						
40	3.09e+0				7.59e-l		
45	3.39e+0						
50	3.68E+0				9.81e-l		
50	3.07e+0						
70	4.74E+0				1.53e+0		
100	6.17E+0				2.48e + 0		
100	5.30e+0						
150	8.30e + 0						
200	1.02e+l				4.95e + 0		
200	9.08e+0						
500	2.04E4-1				1.02e + l		
500	1.89e+l						
1000	3.54E+1				1.81e + l		
1000	3.37e + l						
1200	4.11e4-l						
2000	6.41e + l				3.14e + l		
2000	6.18e + l						
3000		8.05e + l	6.74e + l			4.08e+l	3.49e + l
3000			6.76e + l	6.29e + l			
5000	1.49e+2				6.97e + l		
5000	1.46e+2						
10000	2.94E + 2				1.34e4-2		
10000	2.91e+2			1.96e4-2			
30000	8.82E+2				3.69e+2		
30000	8.77e+2						
100000	2.72e+3				1.02e + 3		

C → C

Sputtering yield of C by C
zl = 6, ml = 12.01, z2= 6. m2 = 12.01, sbe = 7.40 eV, *rho=2.00 g/cm**3*
ef=7.35, 6.90 eV, esb=7.40 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=:3. ipot=ipotr= 1 (KrC)
program : testvmcx. newtrim (Laszlo), trspvmc
ne=22, na= 7

E_0 (eV)	0°	30°	45°	60°	65°	70°	80°
17					3.83e-4		
18					5.37e-4		
18					3.06e-4		
19					8.09e-4		
19					5.21e-4		
20					1.23e-3		
20					8.65e-4		
25					5.22e-3		
25					4.62e-3		
30					1.26e-2		
45	2.59e-4						
50	5.05E-4				8.12e-2		
53	7.48e-4						
55	8.66e-4						
70	2.62E-3				1.73e-l		
100	9.49E-3				3.12e-l	2.83e-l	
150						4.57e-l	
300	7.36e-2				8.97e-l		
300	8.05e-2	2.33e-l	4.85e-l	8.16e-l		8.49e-l	4.66e-l
1000	1.79e-l	4.23e-l	7.37e-l	1.38e-0		1.73e-0	1.39e-0
3000	2.49e-l			1.50e-0		2.25e-0	2.68e-0
6000						2.26e-0	

Sputtered energy of C by C

B_0 (eV)	0°	30°	45°	60°	65°	70°	80°
17					6.68e-5		
18					9.62e-5		
18					5.66e-5		
19					1.53e-4		
19					9.95e-5		
20					2.35e-4		
20					1.71e-4		
25					1.10e-3		
25					1.Ole-3		
30					2.89e-3		
45	1.63e-5						
50	3..05E-5				1.92e-2		
53	4.28e-5						
55	5.05e-5						
70	1.37E-4				3.90e-2		
100	4.36E-4				6.35e-2	6.37e-2	
150						8.66e-2	
300	2.24e-3				9.96e-2		
300	2.41e-3	1.30e-2	3.85e-2	8.21e-2		1.08e-l	7.84e-2
1000	3.54e-3	1.36e-2	2.99e-2	7.40e-2		1.14e-l	l.lle-1
3000	2.80e-3			4.91e-2		9.20e-2	1.12e-l
6000						6.34e-2	

C → C

Particle reflection coefficient of C backscattered from C
zl = 6. ml = 12.01. z2= 6. m2= 12.01. sbe=7.40 eV. *rho=2.00 g/cm**3*
ef=7.35, 6.90 eV. esb=7.40 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx. newtrim (Laszlo), trspvmc
ne=22, na= 7

E_0 (eV)	0°	30°	45°	60°	65°	70°	80°
17					6.42e-4		
18					1.30e-3		
18					1.27e-3		
19					2.24e-3		
19					2.21e-3		
20					3.77e-3		
20					3.60e-3		
25					1.87e-2		
25					1.86e-2		
30					4.49e-2		
45	6.93e-5						
50	1.13E-4				1.90e-l		
53	1.53e-4						
55	1.79e-4						
70	3.98E-4				2.96e-l		
100	1.30E-3				3.68e-l	4.84e-l	
150						5.19e-l	
300	4.27e-3				3.40e-l		
300	4.47e-3	2.54e-2	8.19e-2	2.47e-l		4.73e-l	8.06e-l
1000	4.46e-3	1.76e-2	5.98e-2	1.54e-l		3.40e-l	6.56e-l
3000	3.98e-3			1.34e-l		2.44e-l	4.93e-l
6000						2.42e-l	

Energy reflection coefficient of C backscattered from C
ne=22, na= 7

E_0 (eV)	0°	30°	45°	60°	65°	70°	80°
17					1.37e-4		
18					2.75e-4		
18					2.65e-4		
19					4.90e-4		
19					4.81e-4		
20					8.47e-4		
20					8.15e-4		
25					4.94e-3		
25					4.81e-3		
30					1.32e-2		
45	4.84e-6						
50	7.50E-6				6.87e-2		
53	9.82e-6						
55	1.13e-5						
70	2.73E-5				1.16e-l		
100	8.89E-5				1.52e-l	2.25e-l	
150						2.55e-l	
300	2.31e-4				1.38e-l		
300	2.54e-4	3.23e-3	1.66e-2	8.64e-2		2.32e-l	5.63e-l
1000	2.13e-4	1.70e-3	1.03e-2	4.55e-2		1.40e-l	4.52e-l
3000	1.31e-4			3.69e-2		9.34e-2	2.91e-l
6000						8.17e-2	

Average depth- (mean range) in Ä of C implanted in C
ne=22., na= 7

E_0 (eV)	0°	30°	45°	60°	65°	70°	80°
17					6.36e-l		
18					6.57e-l		
18					3.12e-l		
19					6.77e-l		
19					5.73e-l		
20					6.97e-l		
20					6.87e-l		
25					8.07e-l		
25					8.05e-l		
30					9.36e-l		
45	3.51e + 0						
50	3.86E+0				1.53e+0		
53	4.08e + 0						
55	4.21e + 0						
70	5.12E+0				2.33e+0		
100	7.09E+0				3.40e-|-0	2.94e-0	
150						4.49e-0	
300	1.57e+l				8.64e+0		
300	1.57e+l	1.39e-H	1.18e + l	9.29e-0		8.22e-0	6.46e-0
1000	4.00e + l	3.50e+l	3.09e-f-l	2.39e + l		1.98e+l	1.70e+l
3000	1.03e+2			5.99e + l		5.13e+l	4.15e+l
6000						9.50e+l	

$C \rightarrow C$

C on C. Maxwellian velocity distribution, sheath potential 0 kT
zl = 6, ml = 12.01, z2 = 6. m2= 12.01. sbe=7.42 eV. rho = 2.26 g/cm**3
ef=7.37), esb=7.42 eV, ca=1.00. kk0 = kk0r=2. kdeel=kdee2 = 3, ipot=ipotr=l(KrC)
program: testvmcx
ne= 11

kT(eV)	Y	Ye	Esp	R w	Re	Eb	range
5	4.24e-4	2.85e-4	6.71e + 0	1.27e-3	1.28e-3	1.01e+l	4.93e-l
7	1.63e-3	9.62e-4	8.23e + 0	4.78e-3	4.51e-3	1.32e4-l	6.95e-l
10	5.88e-3	3.00e-3	1.02e+l	1.44e-2	1.19e-2	1.66e+l	9.77e-l
20	3.35e-2	1.22e-2	1.46e+l	5.89e-2	4.11e-2	2.80e + l	1.82e + 0
50	1.54e-l	3.22e-2	2.09e+l	1.40e-l	7.71e-2	5.54e-f-l	4.10e + 0
100	3.15e-l	4.28e-2	2.78e + l	1.70e-l	8.35e-2	9.85e-f-l	7.39e + 0
200	5.06e-l	4.60e-2	3.64e+l	1.72e-l	7.55e-2	1.75e+2	1.27e + l
500	7.67e-l	4.21e-2	5.49e+l	1.46e-l	5.87e-2	4.02e+2	2.67e+l
1000	9.08e-l	3.54e-2	7.75e+l	1.22e-l	4.77e-2	7.75e + 2	4.79e + l
2000	9.94e-l	2.72e-2	1.09e + 2	1.02e-l	3.72e-2	1.46e + 3	9.01e4-l
5000	9.16e-l	1.58e-2	1.73e+2	8.36e-2	2.93e-2	3.52e + 3	2.16e + 2

C on C, Maxwellian velocity distribution, sheath potential 3 kT
ne= 13

kT(eV)	Y	Ye	Esp	R?7	Re	Eb	range
3.5	2.87e-4	7.74e-5	4.72e+0	3.71e-4	1.61e-4	7.58e+0	1.29ed-0
5	1.45e-3	3.68e-4	6.36e-j-0	1.75e-3	6.70e-4	9.57e+0	1.78e + 0
7	5.25e-3	1.19e-3	7.91e4-0	5.15e-3	1.76e-3	1.19e + l	2.37e + 0
10	1.58e-2	2.81e-3	8.92e + 0	1.03e-2	3.12e-3	1.51e4-l	3.17e+0
14	3.44e-2	5.08e-3	1.03e+l	1.52e-2	3.99e-3	1.84e + l	4.14e + 0
20	6.52e-2	7.68e-3	1.18e + l	2.02e-2	4.53e-3	2.25e + l	5.44e + 0
30	1.14e-l	1.05e-2	1.37e+l	2.22e-2	4.58e-3	3.09e + l	7.36e+0
50	1.82e-l	1.25e-2	1.72e+l	2.33e-2	4.04e-3	4.34e + l	1.08e + l
100	2.77e-l	1.31e-2	2.36e-f-l	2.14e-2	3.33e-3	7.78e+l	1.84e+l
200	3.56e-l	1.18e-2	3.31e4-l	1.79e-2	2.54e-3	1.42e + 2	3.19e4-l
500	4.05e-l	8.48e-3	5.24e + l	1.25e-2	1.76e-3	3.52e + 2	7.03e + l
1000	3.86e-l	5.88e-3	7.62e + l	9.26e-3	1.35e-3	7.30e+2	1.33e+2
2000	3.37e-l	3.70e-3	1.09e+2	4.60e-3	6.80e-4	1.46e-{-3	2.61e+2

C on C, Maxwellian velocity distribution, sheath potential 9 kT
ne= 15

kT(eV)	Y	Ye	Esp	Rjv	Re	E_b	range
2	8.57e-5	1.32e-5	3.39e + 0	6.90e-5	1.48e-5	4.72e+0	2.13e-}-0
3	7.70e-4	1.05e-4	4.52e-}-0	5.20e-4	1.10e-4	6.82e-j-0	2.48e+0
5	6.07e-3	6.76e-4	6.13e + 0	2.78e-3	4.83e-4	9.55e-}-0	3.72e + 0
7	1.68e-2	1.55e-3	7.09e+0	4.92e-3	7.25e-4	1.13e-}-l	4.80e + 0
10	3.69e-2	2.82e-3	8.41e + 0	7.52e-3	1.Ole-3	1.48e + l	6.28e+0
14	6.35e-2	4.00e-3	9.71e+0	9.15e-3	1.09e-3	1.83e + l	8.04e + 0
20	9.93e-2	5.22e-3	1.16e-J-l	1.07e-2	1.20e-3	2.47e + l	1.05e + l
30	1.47e-l	6.34e-3	1.43e + l	1.09e-2	1.12e-3	3.39e + l	1.42e+l
50	2.02e-l	6.84e-3	1.87e + l	1.06e-2	9.51e-4	4.95e-H	2.09e + l
100	2.68e-l	6.39e-3	2.63e-{-l	9.12e-3	8.05e-4	9.70e+l	3.66e + l
200	3.06e-l	5.17e-3	3.71e-f-l	6.74e-3	6.Ole-4	1.96e + 2	6.66e-}-l
500	3.01e-l	3.28e-3	6.01e + l	4.43e-3	4.39e-4	5.45e+2	1.55e+2
1000	2.52e-l	1.97e-3	8.60e-|-l	2.65e-3	1.81e-4	7.51e+2	3.50e+2
2000	2.01e-l	1.19e-3	1.30e + 2	7.32e-4	3.52e-5	1.06e + 3	6.93e-}-2
5000	1.33e-l	3.78e-4	1.57e+2				1.70e+3

$^{13}C \rightarrow {}^{12}C$

Particle reflection coefficient of ^{13}C backscattered from ^{12}C
zl = 6, ml= 13.00. z2= 6. m2= 12.00, sbe=7.41 eV, rho=2.26 g/cm**3
ef=0.50 eV, esb=7.41 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00
program : trvmc95
ne=10, na= 1

B_0 (eV)	0°	comment
22	3.03e-2	ef=7.35 eV. esb=0.00 eV
22	4.51e-2	esb=0.00 eV
47	2.00e-5	
72	1.50e-4	
92	3.30e-4	
122	6.60e-4	
222	1.95e-3	
472	3.33e-3	
692	3.34e-3	
1000	3.32e-3	

Particle reflection coefficient of ^{13}C backscattered from ^{12}C
ne=10, na= 1

E_0 (eV)	0°	comment
22	7.19e-5	ef=7.35 eV, esb = 0.00 eV
22	8.57e-4	esb=0.00 eV
47	1.53e-6	
72	8.Ole-6	
92	1.97e-5	
122	3.07e-5	
222	9.47e-5	
472	1.58e-4	
692	1.64e-4	
1000	1.48e-4	

Moments of depth distribution in Å of ^{13}C implanted in ^{12}C
zl = 6, ml = 13.00, z2= 6, m2= 12.00, sbe=7.41 eV, rho = 2.26 g/cm**3
ef=0.50 eV, esb=7.41 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00
program : trvmc95
ne=10, na= 1

E_0 (eV)	range	sigma	skewness	kurtosis	comment
10	1.46e+0	9.74e-l	3.61e-l	2.51e+0	
22	1.39e+0	8.18e-l	2.98e-l	2.28e4-0	ef=7.35 eV, esb=0.00 eV
22	1.88e-}-0	1.16e+0	2.88e-l	2.50e+0	ef=7.35 eV, esb=7.41 eV
22	2.38e+0	1.34e-|-0	2.18e-l	2.53e-}-0	
22	2.40ed-0	1.37e-J-0	2.27e-l	2.54e+0	kdeel=kdee2=2
22	2.32e+0	1.30e4-0	2.05e-l	2.54e+0	kdeel=kdee2=l
22	2.55e+0	1.44e-}-0	2.48e-l	2.59e4-0	kkO=kkOr=l
22	2.29e+0	1.30e+0	2.09e-l	2.53e+0	kk0=kk0r=3
22	2.59e+0	1.47e+0	2.64e-l	2.59e+0	ipot=ipotr=3
22	2.39e-|-0	1.36e+0	2.26e-l	2.54e-f-0	ck=0.50
22	2.42e+0	1.39e+0	2.33e-l	2.54e+0	ck=0.00
22	3.41e-|-0	1.95e-|-0	3.04e-l	2.67e+0	kkO=kkOr=O
22	1.91e+0	1.05e+0	3.15e-l	2.52e+0	esb=0.00 eV
32	3.00e+0	1.61e+0	2.03e-l	2.58e+0	
47	3.87e4-0	1.99e+0	2.11e-l	2.62e+0	
72	5.15e+0	2.59e+0	2.53e-l	2.68e-|-0	
92	6.08e4-0	3.04e+0	2.82e-l	2.69e+0	
122	7.39e+0	3.67e+0	3.11e-l	2.73e+0	
222	1.13e+l	5.56e4-0	3.88e-l	2.86e+0	
472	1.95e-H	9.62e4-0	4.35e-l	2.94e+0	
692	2.63e+l	1.28e+l	4.29e-l	2.91e-j-0	
1000	3.54e+l	1.70e-|-l	4.06e-l	2.88e4-0	

N C

Sputtering yield of C by N
zl = 7, ml= 14.01. z2= 6. m2= 12.01, sbe=7.41 eV. *rho=1.85 g/cm**3*
ef=0.95 eV. esb = 1.00 eV. ca=1.00. kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc
ne=14., na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
15				7.93E-6	1.68E-5		1.28E-5	5.29E-6	3.00E-6	2.15E-6
20			1.31E-5	9.85E-5	1.41E-4		1.57E-4	1.31E-4	9.04E-5	5.71E-5
25		3.60E-6	7.67E-5	3.70E-4	8.16E-4		1.36E-3	9.78E-4	5.75E-4	2.91E-4
30	1.12E-6	1.78E-5	2.39E-4	1.40E-3	3.41E-3		5.10E-3	3.15E-3	1.58E-3	6.70E-4
40	1.81E-5	1.55E-4	1.70E-3	9.34E-3	1.85E-2		2.20E-2	1.10E-2	4.46E-3	1.46E-3
50	1.23E-4	7.40E-4	6.03E-3	2.68E-2	4.57E-2		4.89E-2	2.25E-2	8.25E-3	2.06E-3
70	1.11E-3	4.30E-3	2.38E-2	7.85E-2	1.19E-1		1.22E-1	5.45E-2	1.77E-2	2.89E-3
100	5.53E-3	1.50E-2	5.98E-2	1.64E-1	2.42E-1		2.52E-1	1.14E-1	3.47E-2	3.66E-3
140	1.63E-2	3.47E-2	1.08E-1	2.62E-1	3.84E-1		4.19E-1	2.05E-1	6.24E-2	4.54E-3
200	3.68E-2	6.42E-2	1.67E-1	3.75E-1	5.52E-1		6.31E-1	3.57E-1	1.16E-1	6.18E-3
300	6.94E-2	1.06E-1	2.39E-1	5.06E-1	7.46E-l		9.08E-1	6.20E-1	2.27E-1	1.03E-2
500	1.21E-1	1.68E-1	3.30E-1	6.55E-1	9.78E-1		1.27E+0	1.10E+0	5.16E-1	2.45E-2
1000	1.96E-1	2.53E-1	4.40E-l	8.31E-1	1.24E+0		1.74E+0	1.90E+0	1.29E+0	1.08E-1
15000						1.15e-0				

Sputtered energy of C by N
ne=14, na=10

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
15				5.85e-7	1.62e-6		1.63e-6	8.24e-7	5.39e-7	4.74e-7
20			8.14e-7	9.36E-6	1.81E-5		2.53E-5	2.41E-5	1.75E-5	1.21E-5
25		1.79e-7	5.56E-6	4.12E-5	1.19E-4		.2.44E-4	2.04E-4	1.26E-4	6.56E-5
30	4.60e-8	9.61e-7	2.01E-5	1.77E-4	5.65E-4		1.03E-3	7.42E-4	3.88E-4	1.70E-4
40	7.69e-7	9.64E-6	1.65E-4	1.38E-3	3.42E-3		5.00E-3	2.90E-3	1.22E-3	4.08E-4
50	5.63E-6	4.88E-5	6.15E-4	4.11E-3	8.78E-3		1.16E-2	6.26E-3	2.34E-3	5.70B-4
70	5.03E-5	2.78E-4	2.33E-3	1.16E-2	2.25E-2		2.87E-2	1.52E-2	5.08E-3	7.77E-4
100	2.35E-4	8.73E-4	5.28E-3	2.18E-2	4.11E-2		5.40E-2	3.00E-2	9.43E-3	8.90E-4
140	6.37E-4	1.81E-3	8.44E-3	3.02E-2	5.63E-2		7.81E-2	4.85E-2	1.55E-2	9.68E-4
200	1.31E-3	2.97E-3	1.13E-2	3.64E-2	6.76E-2		9.75E-2	7.19E-2	2.53E-2	1.12E-3
300	2.20E-3	4.21E-3	1.36E-2	4.02E-2	7.26E-2		1.10E-1	9.84-E-2	4.16E-2	.1.59E-3
500	3.13E-3	5.39E-3	1.49E-2	4.05E-2	7.23E-2		1.14E-1	1.26E-1	7.07E-2	3.Ö7E-3
1000	3.74E-3	5.89E-3	1.44E-2	3.67E-2	6.45E-2		1.06E-1	1.40E-1	1.12E-1	1.08E-2
15000						2.18e-2				

N → C

Particle reflection coefficient of N backscattered from C
zl = 7, ml= 14.01. z2= 6. m2= 12.01, sbe=7.41 eV. *rho—1.85 g/cm**3*
ef=0.95 eV, esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc
ne=16, na=10

Eo(eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	2.78e-6	3.02E-4	7.13E-3	5.63E-2	1.54E-1		3.21E-1	5.10E-1	5.80E-1	6.20E-1
12	3.84E-5	9.46E-4	1.48E-2	9.34E-2	2.23E-1		4.28E-1	6.38E-1	7.12E-1	7.55E-1
15	2.85E-4	2.71E-3	2.76E-2	1.43E-1	3.07E-1		5.40E-1	7.65E-1	8.37E-1	8.76E-1
20	1.06E-3	6.20E-3	4.57E-2	1.98E-1	3.90E-1		6.40E-1	8.61E-1	9.23E-1	9.54E-1
25	1.91E-3	8.99E-3	5.65E-2	2.24E-1	4.28E-1		6.83E-1	8.96E-1	9.53E-1	9.78E-1
30	2.62E-3	1.08E-2	6.18E-2	2.34E-1	4.41E-1		6.97E-1	9.11E-1	9.65E-1	9.87E-1
40	3.62E-3	1.27E-2	6.46E-2	2.34E-1	4.39E-1		7.00E-1	9.21E-1	9.75E-1	9.94E-1
50	4.27E-3	1.34E-2	6.31E-2	2.23E-1	4.24E-1		6.87E-1	9.23E-1	9.79E-1	9.96E-1
70	4.93E-3	1.36E-2	5.76E-2	1.97E-1	3.85E-1		6.53E-1	9.16E-1	9.81E-1	9.98E-1
100	5.57E-3	1.32E-2	5.01E-2	1.66E-1	3.32E-1		5.98E-1	8.96E-1	9.79E-1	9.99E-1
140	5.53E-3	1.23E-2	4.25E-2	1.38E-1	2.81E-1		5.32E-1	8.65E-1	9.73E-1	9.99E-1
200	5.43E-3	1.11E-2	3.66E-2	1.14E-1	2.36E-1		4.59E-1	8.15E-1	9.61E-1	9.99E-1
300	4.94E-3	9.64E-3	3.00E-2	9.41E-2	1.92E-1		3.82E-1	7.38E-1	9.34E-1	9.99E-1
500	4.45E-3	7.91E-3	2.36E-2	7.36E-2	1.50E-1		3.04E-1	6.20E-1	8.68E-1	9.98E-1
1000	3.28E-3	5.77E-3	1.70E-2	5.49E-2	1.16E-1		2.34E-1	4.79E-1	7.23E-1	9.87E-1
15000						6.88e-2				

Energy reflection coefficient of N backscattered from C
ne=16, na=10

Eo(eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	1.53e-7	2.59E-5	9.18E-4	1.06E-2	3.86E-2		1.05E-1	2.06E-1	2.52E-1	2.82E-1
12	2.25e-6	8.41E-5	2.00E-3	1.85E-2	5.82E-2		1.47E-1	2.76E-1	3.34E-1	3.73E-1
15	1.78E-5	2.40E-4	3.86E-3	2.96E-2	8.44E-2		1.98E-1	3.61E-1	4.34E-1	4.81E-1
20	6.53E-5	5.58E-4	6.39E-3	4.29E-2	1.14E-1		2.54E-1	4.54E-1	5.42E-1	6.00E-1
25	1.12E-4	7.84E-4	7.82E-3	4.97E-2	1.30E-1		2.85E-1	5.08E-1	6.09E-1	6.74E-1
30	1.44E-4	9.01E-4	8.39E-3	5.24E-2	1.38E-1		3.02E-1	5.42E-1	6.53E-1	7.24E-1
40	1.79E-4	9.73E-4	8.37E-3	5.21E-2	1.41E-1		3.15E-1	5.80E-1	7.07E-1	7.88E-1
50	1.93E-4	9.53E-4	7.79E-3	4.89E-2	1.36E-1		3.15E-1	5.98E-1	7.38E-1	8.27E-1
70	2.00E-4	8.59E-4	6.55E-3	4.14E-2	1.22E-1		3.01E-1	6.09E-1	7.69E-1	8.71E-1
100	1.97E-4	7.55E-4	5.20E-3	3.30E-2	1.01E-1		2.72E-1	6.01E-1	7.86E-1	9.03E-1
140	1.82E-4	6.53E-4	4.11E-3	2.55E-2	8.07E-2		2.35E-1	5.77E-1	7.88E-1	9.23E-1
200	1.73E-4	5.49E-4	3.34E-3	1.98E-2	6.29E-2		1.92E-1	5.33E-1	7.76E-1	9.36E-1
300	1.52E-4	4.60E-4	2.59E-3	1.52E-2	4.73E-2		1.49E-1	4.65E-1	7.43E-1	9.44E-1
500	1.44E-4	3.77E-4	1.95E-3	1.11E-2	3.39E-2		1.07E-1	3.65E-1	6.66E-1	9.44E-1
1000	1.15E-4	2.80E-4	1.43E-3	7.86E-3	2.43E-2		7.36E-2	2.49E-1	5.10E-1	9.21E-1
15000						1.60e-2				

Average depth (mean range) in A of N implanted in C
ne=16, na=10

E_0(eV)	0°	15°	30°	45°	55°	60°	65°	75°	80°	85°
10	1.20E+0	1.10E+0	9.00E-1	6.00E-1	5.00E-1		3.00E-1	2.00E-1	1.00E-1	1.00E-1
12	1.40E + 0	1.30E+0	1.10E+0	8.00E-1	6.00E-1		4.00E-1	2.00E-1	2.00E-1	1.00E-1
15	1.70E4-0	1.60E+0	1.30E+0	1.00E4-0	8.00E-1		5.00E-1	3.00E-1	2.00E-1	2.00E-1
20	2.20E+0	2.00E4-0	1.80E4-0	1.40E4-0	1.10E4-0		8.00E-1	5.00E-1	4.00E-1	3.00E-1
25	2.60E+0	2.50E4-0	2.20E+0	1.70E+0	1.30E + 0		1.00E+0	5.00E-1	3.00E-1	2.00E-1
30	3.10E+0	2.90E4-0	2.50E4-0	2.10E4-0	1.70E+0		1.20E+0	8.00E-1	7.00E-1	5.00E-1
40	3.80E+0	3.60E4-0	3.20E+0	2.60E4-0	2.30E4-0		1.80E+0	1.20E+0	9.00E-1	6.00E-1
50	4.50E+0	4.30E4-0	3.60E + 0	3.20E+0	2.70E4-0		2.20E+0	1.50E+0	1.10E+0	9.00E-1
70	5.70E+0	5.50E+0	4.60E + 0	4.20E+0	3.60E+0		3.OOE4-O	2.10E4-0	1.60E4-0	1.10E+0
100	7.40E+0	7.10E+0	6.00E + 0	5.40E4-0	4.70E+0		4.00E4-0	3.00E4-0	2.40E+0	1.60E+0
140	9.40E+0	9.00E+0	8.20E+0	6.90E+0	6.00E4-0		5.10E4-0	4.00E+0	3.30E4-0	2.20E+0
200	1.20E + 1	1.16E4-1	1.05E+1	8.90E+0	7.70E4-0		6.60E+0	5.40E+0	4.60E + 0	3.20E+0
300	1.60E+1	1.55E+1	1.40E+1	1.18E4-1	1.02E4-1		8.70E4-0	7.30E4-0	6.40E+0	4.80E+0
500	2.32E-H	2.24E+1	2.02E + 1	1.71E+1	1.48E + 1		1.26E + 1	1.06E4-1	9.50E+0	7.60E4-0
1000	3.94E4-1	3.80E+1	3.44E+1	2.89E+1	2.50E4-1		2.10E + 1	1.76E + 1	1.62E4-1	1.39E4-1
15000						2.48e+2				

N → C

Sputtering yield of C by N
zl= 7. ml= 14.01. z2= 6. m2= 12.01, sbe=7.41 eV, rho = 2.26 g/cm**3
ef=0.95 eV. esb=1.00 eV. ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: trvmc
ne= 2. na=12

B_0 (eV)	0°	10°	20°	30°	40°	50°	60°	70°	75°	80°	85°	87°
15000	2.64e-l	2.79e-l	3.25e-l	4.11e-l	5.54e-l	8.02e-l	1.28e-0	2.24e-0	2.99e-0	3.87e-0	4.04e-0	2.05e-0
30000	2.15e-l	2.23e-l	2.54e-l	3.07e-l	3.95e-l	5.43e-l	8.37e-l	1.53e-0	2.21e-0	3.22e-0	4.29e-0	

Sputtered energy of C by N
ne= 2. na=12

B_0 (eV)	0°	10°	20°	30°	40°	50°	60°	70°	75°	80°	85°	87°
15000	1.21e-3	1.44e-3	2.15e-3	3.74e-3	6.70e-3	1.23e-2	2.40e-2	4.68e-2	6.32e-2	7.90e-2	7.72e-2	4.05e-2
30000	6.40e-4	7.57e-4	1.14e-3	1.92e-3	3.34e-3	5.90e-3	1.10e-2	2.30e-2	3.47e-2	4.93e-2	5.72e-2	

Particle reflection coefficient of N backscattered from C
zl= 7, ml= 14.01, z2= 6. m2= 12.01, sbe = 7.41 eV, rho=2.26 g/cm**3
ef=0.95 eV, esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: trvmc
ne= 2. na=12

E_0 (eV)	0°	10°	20°	30°	40°	50°	60°	70°	75°	80°	85°	87°
15000	3.93e-4	5.85e-4	1.27e-3	3.41e-3	9.43e-3	2.65e-2	7.02e-2	1.70e-l	2.60e-l	3.85e-l	6.07e-l	8.38e-l
30000	1.50e-4	2.68e-4	5.20e-4	1.69e-3	5.19e-3	1.63e-2	4.96e-2	1.39e-l	2.22e-l	3.44e-l	5.43e-l	

Energy reflection coefficient of N backscattered from C
ne= 2, na=12

E_0 (eV)	0°	10°	20°	30°	40°	50°	60°	70°	75°	80°	85°	87°
15000	1.80e-5	3.33e-5	9.Ole-5	3.36e-4	1.21e-3	4.58e-3	1.63e-2	5.61e-2	1.05e-l	1.96e-l	4.27e-l	7.34e-l
30000	6.75e-6	1.28e-5	3.71e-5	1.57e-4	6.28e-4	2.62e-3	1.08e-2	4.23e-2	8.25e-2	1.62e-l	3.48e-l	

Average depth (mean range) in Ä of N implanted in C
ne= 2, na=12

B_0 (eV)	0°	10°	20°	30°	40°	50°	60°	70°	75°	80°	85°	87°
15000	3.76e-}-2	3.70e + 2	3.54e + 2	3.26e+2	2.90e+2	2.48e+2	2.04e+2	1.62e+2	1.45e+2	1.30e+2	1.20e+2	1.18e+2
30000	7.52e-f-2	7.43e+2	7.08e + 2	6.53e-{-2	5.80e-|-2	4.92e + 2	3.98e + 2	3.11e+2	2.73e+2	2.43e + 2	2.20e + 2	

O → C

Sputtering yield of C by O
zl = 8, ml = 16.00. z2= 6, m2= 12.01, sbe = 7.41 eV, *rho=l .85, 2.00 g/cm**3*
ef=0.95, 2.10 eV, esb = 1.00. 2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc95, newtrim
only low fluence!
ne=ll, na=l

E 0 (eV)	0°
38	4.60e-6
40	7.98e-6
42	1.30e-5
45	2.56e-5
50	6.56e-5
60	2.87e-4
70	7.79e-4
100	4.59e-3
150	1.80e-2
300	6.85e-2
1000	2.15e-l
3000	3.23e-l
6000	3.40e-l

Sputtered energj ' of C by O
only low fluence!
ne= 7, na=l

E 0 (eV)	0°
38	1.78e-7
40	3.17e-7
42	5.33e-7
45	1.09e-6
150	6.75e-4
300	2.06e-3
1000	4.15e-3
3000	3.34e-3
6000	2.67e-3

Particle reflection coefficient of O backscattered from C
zl= 8, ml = 16.00, z2= 6, m2= 12.01, sbe=7.40 eV, *1.85, 2.00 g/cm**3*
ef=2.10 eV, esb=2.60 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: newtrim, trvmc95
only low fluence!
ne= 7, na=l

Eq (eV)	0°
38	9.90e-4
40	1.06e-3
42	1.12e-3
45	1.21e-3
150	9.89e-4
300	1.44e-3
1000	6.39e-4
3000	3.21e-4
6000	4.18e-4

Energy reflection coefficient of O backscattered from C
only low fluence!
ne= 7, na=l

Eo(eV)	0°
38	4.34e-5
40	4.53e-5
42	4.70e-5
45	4.92e-5
150	2.78e-5
300	3.60e-5
1000	2.42e-5
3000	1.60e-6
6000	5.00e-6

Average depth (mean range) in Ä of O implanted in C
only low fluence!
ne= 7, na=l

B 0 (eV)	0°
38	3.54e+0
40	3.68e+0
42	3.82e+0
45	4.02e+0
150	8.68e+0
300	1.40e-J-l
1000	3.37e + l
3000	8.34e+l
6000	1.55e+2

Ne → C

Sputtering yield of C by Ne
z1 = 10, m1= 20.18. z2 = 6. m2= 12.01. sbe = 7.41, *rho=1.85 g/cm**3*
ef=0.05 eV. esb = 0.00 eV, ca=1.00. kkO= kkOr=2, kdeel = kdee2 = 3, ipot=ipotr=1 (KrC)
program : trvnic
ne=24. na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
15					9.51e-7	7.53e-7			
16				1.17e-6	3.45e-6	2.15e-6			
17				3.60e-6	7.68e-6	5.34e-6	1.38e-6		
18				8.20e-6	1.40e-5	1.04e-5	3.60e-6	1.09e-6	
20			1.23e-6	4.15e-5	6.95e-5	5.65e-5	2.28e-5	5.44e-6	
22			2.86e-6	4.71e-5	7.73e-5	1.05e-4	6.48e-5	1.67e-5	6.67e-7
25		1.20e-7	2.32e-5	2.03e-4	3.48e-4	5.24e-4	2.64e-4	5.71e-5	1.05e-6
30		2.76e-6	1.03e-4	6.70e-4	1.64e-3	2.63e-3	1.09e-3	2.27e-4	3.53e-6
35	6.40e-7	9.52e-6	2.02e-4	1.86e-3	5.55e-3	7.95e-3	2.89e-3	5.45e-4	8.66e-6
40	3.74e-6	4.61e-5	6.93e-4	5.10e-3	1.19e-2	1.53e-2	5.10e-3	9.67e-4	1.62e-5
45	1.07e-5	9.47e-5	1.38e-3	1.03e-2	2.26e-2	2.68e-2	8.92e-3	1.64e-3	2.29e-5
50	3.41e-5	2.53e-4	2.99e-3	1.72e-2	3.35e-2	3.65e-2	1.21e-2	2.38e-3	3.57e-5
60	1.48e-4	8.44e-4	7.70e-3	3.81e-2	6.81e-2	7.16e-2	2.40e-2	4.43e-3	6.18e-5
70	4.59e-4	2.12e-3	1.47e-2	6.09e-2	9.95e-2	1.05e-1	3.80e-2	6.73e-3	9.62e-5
100	3.25e-3	9.87e-3	4.63e-2	1.47e-1	2.27e-1	2.36e-1	8.83e-2	1.73e-2	2.20e-4
140	1.18e-2	2.69e-2	9.44e-2	2.56e-1	3.93e-1	4.21e-1	1.75e-1	3.81e-2	4.74e-4
200	3.03e-2	5.61e-2	1.60e-1	3.87e-1	5.91e-1	6.63e-1	3.26e-1	8.21e-2	1.04e-3
300	6.50e-2	1.03e-1	2.46e-1	5.46e-1	8.32e-1	9.92e-1	6.04e-1	1.80e-1	2.72e-3
500	1.26e-1	1.80e-1	3.61e-1	7.43e-1	1.13e-0	1.47e-0	1.15e-0	4.59e-1	9.91e-3
1000	2.32e-1	2.99e-1	5.24e-1	9.98e-1	1.51e-0	2.09e-0	2.17e-0	1.31e-0	6.38e-2
2000	3.36e-1	4.09e-1	6.49e-1	1.18e-0	1.79e-0	2.63e-0	3.25e-0	2.69e-0	3.79e-1
5000	4.16e-1	4.90e-1	7.30e-1	1.25e-0	1.92e-0	2.99e-0	4.28e-0	4.54e-0	2.19e-0
10000	4.21e-1	4.84e-1	6.88e-1	1.13e-0	1.73e-0	2.82e-0	4.55e-0	5.31e-0	4.28e-0
20000	3.81e-1	4.28e-1	5.76e-1	8.83e-1	1.31e-0	2.19e-0	4.09e-0	5.32e-0	5.70e-0

Sputtered energy of C by Ne
ne=24, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
15					5.96e-8	7.77e-8			
16				6.16e-8	2.46e-7	2.17e-7			
17				1.87e-7	6.08e-7	6.25e-7	2.08e-7		
18				4.97e-7	1.25e-6	1.25e-6	5.86e-7	1.75e-7	
20			4.97e-8	3.04e-6	7.13e-6	8.10e-6	3.80e-6	8.81e-7	
22			1.36e-7	3.67e-6	8.39e-6	1.46e-5	1.06e-5	2.93e-6	1.55e-7
25		4.47e-9	1.20e-6	1.80e-5	4.22e-5	8.02e-5	4.83e-5	1.08e-5	1.99e-7
30		9.65e-8	6.20e-6	6.60e-5	2.29e-4	4.54e-4	2.21e-4	4.91e-5	6.28e-7
35	1.87e-8	4.36e-7	1.39e-5	2.16e-4	8.56e-4	1.55e-3	6.66e-4	1.28e-4	1.88e-6
40	1.31e-7	2.13e-6	5.38e-5	6.38e-4	1.96e-3	3.13e-3	1.18e-3	2.30e-4	3.31e-6
45	4.11e-7	4.81e-6	1.14e-4	1.36e-3	3.86e-3	5.73e-3	2.24e-3	4.11e-4	4.64e-6
50	1.29e-6	1.34e-5	2.59e-4	2.30e-3	5.81e-3	7.89e-3	3.05e-3	5.99e-4	6.96e-6
60	6.14e-6	4.69e-5	6.79e-4	5.26e-3	1.20e-2	1.60e-2	6.23e-3	1.13e-3	1.20e-5
70	1.90e-5	1.16e-4	1.30e-3	8.34e-3	1.74e-2	2.32e-2	9.82e-3	1.72e-3	1.76e-5
100	1.27e-4	5.28e-4	3.81e-3	1.85e-2	3.70e-2	4.85e-2	2.19e-2	4.25e-3	3.61e-5
140	4.34e-4	1.34e-3	6.98e-3	2.84e-2	5.59e-2	7.65e-2	4.02e-2	8.49e-3	6.73e-5
200	1.02e-3	2.46e-3	1.04e-2	3.66e-2	7.11e-2	1.01e-1	6.45e-2	1.66e-2	1.32e-4
300	1.95e-3	3.96e-3	1.35e-2	4.23e-2	7.96e-2	1.20e-1	9.74e-2	3.13e-2	2.86e-4
500	3.12e-3	5.51e-3	1.58e-2	4.54e-2	8.23e-2	1.31e-1	1.35e-1	6.33e-2	9.19e-4
1000	4.24e-3	6.71e-3	1.66e-2	4.33e-2	7.79e-2	1.27e-1	1.64e-1	1.18e-1	5.53e-3
2000	4.41e-3	6.52e-3	1.48e-2	3.66e-2	6.56e-2	1.12e-1	1.62e-1	1.53e-1	2.62e-2
5000	3.53e-3	5.13e-3	1.11e-2	2.76e-2	4.98e-2	8.85e-2	1.40e-1	1.54e-1	8.59e-2
10000	2.53e-3	3.62e-3	7.82e-3	1.92e-2	3.63e-2	6.70e-2	1.14e-1	1.34e-1	1.11e-1
20000	1.56e-3	2.21e-3	4.71e-3	1.14e-2	2.11e-2	4.12e-2	8.11e-2	1.03e-1	1.04e-1

Ne —> C

Particle reflection coefficient of Ne backscattered from C
zl = 10, ml = 20.18. z2= 6. m2 = 12.01. sbe=7.41. *rho=1.85 g/cm**3*
ef=0.05 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r=2. kdeel =kdee2=3) ipot=ipotr = l (KrC)
program : trvmc
ne=22. na= 9

Eq (eV)	0°	15°	30 °	45°	55°	65 °	75°	80°	85 °
10	1.31e-2	3.12e-2	1.15e-l	3.53e-l	5.94e-l	8.37e-l	9.77e-l	9.97e-l	1.00e-0
15	5.45e-3	1.78e-2	8.99e-2	3.22e-l	5.70e-l	8.29e-l	9.77e-l	9.97e-l	1.00e-0
20	3.10e-3	1.28e-2	7.66e-2	3.01e-l	5.51e-l	8.19e-l	9.77e-l	9.97e-l	1.00e-0
22	2.91e-3	1.27e-2	7.59e-2	2.98e-l	5.48e-l	8.18e-l	9.77e-l	9.98e-l	1.00e-0
25	2.17e-3	l.lle-2	6.79e-2	2.82e-l	5.32e-l	8.08e-l	9.76e-l	9.98e-l	1.00e-0
30	1.72e-3	8.69e-3	6.10e-2	2.65e-l	5.14e-l	7.97e-l	9.75e-l	9.98e-l	1.00e-0
35	1.67e-3	8.22e-3	5.75e-2	2.54e-l	5.00e-l	7.87e-l	9.74e-l	9.98e-l	1.00e-0
40	1.31e-3	6.86e-3	5.09e-2	2.36e-l	4.79e-l	7.72e-l	9.71e-l	9.97e-l	1.00e-0
45	1.34e-3	6.67e-3	4.83e-2	2.26e-l	4.67e-l	7.62e-l	9.70e-l	9.97e-l	1.00e-0
50	l.lle-3	5.73e-3	4.39e-2	2.12e-l	4.48e-l	7.48e-l	9.67e-l	9.97e-l	1.00e-0
60	1.08e-3	5.32e-3	3.92e-2	1.93e-l	4.22e-l	7.25e-l	9.63e-l	9.97e-l	1.00e-0
70	8.56e-4	4.53e-3	3.50e-2	1.75e-l	3.95e-l	6.99e-l	9.57e-l	9.96e-l	1.00e-0
100	7.17e-4	3.48e-3	2.59e-2	1.39e-l	3.29e-l	6.35e-l	9.38e-l	9.94e-l	1.00e-0
140	6.46e-4	2.74e-3	1.99e-2	1.09e-l	2.69e-l	5.63e-l	9.08e-l	9.91e-l	1.00e-0
200	5.97e-4	2.27e-3	1.57e-2	8.32e-2	2.17e-l	4.82e-l	8.63e-l	9.83e-l	1.00e-0
300	5.03e-4	1.98e-3	1.26e-2	6.43e-2	1.68e-l	3.92e-l	7.88e-l	9.64e-l	1.00e-0
500	4.63e-4	1.58e-3	9.35e-3	4.74e-2	1.26e-l	2.98e-l	6.66e-l	9.11e-l	1.00e-0
1000	3.72e-4	1.27e-3	7.09e-3	3.38e-2	9.08e-2	2.14e-l	5.01e-l	7.74e-l	9.96e-l
2000	2.97e-4	7.68e-4	4.57e-3	2.45e-2	6.36e-2	1.64e-l	3.82e-l	6.06e-l	9.67e-l
5000	1.48e-4	4.47e-4	2.84e-3	1.57e-2	4.42e-2	1.22e-l	2.96e-l	4.54e-l	8.07e-l
10000	1.Ole-4	2.86e-4	1.81e-3	1.08e-2	3.43e-2	9.79e-2	2.56e-l	3.95e-l	6.60e-l
20000	4.80e-5	1.31e-4	9.10e-4	6.80e-3	2.45e-2	7.98e-2	2.24e-l	3.49e-l	5.66e-l

Energy reflection coefficient of Ne backscattered from C
ne=22, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.15e-5	2.37e-4	3.97e-3	3.40e-2	1.08e-l	2.73e-l	5.43e-l	6.98e-l	8.33e-l
15	2.23e-5	2.88e-4	4.42e-3	3.78e-2	1.17e-l	2.92e-l	5.76e-l	7.32e-l	8.67e-l
20	2.68e-5	3.07e-4	4.43e-3	3.88e-2	1.21e-l	3.02e-l	5.96e-l	7.54e-l	8.87e-l
22	2.38e-5	2.86e-4	4.20e-3	3.82e-2	1.21e-l	3.04e-l	6.02e-l	7.61e-l	8.93e-l
25	- 2.66e-5	2.72e-4	4.27e-3	3.83e-2	1.22e-l	3.07e-l	6.09e-l	7.69e-l	9.01e-l
30	2.63e-5	2.72e-4	4.01e-3	3.72e-2	1.21e-l	3.08e-l	6.17e-l	7.81e-l	9.10e-l
35	2.16e-5	2.27e-4	3.57e-3	3.51e-2	1.18e-l	3.07e-l	6.23e-l	7.89e-l	9.17e-l
40	2.26e-5	2.22e-4	3.43e-3	3.39e-2	1.16e-l	3.04e-l	6.27e-l	7.95e-l	9.23e-l
45	1.81e-5.	1.87e-4	3.04e-3	3.17e-2	1.12e-l	3.01e-l	6.28e-l	8.00e-l	9.27e-l
50	1.89e-5	1.83e-4	2.91e-3	3.05e-2	1.09e-l	2.98e-l	6.29e-l	8.04e-l	9.31e-l
60	1.41e-5	1.43e-4	2.40e-3	2.71e-2	1.01e-l	2.89e-l	6.28e-l	8.09e-l	9.37e-l
70	1.38e-5	1.28e-4	2.21e-3	2.46e-2	9.58e-2	2.80e-l	6.25e-l	8.12e-l	9.41e-l
100	9.64e-6	9.05e-5	1.50e-3	1.88e-2	7.66e-2	2.50e-l	6.09e-l	8.14e-l	9.49e-l
140	8.10e-6	6.58e-5	1.04e-3	1.34e-2	5.97e-2	2.16e-l	5.83e-l	8.09e-l	9.54e-l
200	6.83e-6	5.27e-5	7.61e-4	9.66e-3	4.46e-2	1.77e-l	5.40e-l	7.94e-l	9.57e-l
300	5.87e-6	4.28e-5	5.89e-4	6.77e-3	3.15e-2	1.33e-l	4.73e-l	7.62e-l	9.58e-l
500	5.88e-6	3.51e-5	4.02e-4	4.48e-3	2.08e-2	9.00e-2	3.72e-l	6.90e-l	9.55e-l
1000	5.62e-6	2.98e-5	3.21e-4	3.08e-3	1.36e-2	5.68e-2	2.44e-l	5.36e-l	9.37e-l
2000	5.58e-6	2.05e-5	2.17e-4	2.31e-3	9.09e-3	3.92e-2	1.64e-l	3.72e-l	8.76e-l
5000	3.19e-6	1.39e-5	1.60e-4	1.56e-3	6.43e-3	2.81e-2	1.15e-l	2.39e-l	6.59e-l
10000	2.38e-6	1.10e-5	1.20e-4	1.16e-3	5.30e-3	2.27e-2	9.47e-2	1.95e-l	4.83e-l
20000	1.40e-6	4.71e-6	6.56e-5	7.49e-4	3.92e-3	1.84e-2	7.99e-2	1.63e-l	3.76e-l

Average depth (mean range) in Ä of Ne implanted in C
ne=22. na= 9

Eo(eV)	0°	15°	30 °	45°	55°	65°	75°	80°	85°
10	1.10E+0	1.00E4-0	9.00E-1	8.00E-1	7.00E-1	6.00E-1	4.00E-1	3.00E-1	2.00E-1
15	1.60E+0	1.50E-J-0	1.30E + 0	1.10E+0	1.00E4-0	8.00E-1	6.00E-1	4.00E-1	2.00E-1
20	2.10E+0	2.00E+0	1.70E + 0	1.40E+0	1.20E+0	1.00E + 0	7.00E-1	5.00E-1	3.00E-1
22	2.30E+0	2.10E-J-0	1.90E+0	1.60E+0	1.30E + 0	1.00E + 0	8.00E-1	6.00E-1	2.00E-1
25	2.50E+0	2.40E+0	2.10E + 0	1.70E+0	1.50E+0	1.20E+0	8.00E-1	6.00E-1	3.00E-1
30	2.90E+0	2.80E4-0	2.40E + 0	2.00E+0	1.70E+0	1.40E + 0	1.00E+0	7.00E-1	3.00E-1
35	3.30E+0	3.10E4-0	2.70E+0	2.30E-J-0	1.90E4-0	1.60E + 0	1.10E+0	8.00E-1	5.00E-1
40	3.60E4-0	3.50E-I-0	3.00E+0	2.50E+0	2.10E + 0	1.70E+0	1.20E+0	9.00E-1	5.00E-1
45	4.00E+0	3.80E+0	3.30E + 0	2.70E+0	2.30E4-0	1.90E4-0	1.40E+0	1.10E+0	6.00E-1
50	4.30E+0	4.10E+0	3.60E+0	3.00E+0	2.50E4-0	2.10E4-0	1.50E4-0	1.20E+0	7.00E-1
60	4.90E+0	4.70E+0	4.10E+0	3.40E4-0	2.90E4-0	2.40E + 0	1.80E+0	1.40E+0	9.00E-1
70	5.50E4-0	5.30E+0	4.60E + 0	3.80E+0	3.20E+0	2.70E+0	2.00E+0	1.50E + 0	1.00E4-0
100	7.00E4-0	6.70E+0	6.00E4-0	4.90E+0	4.20E4-0	3.50E-J-0	2.70E4-0	2.30E4-0	1.50E-+-0
140	8.80E+0	8.50E+0	7.50E4-0	6.20E+0	5.30E+0	4.40E + 0	3.50E+0	2.80E+0	2.10E+0
200	1.12E+1	1.07E+1	9.60E + 0	7.90E+0	6.70E4-0	5.60E+0	4.50E+0	3.80E+0	2.80E+0
300	1.46E + 1	1.40E4-1	1.25E+1	1.03E+1	8.90E+0	7.40E4-0	6.00E+0	5.20E+0	3.90E+0
500	2.06E+1	1.98E+1	1.78E+1	1.47E+1	1.24E + 1	1.03E+1	8.50E+0	7.70E4-0	6.00E4-0
1000	3.34E-J-1	3.23E4-1	2.89E-J-1	2.39E+1	2.03E+1	1.67E-J-1	1.38E+1	1.22E + 1	1.04E+1
2000	5.60E4-1	5.40E+1	4.84E+1	4.01E4-1	3.39E4-1	2.76E+1	2.24E + 1	2.03E+1	1.80E + 1
5000	1.19E+2	1.15E+2	1.03E+2	8.47E-J-1	7.08E+1	5.73E+1	4.57E+1	4.11E+1	3.74E + 1
10000	2.21E+2	2.14E+2	1.92E + 2	1.58E+2	1.31E+2	1.05E4-2	8.17E+1	7.34E-H	6.72E + 1
20000	4.29E+2	4.14E+2	3.71E+2	3.04E+2	2.52E+2	2.00E+2	1.52E+2	1.36E4-2	1.23E + 2

Ar—» C

Sputtering yield of C by Ar
zl = 18, ml = 39.95, z2= 6, m2= 12.01, sbe = 7.41 eV, *rho=1.85 g/cm**3*
ef=0.05 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trvmc
ne=ll, na=9

Eo(eV)	0°	15°	30°	45°	55“	65°	75°	80°	85“
25			1.60e-7	1.88e-5	4.80e-5	4.12e-5	1.62e-5	4.00e-6	9.00e-8
30			4.44e-6	9.87e-5	1.94e-4	2.29e-4	1.32e-4	3.73e-5	7.10e-7
40	1.80e-7	2.52e-6	7.96e-5	6.71e-4	1.75e-3	3.40e-3	1.77e-3	3.74e-4	7.38e-6
50	2.46e-6	2.31e-5	4.18e-4	3.20e-3	8.55e-3	1.47e-2	6.49e-3	1.33e-3	2.33e-5
70	6.64e-5	3.67e-4	3.54e-3	2.00e-2	4.57e-2	6.11e-2	2.65e-2	5.31e-3	9.35e-5
100	8.27e-4	2.98e-3	1.76e-2	7.25e-2	1.40e-l	1.78e-l	7.67e-2	1.60e-2	2.73e-4
140	4.62e-3	1.18e-2	4.90e-2	1.63e-l	2.99e-l	3.76e-l	1.72e-l	3.94e-2	6.61e-4
200	1.66e-2	3.34e-2	1.05e-l	2.94e-l	5.21e-l	6.75e-l	3.46e-l	8.68e-2	1.53e-3
300	4.54e-2	7.57e-2	1.93e-l	4.70e-l	8.13e-l	1.10e-0	6.73e-l	1.96e-l	3.94e-3
500	1.09e-l	1.60e-l	3.34e-l	7.22e-l	1.19e-0	1.73e-0	1.34e-0	4.96e-l	1.31e-2
1000	2.47e-l	3.21e-l	5.68e-l	1.09e-0	1.72e-0	2.62e-0	2.75e-0	1.46e-0	6.94e-2

Sputtered energy of C by Ar
ne=ll, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
25			4.77e-9	8.41e-7	3.12e-6	3.78e-6	1.94e-6	5.16e-7	1.06e-8
30			1.33e-7	5.68E-6	1.51E-5	2.36E-5	1.71E-5	5.05E-6	8.74E-8
40	3.51e-9	8.05e-8	3.44e-6	4.90E-5	1.74E-4	4.25E-4	2.68E-4	5.91E-5	9.55E-7
50	6.13e-8	7.95e-7	2.21E-5	2.75E-4	9.65E-4	2.08E-3	1.11E-3	2.30E-4	3.24E-6
70	1.97e-6	1.49E-5	2.21E-4	1.95E-3	5.58E-3	9.49E-3	4.83E-3	9.66E-4	1.27E-5
100	2.58E-5	1.26E-4	1.13E-3	6.98E-3	1.69E-2	2.73E-2	1.42E-2	2.86E-3	3.44E-5
140	1.37E-4	4.83E-4	2.99E-3	1.44E-2	3.33E-2	5.37E-2	3.01E-2	6.72E-3	7.14E-5
200	4.66E-4	1.25E-3	5.80E-3	2.30E-2	5.05E-2	8.38E-2	5.51E-2	1.38E-2	1.45E-4
300	1.15E-3	2.49E-3	9.21E-3	3.11E-2	6.54E-2	1.12E-1	9.01E-2	2.77E-2	3.09E-4
500	2.32E-3	4.28E-3	1.28E-2	3.77E-2	7.42E-2	1.31E-1	1.36E-1	5.75E-2	8.75E-4
1000	3.91E-3	6.30E-3	1.57E-2	4.13E-2	7.60E-2	1.35E-1	1.83E-1	1.17E-1	4.28E-3

Ar-» C

Particle reflection coefficient of Ar backscattered from C
zl = 18. ml = 39.95. z2= 6. m2= 12.01. sbe=7.41 eV, *rho=1.85 g/cm**3*
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc
ne=14. na=8

E_0 (eV)	15°	30°	45°	55°	65°	75°	80°	85°
10	2.76E-4	8.67E-3	1.14E-1	3.69E-1	7.42E-1	9.70E-1	9.97E-1	1.00E4-0
15	5.26E-5	5.43E-3	1.01E-1	3.56E-1	7.40E-1	9.73E-1	9.98E-1	1.00E+0
20	3.00E-5	4.27E-3	9.36E-2	3.48E-1	7.37E-1	9.73E-1	9.98E-1	1.00E+0
25	3.15E-5	3.75E-3	8.82E-2	3.38E-1	7.30E-1	9.74E-1	9.98E-1	l.OOE-f-O
30	3.22E-5	3.41E-3	8.30E-2	3.27E-1	7.22E-1	9.73E-1	9.98E-1	1.00E+0
40	2.76E-5	2.84E-3	7.32E-2	3.05E-1	7.01E-1	9.71E-1	9.98E-1	1.00E+0
50	2.49E-5	2.35E-3	6.44E-2	2.82E-1	6.79E-1	9.67E-1	9.98E-1	l.OOE-f-O
70	1.94E-5	1.66E-3	5.01E-2	2.42E-1	6.34E-1	9.58E-1	9.97E-1	l.OOE-f-O
100	1.46E-5	1.11E-3	3.61E-2	1.94E-1	5.71E-1	9.43E-1	9.96E-1	l.OOE-f-O
140	9.93E-6	8.47E-4	2.56E-2	1.49E-1	5.00E-1	9.19E-1	9.93E-1	l.OOE-f-O
200	5.95E-6	5.96E-4	1.78E-2	1.09E-1	4.13E-1	8.77E-1	9.88E-1	l.OOE-f-O
300	5.98E-6	4.49E-4	1.28E-2	7.68E-2	3.21E-1	8.09E-1	9.76E-1	l.OOE-f-O
500	5.20E-6	3.45E-4	8.91E-3	5.10E-2	2.24E-1	6.88E-1	9.38E-1	l.OOE-f-O
1000		2.61E-4	5.86E-3	3.15E-2	1.42E-1	4.97E-1	8.22E-1	9.98E-1

Energy reflection coefficient of Ar backscattered from C
ne=14, na=8

E_0 (eV)	15°	30°	45°	55°	65°	75°	80°	85°
10	8.53e-8	5.74E-5	4.06E-3	3.25E-2	1.52E-1	4.33E-1	6.15E-1	7.95E-1
15	2.32e-7	7.96E-5	4.74E-3	3.65E-2	1.67E-1	4.64E-1	6.49E-1	8.25E-1
20	3.17e-7	8.79E-5	4.97E-3	3.85E-2	1.75E-1	4.83E-1	6.72E-1	8.45E-1
25	3.71e-7	8.70E-5	4.99E-3	3.90E-2	1.79E-1	4.97E-1	6.88E-1	8.58E-1
30	3.86e-7	8.21E-5	4.85E-3	3.88E-2	1.81E-1	5.06E-1	7.01E-1	8.68E-1
40	3.Ole-7	6.83E-5	4.39E-3	3.73E-2	1.80E-1	5.17E-1	7.18E-1	8.83E-1
50	2.51e-7	5.46E-5	3.87E-3	3.50E-2	1.78E-1	5.23E-1	7.29E-1	8.94E-1
70	1.69e-7	3.51E-5	2.94E-3	3.00E-2	1.68E-1	5.25E-1	7.42E-1	9.08E-1
100	1.Ole-7	2.01E-5	1.97E-3	2.35E-2	1.50E-1	5.18E-1	7.49E-1	9.20E-1
140	6.53e-8	1.27E-5	1.26E-3	1.71E-2	1.30E-1	5.01E-1	7.49E-1	9.28E-1
200	2.95e-8	7.88E-6	7.44E-4	1.17E-2	1.03E-1	4.69E-1	7.42E-1	9.34E-1
300	2.92e-8	5.17E-6	4.61E-4	7.09E-3	7.39E-2	4.18E-1	7.19E-1	9.38E-1
500	1.39e-8	3.60e-6	2.78E-4	3.86E-3	4.49E-2	3.32E-1	6.64E-1	9.37E-1
1000		2.68e-6	1.59E-4	1.91E-3	2.25E-2	2.08E-1	5.35E-1	9.25E-1

Average depth (mean range of Ar implanted in C
ne=14, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.30E+0	1.30E4-0	1.10E-f-0	9.00E-1	8.00E-1	6.00E-1	5.00E-1	4.00E-1	2.00E-1
15	2.00E4-0	1.90E-J-0	1.70E4-0	1.30E+0	1.10E-f-0	8.00E-1	6.00E-1	5.00E-1	3.00E-1
20	2.60E-J-0	2.50E-J-0	2.10E+0	1.60E+0	1.30E-J-0	l.OOE-f-O	8.00E-1	6.00E-1	5.00E-1
25	3.10E+0	3.00E+0	2.60E+0	2.00E+0	1.60E+0	1.20E-J-0	9.00E-1	7.00E-1	5.00E-1
30	3.60E4-0	3.50E+0	3.00E+0	2.20E+0	1.80E4-0	1.40E4-0	1.10E-f-0	9.00E-1	6.00E-1
40	4.50E-J-0	4.30E+0	3.70E4-0	2.80E+0	2.20E4-0	1.70E+0	1.30E+0	1.10E+0	8.00E-1
50	5.20E+0	5.00E4-0	4.30E + 0	3.30E+0	2.60E4-0	2.00E+0	1.60E-J-0	1.30E4-0	9.00E-1
70	6.50E+0	6.20E-J-0	5.40E-J-0	4.10E+0	3.30E+0	2.60E + 0	2.00E4-0	1.70E4-0	1.10E+0
100	8.10E+0	7.80E+0	6.80E + 0	5.20E4-0	4.20E-J-0	3.30E-J-0	2.50E-J-0	2.20E4-0	1.70E+0
140	l.OOE-f-1	9.60E+0	8.40E + 0	6.50E4-0	5.20E+0	4.10E + 0	3.20E+0	2.70E4-0	2.30E4-0
200	1.23E + 1	1.18E4-1	1.04E+1	8.20E-J-0	6.50E4-0	5.10E + 0	4.00E+0	3.40E+0	2.80E-I-0
300	1.56E+1	1.50E-J-1	1.32E-J-1	1.05E4-1	8.40E+0	6.60E4-0	5.20E+0	4.50E4-0	3.50E+0
500	2.10E+1	2.02E-J-1	1.79E-f-l	1.43E+1	1.15E + 1	9.00E+0	7.00E+0	6.20E+0	5.40E4-0
1000	3.16E4-1	3.05E-J-1	2.72E4-1	2.19E+1	1.78E-J-1	1.38E+1	1.06E+1	9.40E4-0	7.20E + 0

Ar —> C

Sputtering yield of C by Ar
zl = 18, ml = 39.95, z2= 6. m2= 12.01, sbe=7.40. 7.42 eV, rho = 2.26 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trspvmcx
ne= 9. na= 1

E_0 (eV)	0°
100	8.51E-4
100	8.60e-4
200	1.80e-2
300	4.96E-2
500	1.23E-1
500	1.20e-l
1000	2.64E-1
1000	2.67e-l
4000	6.32E-1

Sputtered energy of C by Ar
ne= 9. na= 1

E_0 (eV)	0°
100	2.65E-5
100	2.67e-5
200	4.92e-4
300	1.24E-3
500	2.55E-3
500	2.49e-3
1000	4.09E-3
1000	4.07e-3
4000	4.95E-3

Average depth (mean range) in Ä of Ar implanted in C
zl = 18, ml = 39.95, z2= 6, m2= 12.01, sbe=7.40, 7.42 eV, rho=2.26 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = 1 (KrC)
program : trspvmcx
ne= 7, na= 1

E_0 (eV)	0°
50	3.82e+0
100	6.20E+0
200	9.61e4-0
300	1.23E + 1
500	1.67E + 1
1000	2.55E4-1
4000	6.28E + 1

Ar —> C

Sputtering yield of C by Ar
z1—18. ml = 39.95. z2= 6. m2= 12.01. sbe=7.40, rho=2.26 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00. kk0=kk0r=2, kdeel=kdee2=3. ipot=ipotr
alpha=0.00
program : trspvmcx
ne= 4, n(ipot) = 3

B_0 (eV)	KrC	Moliere	ZBL	comment
5000	6.83B-1	7.58e-l	6.70e-l	
5000	1.12e-0			sbe=4.40 eV
5000	1.04e-0			sbe=4.40 eV, rho=1.85 g/cm**3
5000	6.24e-l			rho=1.85 g/cm**3

Sputtered energy of C by Ar
ne= 4, n(ipot)= 3

Bo (eV)	KrC	Moliere	ZBL	comment
5000	4.98B-3	4.57e-3	5.26e-3	
5000	5.68e-3			sbe=4.40 eV
5000	5.69e-3			sbe=4.40 eV, rho = 1.85 g/cm**3
5000	4.66e-3			rho=1.85 g/cm**3

Average depth (mean range) in Ä of Ar implanted in C
ne= 4. n(ipot)= 3

B_0 (eV)	KrC	Moliere	ZBL	comment
5000	7.41E+1	6.00e4-l	7.51e + l	
5000	7.37e + l			sbe=4.40 eV
5000	9.05e + l			sbe=4.40 eV. rho=1.85 g/cm**3
5000	9.10e+l			rho = 1.85 g/cm**3

Xe -> C

Sputtering yield of C by Xe
z1=54, m1 = 131.30, z2= 6. m2= 12.01. sbe=7.42, 7.40 eV. rho=2.26 g/cm**3
ef=0.50. esb = 0.00. ca=1.00. kk0=kk0r=2. kdee1=kdee2 = 3. ipot=ipotr=1 (KrC)
program: testvmcx. trspvmcx
ne=45. na=11

E_0 (eV)	0°	15°	30°	45°	60°	65°	70°	75°	77.5°	80°	85°
53								2.97e-6			
55				4.38e-6						2.34e-6	
56								1.01e-5			
59										1.00e-5	
60				1.71e-5				4.08e-5			
61										1.60e-5	
63										2.72e-5	
65				4.06e-5				1.25e-4		4.49e-5	
70			3.19e-6	8.01e-5				3.65e-4		1.23e-4	
75			7.66e-6	1.48e-4				8.80e-4		2.85e-4	
77								1.24e-3			
80			1.60e-5	2.18e-4				1.84e-3		5.67e-4	
85			3.35e-5								
90		2.12e-6	5.10e-5	5.44e-4				5.63e-3		1.61e-3	
95			7.92e-5								
100		6.33e-6	1.29e-4	1.15e-3				1.22e-2		3.42e-3	
105		1.00e-5									
110	1.86e-6	1.76e-5	2.68e-4							6.16e-3	
120	5.62e-6	3.88e-5	5.37e-4	4.26e-3	2.20e-2	3.47e-2	4.57e-2	3.70e-2		1.07e-2	
130	1.22e-5	7.48e-5	8.54e-4							1.52e-2	
135			1.19e-3								
140	2.22e-5	1.36e-4	1.49e-3	1.06e-2							
150	4.50e-5	2.33e-4	2.40e-3	1.55e-2	6.74e-2	1.04e-1	1.29e-1	1.02e-1		2.86e-2	
160		3.82e-4									
170	1.24e-4		5.04e-3	2.79e-2				1.62e-1		4.69e-2	
180	1.89e-4	8.74e-4									
190		1.20e-3									
200	4.15e-4	1.62e-3	1.04e-2	5.21e-2	1.89e-1	2.66e-1	3.33e-1	2.74e-1	1.80e-1	8.12e-2	
220	8.08e-4	2.64e-3									
230	1.11e-3										
250	1.70e-3	5.30e-3	2.60e-2	1.06e-1				5.02e-1		1.54e-1	
300	4.24e-3	1.07e-2	4.56e-2	1.63e-1				7.67e-1		2.46e-1	
300	3.89e-3										
500	2.76e-2	5.31e-2	1.52e-1	3.99e-1	1.00e-0		1.83e-0	1.82e-0		6.97e-1	
500	3.00e-2										
700	6.71e-2										
1000	1.27e-1	1.86e-1	3.93e-1	8.39e-1	1.79e-0		3.23e-0	3.82e-0		2.07e-0	
1000	1.28e-1										
2000	3.25e-1										
3000	4.66e-1	6.00e-1	9.81e-1	1.77e-0	3.43e-0		5.92e-0	7.98e-0		7.42e-0	
4000	5.99e-1										
7000	8.50e-1										
10000	1.02e-0	1.19e-0	1.80e-0	3.04e-0	5.47e-0			1.25e+1		1.62e+1	6.77e-0
30000	1.46e-0	1.73e-0	2.43e-0	3.88e-0				1.60e+1		2.28e+1	
100000	1.69e-0	1.89e-0	2.53e-0	3.73e-0				1.50e+1		2.45e+1	

Xe → C

Sputtered energy of C by Xe
zl=54, ml = 131.30. z2= 6. m2= 12.01. sbe=7.42 eV. rho=2.26 g/cm**3
ef=0.50, esb=0.00. ca=1.00, kk0=kk0r=2. kdeel=kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx
ne=44, na=ll

Eo(eV)	0°	15°	30°	45°	60°	65°	70°	75°	77.5°	80°	85°
53								1.43e-7			
55				8.12e-8						1.30e-7	
56								4.88e-7			
59										5.64e-7	
60				3.33e-7				1.93e-6			
61										9.02e-7	
63										1.41e-6	
65				8.63e-7				6.25e-6		2.32e-6	
70			1.40e-7	1.80e-6				1.78e-5		6.69e-6	
75			2.22e-7	3.52e-6				4.68e-5		1.57e-5	
77								6.66e-5			
80			2.76e-7	6.47e-6				9.94e-5		3.18e-5	
85			6.40e-7								
90		1.05e-7	9.27e-7	1.54e-5				3.22e-4		9.78e-5	
95			1.47e-6								
100		2.68e-7	2.47e-6	3.43e-5				7.32e-4		2.25e-4	
105		5.28e-7									
110	1.50e-7	3.33e-7	5.54e-6							3.95e-4	
120	2.12e-7	9.82e-7	1.18e-5	1.62e-4	1.09e-3	1.84e-3	2.67e-3	2.40e-3		7.29e-4	
130	2.48e-7	1.80e-6	1.94e-5							1.05e-3	
135			2.61e-5								
140	6.15e-7	2.29e-6	3.58e-5	3.88e-4							
150	1.27e-6	4.03e-6	5.97e-5	5.73e-4	3.42e-3	5.73e-3	7.81e-3	6.91e-3		2.Ole-3	
160		6.92e-6									
170	1.72e-6		1.29e-4	1.06e-3				1.10e-2		3.32e-3	
180	2.80e-6	1.55e-5									
190		2.09e-5									
200	5.65e-6	2.88e-5	2.76e-4	1.98e-3	9.74e-3	1.48e-2	2.03e-2	1.89e-2	1.30e-2	5.84e-3	
220	1.09e-5	4.56e-5									
230	1.50e-5										
250	2.28e-5	9.45e-5	6.93e-4	3.95e-3				3.36e-2		1.lle-2	
300	5.51e-5	1.88e-4	1.15e-3	5.90e-3				5.07e-2		1.72e-2	
300	5.21e-5										
500	3.36e-4	8.22e-4	3.40e-3	1.23e-2	4.Ole-2		8.76e-2	1.01e-l		4.41e-2	
500	3.47e-4										
700	7.23e-4										
1000	1.20e-3	2.23e-3	6.86e-3	2.00e-2	5.48e-2		1.13e-l	1.54e-l		1.03e-l	
2000	2.36e-3										
3000	2.91e-3	4.22e-3	1.02e-2	2.58e-2	6.31e-2		1.22e-l	1.77e-l		2.03e-l	
4000	3.10e-3										
7000	3.48e-3										
10000	3.43e-3	5.09e-3	1.14e-2	2.75e-2	6.44e-2			1.67e-l		2.30e-l	1.24e-l
30000	3.05e-3	4.94e-3	1.04e-2	2.54e-2				1.56e-l		2.16e-l	
100000	2.19e-3	2.99e-3	7.14e-3	1.71e-2				1.21e-l		1.82e-l	

Xe -> C

Particle reflection coefficient of Xe backscattered from C
z1=54, 1X11= 131.30, z2= 6, m2 = 12.01, sbe=7.42 eV, rho=2.26 g/cm**3
ef=0.50, esb = 0.00, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=1 (KrC)
program: testvmcx
ne=38. na=11

E_0 (eV)	0°	15°	30°	45°	60°	65°	70°	75°	77.5°	80°	85°
53								9.13e-1			
55				1.90e-5						9.97e-1	
56								9.11e-1			
59										9.97e-1	
60				1.90e-5				9.09e-1			
61										9.97e-1	
63										9.97e-1	
65				1.91e-5				9.05e-1		9.97e-1	
70			1.07e-5	1.89e-5				9.02e-1		9.96e-1	
75			1.01e-5	1.83e-5				8.98e-1		9.96e-1	
77								8.97e-1			
80			9.40e-6	1.95e-5				8.94e-1		9.96e-1	
85			8.18e-6								
90		8.91e-6	7.17e-6	1.80e-5				8.87e-1		9.96e-1	
95			7.55e-6								
100		8.43e-6	7.63e-6	1.75e-5				8.79e-1		9.95e-1	
105		8.95e-6									
110	8.72e-6	8.22e-6	1.00e-5							9.95e-1	
120	7.67e-6	8.33e-6	8.67e-6	2.00e-5	2.36e-2	1.43e-1	4.79e-1	8.64e-1		9.94e-1	
130	7.95e-6	7.20e-6	7.33e-6							9.94e-1	
135			7.00e-6								
140	6.91e-6	7.80e-6	8.00e-6	1.50e-5							
150	1.04e-5	9.40e-6	1.69e-5	2.00e-5	1.90e-2	1.21e-1	4.33e-1	8.41e-1		9.93e-1	
160		1.00e-5									
170	9.50e-6							8.24e-1		9.91e-1	
180	8.88e-6	8.00e-6									
190		4.00e-6									
200	7.50e-6	7.00e-6		3.00e-5	1.31e-2	9.55e-2	3.70e-1	7.98e-1	9.34e-1	9.90e-1	
220	6.67e-6										
230	6.00e-6										
250	7.00e-6							7.58e-1		9.86e-1	
300	6.00e-6			3.00e-5				7.23e-1		9.80e-1	
500					5.90e-3		1.86e-1	5.85e-1		9.54e-1	
1000					4.60e-3		9.86e-2	3.73e-1		8.62e-1	
3000					2.90e-3		4.56e-2	1.65e-1		5.52e-1	
10000					8.00e-4			8.80e-2		2.79e-1	8.35e-1
30000								5.84e-2		1-.84e-1	
100000								4.12e-2		1.32e-1	

Energy reflection coefficient of Xe backscattered from C
ne=38, na=11

E_0 (eV)	0°	15°	30°	45°	60°	65°	70°	75°	77.5°	80°	85°
53								2.90e-1			
55				3.65e-6						5.72e-1	
56								2.91e-1			
59										5.75e-1	
60				7.12e-6				2.91e-1			
61										5.77e-1	
63										5.78e-1	
65				4.02e-6				2.92e-1		5.80e-1	
70			1.12e-5	2.89e-6				2.92e-1		5.83e-1	
75			2.91e-6	2.02e-6				2.92e-1		5.85e-1	
77								2.91e-1			
80			2.28e-6	3.06e-6				2.91e-1		5.88e-1	
85			4.10e-6								
90		1.89e-6	1.87e-6	1.81e-6				2.90e-1		5.92e-1	
95			1.48e-6								
100		1.68e-6	1.17e-6	8.03e-7				2.88e-1		5.95e-1	
105		1.57e-6									
110	3.97e-5	1.43e-6	9.10e-7							5.97e-1	
120	1.56e-6	1.62e-6	1.50e-6	6.82e-7	9.38e-4	1.13e-2	7.71e-2	2.85e-1		5.99e-1	
130	4.76e-6	1.07e-6	8.06e-6							6.00e-1	
135			6.46e-7								
140	1.17e-6	9.65e-7	6.08e-7	5.91e-7							
150	6.42e-6	6.33e-6	3.29e-6	4.26e-6	6.77e-4	9.15e-3	6.91e-2	2.75e-1		6.02e-1	
160		2.24e-6									
170	2.54e-6							2.70e-1		6.03e-1	
180	4.36e-6	1.54e-6									
190		9.00e-7									
200	1.40e-6	9.07e-7		5.42e-6	4.15e-4	6.93e-3	5.79e-2	2.60e-1	4.25e-1	6.02e-1	
220	1.24e-6										
230	2.84e-6										
250	7.98e-7							2.43e-1		5.98e-1	
300	1.99e-6			2.14e-7				2.27e-1		5.93e-1	
500					9.16e-5		2.41e-2	1.73e-1		5.59e-1	
1000					6.43e-5		8.45e-3	9.15e-2		4.67e-1	
3000					2.77e-5		2.00e-3	2.28e-2		2.32e-1	
10000					1.50e-6			7.71e-3		7.39e-2	6.11e-1
30000								4.67e-3		3.35e-2	
100000								3.32e-3		2.35e-2	

Xe -> C

Average depth (mean range) of Xe implanted in C
z1 = 54, m1 = 131.30. z2 = 6, m2 = 12.01, sbe=7.42 eV, rho = 2.26 g/cm**3
ef=0.50, esb=0.00, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=1 (KrC)
program: testvmcx
ne = 43, na=11

Bq (eV)	0°	15°	30°	45°	60°	65°	70°	75°	77.5°	80°	85°
50	1.20e+1										
53								2.48e+0			
55				8.24e+0						2.12e+0	
56								2.55e+0			
59										2.21e+0	
60				8.57e+0				2.65e4-0			
61										2.25e+0	
63										2.29e4-0	
65				8.89e-f-0				2.76e+0		2.35e+0	
70			1.18e+1	9.19e+0				2.87e+0		2.44e+0	
75			1.21e4-1	9.47e+0				2.98e+0		2.52e+0	
77											
80			1.25e+1	9.75e+0				3.08e+0		2.61e+0	
85			1.28e4-1								
90		1.49e+1	1.31e+1	1.03e+1				3.28e4-0		2.82e+0	
95			1.34e+1								
100	1.62e+1	1.55e+1	1.37e+1	1.07e+1				3.45e+0		3.01e+0	
105											
110	1.68e+1	1.62e+1								3.10e+0	
120	1.74e+1	1.68e+1	1.48e+1	1.16e+1	7.21e+0	5.70e+0	4.54e4-0	3.76e+0		3.30e+0	
130	1.80e+1	1.73e+1	1.53e+1							3.29e+0	
135			1.56e+1								
140	1.86e4-1	1.79e+1	1.58e+1	1.24e+1							
150	1.91e+1	1.84e+1		1.28e+1	8.03e-J-0	6.36e4-0	5.05e+0	4.16e+0		3.53e+0	
160		1.89e+1									
170	2.01e+1		1.71e+1	1.35e+1				4.44e+0		3.86e4-0	
180	2.06e+1	1.98e+1									
190		2.03e+1									
200	2.15e-f-1	2.07e+1	1.84e4-1	1.45e+1	9.20e+0	7.27e+0	5.80e+0	4.80e+0	4.42e+0	4.20e+0	
220		2.15e+1									
230	2.28e+1										
250	2.36e+1	2.27e+1	2.01e+1	1.59e+1				5.28e+0		4.54e+0	
300	2.54e+1	2.45e+1	2.17e+1	1.73e4-1				5.75e+0		4.98e+0	
500	3.14e+1	3.02e+1	2.69e+1	2.14e+1	1.41e-H		8.97e+0	7.25e4-0		6.29e+0	
700	3.61e4-1										
1000	4.20e+1	4.05e+1	3.61e+1	2.91e+1	1.95e+1		1.26e+1	1.01e+1		8.26e4-0	
2000	5.69e+1										
3000	6.84e+1	6.62e+1	5.90e+1	4.79e+1	3.30e+1		2.21e+1	1.73e+1		1.41e+1	
4000	7.85e+1										
7000	1.03e+2										
10000	1.24e+2	1.20e+2	1.08e+2	8.80e+1	6.12e+1			3.34e+1		2.56e+1	2.09e+1
30000	2.33e+2	2.24e+2	2.01e+2	1.64e+2				6.23e+1		4.77e+1	
100000	5.17e+2	5.05e+2	4.51e+2	3.68e+2				1.39e+2		1.06e+2	

D -4Al

Sputtering yield of Al by D
zl = 1, ml = 2.01. z2=13, m2= 26.98. sbe=3.36 eV. rho = 2.70 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: testvmcx
ne= 5, na=l

Ep(eV)	0°
40	7.55e-3
300	4.15e-2
1000	3.91e-2
3000	2.87e-2
10000	1.33e-2

Sputtered energy of Al by D
ne= 5, na=l

E_0 (eV)	0°
40	3.33e-4
300	1.07e-3
1000	4.64e-4
3000	1.63e-4
10000	2.46e-5

Particle reflection coefficient of D backscattered from Al
zl= 1, ml = 2.01, z2 = 13, m2= 26.98, sbe=3.36 eV, rho = 2.70 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 5, na=l

Eq(eV)	0°
40	4.24e-l
300	2.96e-l
1000	2.04e-l
3000	1.08e-l
10000	3.06e-2

Energy reflection coefficient of D backscattered from Al
ne= 5, na=l

E_0 (eV)	0°
40	2.14e-l
300	1.32e-l
1000	8.23e-2
3000	3.67e-2
10000	8.39e-3

Average depth (mean range) in Å of D implanted in Al
ne= 5, na=l

E_0 (eV)	0°
40	2.17e+l
300	9.32e + l
1000	2.52e + 2
3000	6.66e4-2
10000	1.95e4-3

He -> Al

Sputtering yield of Al by He
zl = 2. ml= 4.00. z2= 13, m2= 26.98. sbe=3.36 eV. rho = 2.70 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, TPP 9/82
ne=13, na=l

E_0 (eV)	0°
15	1.83e-4
20	2.83e-3
30	1.46e-2
40	2.97e-2
50	4.20e-2
70	6.24e-2
100	8.64e-2
300	1.49e-l
500	1.62e-l
1000	1.63e-l
5000	1.10e-l
10000	7.62e-2
30000	3.47e-2

Sputtered energy of Al by He
program: trspvmcx
ne=13, na=l

B_0 (eV)	0°
15	7.37e-6
20	1.50e-4
30	9.58e-4
40	1.98e-3
50	2.74e-3
70	3.77e-3
100	4.38e-3
300	4.42e-3
500	3.48e-3
1000	2.45e-3
5000	5.37e-4
10000	1.95e-4
30000	3.63e-5

He —> Al

Particle reflection coefficient He backscattered from Al
zl = 2. ml = 4.00, z2= 13, m2 = 26.98, sbe=3.36 eV, rho=2.70 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: trspvmcx
ne=13, na=l

E_0 (eV)	0°
15	4.86e-l
20	4.51e-l
30	4.04e-l
40	3.73e-l
50	3.59e-l
70	3.33e-l
100	3.12e-l
300	2.44e-l
500	2.17e-l
1000	1.79e-l
5000	8.30e-2
10000	4.94e-2
30000	1.38e-2

Energy reflection coefficient of He backscattered from Al
ne = 13, na=l

E_0 (eV)	0°
15	2.15e-l
20	1.95e-l
30	1.69e-l
40	1.53e-l
50	1.45e-l
70	1.31e-l
100	1.21e-l
300	9.05e-2
500	7.82e-2
1000	6.10e-2
5000	2.46e-2
10000	1.36e-2
30000	3.16e-3

Average depth (mean range) in Å of He implanted in Al
ne=13, na=l

Bo(eV)	0°
15	6.59e+0
20	7.83e + 0
30	1.01e4-l
40	1.21e + l
50	1.39e+l
70	1.73e+l
100	2.20e + l
300	4.85e + l
500	7.18e + l
1000	1.26e + 2
5000	5.35e+2
10000	1.01e+3
30000	2.72e+3

Ne -> Al

Sputtering yield of Al by Ne
zl = 10, ml = 20.18, z2=13, m2= 26.98, sbe=3.36 eV, rho=2.70 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=sl.OO, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: IPP 9/82
ne=14, na=l

E_0 (eV)	0°
20	2.40e-4
30	4.46e-3
50	3.90e-2
100	1.74e-l
200	3.85e-l
500	6.92e-l
1000	9.17e-l
2000	1.06e-0
5000	1.13e-0
10000	1.09e-0
20000	9.71e-l
50000	7.64e-l
100000	5.53e-l
200000	4.12e-l

Al -4- Al

Sputtering yield of Al by A]
zl = 13, ml = 26.98. z2= 13, m2 = 26.98. sbe=3.36 eV. rho=2.70 g/cm**3
ef=3.30 eV. esb=3.36 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx
ne= 6, na=l

MeV)	0⁷³
40	1.16e-2
80	8.75e-2
200	3.46e-l
500	7.22e-l
50000	1.04e-0
100000	7.92e-l

Sputtered energy of Al by Al
ne= 6, na=l

E_0 (eV)	0°
40	6.10e-4
80	3.31e-3
200	9.10e-3
500	1.15e-2
50000	1.43e-3
100000	6.57e-4

Particle reflection coefficient of Al backscattered from Al
zl = 13, ml= 26.98, z2= 13, m2= 26.98, sbe=3.36 eV, rho=2.70 g/cm**3
ef=3.30 eV, esb=3.36 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx
ne= 6, na=l

E_0 (eV)	0°
40	1.28e-3
80	5.60e-3
200	9.40e-3
500	1.54e-2
50000	1.50e-3
100000	5.00e-4

Energy reflection coefficient of Al backscattered from Al
ne— 6, na=l

E_0 (eV)	0°
40	9.42e-5
80	3.39e-4-
200	4.41e-4
500	6.12e-4
50000	8.67e-5

Average depth (mean range) in Å of Al implanted in Al
ne= 6, na=l

E_0 (eV)	0°
40	4.04e4-0
80	6.34e+0
200	1.12e+ l
500	1.98e+l
50000	7.33e+2
100000	1.46e+3

Al->Al

Sputtering yield of Al by Al
zl = 13, ml = 26.98, z2 = 13, m2 = 26.98. sbe = 3.36 eV, rho = 2.70 g/cm**3
ef=3.30 eV, esb=3.36 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, *ipot=ipotr=2 (Molierej*
program: trspvmcx
ne= 11, na= 1

E_0 (eV)	0°
40	1.61e-2
60	6.88e-2
80	1.43e-l
200	5.88e-l
500	1.16e-0
1000	1.56e-0
5000	1.91e-0
10000	1.76e-0
20000	1.55e-0
50000	1.14e-0
100000	9.67e-l

Sputtered energy of Al by Al
ne=ll, na=l

Ep(eV)	ö73
40	9.29e-4
60	3.42e-3
80	6.39e-3
200	1.55e-2
500	1.81e-2
1000	1.56e-2
5000	7.29e-3
10000	4.75e-3
20000	2.81e-3
50000	1.27e-3
100000	6.13e-4

Particle reflection coefficient of Al backscattered from Al
zl = 13, ml = 26.98, z2 = 13, m2= 26.98, sbe=3.36 eV, rho=2.70 g/cm**3
ef=3.30 eV, esb=3.36 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, *ipot=ipotr=2 (Moliere)*
program: trspvmcx
ne=ll, na=l

E_0 (eV)	0°
40	1.03e-3
60	3.35e-3
80	6.70e-3
200	1.45e-2
500	1.44e-2
1000	1.20e-2
5000	7.00e-3
10000	3.33e-3
20000	2.00e-3
50000	8.00e-4

Energy reflection coefficient of Al backscattered from Al
ne=ll, na=l

E_0 (eV)	0°
40	7.51e-5
60	2.47e-4
80	4.33e-4
200	7.47e-4
500	5.34e-4
1000	5.39e-4
5000	3.29e-4
10000	1.88e-4
20000	1.50e-4
50000	3.51e-5

Average depth (mean range) in Å of Al implanted in Al
ne=ll, na=l

E_0 (eV)	0°
40	2.33e+0
60	3.21e+0
80	4.03e+0
200	7.52e + 0
500	1.43e4-l
1000	2.28e + l
5000	8.26e + l
10000	1.51e4-2
20000	2.89e+2
50000	7.09e+2
100000	1.43e + 3

Ar –> Al

Sputtering yield of Al by Ar
zl = 18, ml = 39.95, z2 = 13, m2= 26.98, sbe=3.36 eV, rho=2.70 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TPP 9/82, trslc, trvmc95c
ne=18, na=4

E_0 (eV)	0°	30°	60°	85°
30	5.10e-4			
50	1.09e-2			
100	9.72e-2			
100	1.17e-l	3.78e-l	6.67e-l	1.93e-3
200	3.10e-l			
500	7.38e-l			
500	9.10e-l	1.58e-0	2.99e-0	3.716-2
1000	1.08e-0			
1000	1.37e-0	2.21e-0	4.57e-0	1.43e-l
1000	1.10e-0			
2000	1.40e-0			
5000	1.73e-0			
10000	1.87e-0			
10000	2.39e-0	3.54e-0	9.08e-0	6.53e-0
20000	1.87e-0			
50000	1.69e-0			
100000	1.45e-0			
200000	1.18e-0			

Sputtered energy of Al by Ar
program: trslc, trvmc95c
ne= 5, na=4

E_0 (eV)	0°	30°	60°	85°
100	3.67e-3	2.48e-2	9.43e-2	1.45e-4
500	1.33e-2	3.97e-2	1.61e-l	1.10e-3
1000	1.38e-2	3.67e-2	1.54e-l	3.74e-3
1000	1.16e-2			
10000	7.29e-3	1.86e-2	9.11e-2	1.07e-l

Particle reflection coefficient of Ar backscattered from Al
zl = 18, ml = 39.95, z2 = 13, m2= 26.98, sbe=3.36 eV, rho=2.70 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trslc, trvmc95c
ne= 5, na=4

Bo(eV)	0°	30°	60°	85°
100	3.14e-3	5.72e-2	5.67e-l	1.00e-0
500	2.32e-3	2.52e-2	3.01e-l	1.00e-0
1000	2.18e-3	1.84e-2	2.24e-l	9.99e-l
1000	2.80e-3			
10000	9.20e-4	7.47e-3	1.07e-l	8.01e-l

Energy reflection coefficient of Ar backscattered from Al
ne= 5, na=4

Ro(eV)	0°	30°	60°	85°
100	6.99e-5	4.38e-3	1.88e-l	9.42e-l
500	3.83e-5	1.38e-3	8.07e-2	9.53e-l
1000	3.62e-5	9.37e-4	5.17e-2	9.43e-l
1000	1.33e-5			
10000	2.10e-5	4.47e-4	2.06e-2	6.39e-l

Average depth (mean range) in Å of Ar implanted in Al
ne= 5, na=4

Ro(eV)	0°	30°	60°	85°
100	5.32e-j-0	4.55e+0	3.07e + 0	1.20e+0
500	1.42e + 1	1.23e+l	8.36e+0	4.42e4-0
1000	2.16e + 1	1.88e+l	1.26e+l	6.84e + 0
1000	2.90e + 1			
10000	1.05e+2	9.11e+l	5.89e + 1	3.71e4-l

H -> Si

Sputtering yield of Si by H
zl = 1, ml = 1.01, z2 = 14, m2= 28.09, sbe=4.70, rho=2.33 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : trvmc95, IPP 9/82
ne=ll, na= 1

Eo (eV)	0°
50	5.23e-5
60	3.60e-4
70	8.90e-4
100	2.40e-3
200	7.60e-3
300	9.57e-3
500	1.10e-2
1000	1.05e-2
2000	9.00e-3
5000	5.50e-3
10000	3.60e-3

Sputtered energy of Si by H
program : trvmc95
ne= 2, na= 1

Ep(eV)	(T
50	5.16e-7
300	2.Ole-4

Particle reflection coefficient of H backscattered from Si
zl= 1, ml= 1.01, z2 = 14, m2= 28.09, sbe=4.70, rho=2.32 g/cm**3
ef=0.95 eV, esb=1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : trvmc95
ne= 2, na= 1

Eo(eV)	" Ö6"
50	4.65e-l
300	3.35e-l

Energy reflection coefficient of H backscattered from Si
ne= 2, na= 1

E_0 (eV)	0°
50	2.53e-l
300	1.58e-l

Average depth (mean range) in Ä of H implanted in Si
ne= 2, na= 1

B_0 (eV)	0°
50	3.33e+l
300	1.12e+2

D -> Si

Sputtering yield of Si by D
zl = 1. ml= 2.01, z2 = 14, m2= 28.09, sbe=4.70. rho=2.32 g/cm**3
ef=0.95 eV, esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : trvmc95, trspvmcx. IPP 9/82
ne=10, na= 9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
25	1.90e-6	8.25e-3	1.1le-2	1.57e-2	1.87e-2	1.85e-2	1.08e-2	5.51e-3	2.51e-3
27	2.82e-5								
30	1.52e-4	1.22e-2	1.69e-2	2.54e-2	3.25e-2	3.46e-2	2.07e-2	1.02e-2	3.82e-3
50	3.09e-3	2.40e-2	3.45e-2	5.78e-2	8.53e-2	1.07e-l	7.40e-2	3.23e-2	7.37e-3
100	1.15e-2	3.59e-2	5.42e-2	9.78e-2	1.49e-l	2.13e-l	2.00e-l	1.01e-l	1.27e-2
200	2.03e-2	4.03e-2	6.32e-2	1.14e-l	1.77e-l	2.68e-l	3.42e-l	2.43e-l	2.93e-2
500	2.48e-2	3.85e-2	5.82e-2	1.04e-l	1.59e-l	2.57e-l	4.08e-l	4.39e-l	1.38e-l
1000	2.36e-2	2.96e-2	4.37e-2	7.80e-2	1.25e-l	2.06e-l	3.65e-l	4.59e-l	3.34e-l
2000	1.96e-2								
5000	1.22e-2								

Sputtered energy of Si by D
program : trvmc95
ne= 2, na= 1

MeV)	0°
25	1.67e-8
27	3.28e-7

Particle reflection coefficient of D backscattered from Si
zl= 1, ml= 2.01, z2 = 14, m2= 28.09, sbe=4.70, rho=2.32 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc95
ne= 3, na= 1

E_0 (eV)	0°
20	4.64e-l
25	4.51e-l
27	4.47e-l

Energy reflection coefficient of D backscattered from Si
ne= 3, na= 1

E_0 (eV)	0°
20	2.44e-l
25	2.34e-l
27	2.31e-l

Average depth (mean range) in Ä of D implanted in Si
ne= 3, na= 1

Eo(eV)	0°
20	1.67e-(-l
25	1.93e + l
27	2.02e + l

D on Si, Maxwellian velocity distribution, sheath potential 3 kT
zl= 1, ml= 2.01, z2 = 14, m2= 28.09, sbe=4.70 eV, rho= 2.32 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l(KrC)
program: trvmc95
ne=ll

kT(eV)	Y	Y_E	E_{sp}	R_N	R_E	E_b	range
5	2.47e-4	1.56e-5	1.58e-f-0	4.99e-l	2.77e-l	1.39e + l	1.89e4-l
7	1.19e-3	7.04e-5	2.07e-}-0	4.74e-l	2.57e-l	1.90e + l	2.33e + l
10	4.05e-3	2.26e-4	2.79e+0	4.52e-l	2.41e-l	2.66e+l	2.94e+l
20	1.47e-2	7.06e-4	4.79e+0	4.12e-l	2.11e-l	5.12e+l	4.72e+l
30	2.20e-2	9.09e-4	6.19e4-0	3.89e-l	1.95e-l	7.51e4-l	6.29e+l
50	2.97e-2	9.85e-4	8.30e-|-0	3.55e-l	1.73e-l	1.22e+2	9.20e-{-l
100	3.54e-2	7.88e-4	1.1le + 1	3.06e-l	1.41e-l	2.31e-f-2	1.58e+2
200	3.62e-2	5.55e-4	1.53e4-l	2.52e-l	1.08e-l	4.31e-J-2	2.81e+2
300	3.39e-2	3.82e-4	1.69e + l	2.14e-l	8.66e-2	6.08e+2	3.96e-|-2
500	2.76e-2	2.33e-4	2.12e+l	1.71e-l	6.30e-2	9.23e+2	6.17e + 2
1000	2.03e-2	9.66e-5	2.38e + l	1.08e-l	3.47e-2	1.61e4-3	1.13e+3

He Si

Sputtering yield of Si by He
zl = 2, ml= 4.00, z2= 14, m2= 28.09. sbe=4.70, rho=2.32 g/cm**3
ef=0.50 eV. esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trspvmcx, IPP 9/82
ne= 6, na= 1

E_0 (eV)	0°
50	1.64e-2
100	4.43e-2
300	8.77e-2
500	1.01e-l
1000	1.04e-l
4000	8.08e-2

Sputtered energy of Si by He
program : trspvmcx
ne= 6, na= 1

Eo(eV)	0°
50	1.08e-3
100	2.61e-3
300	3.37e-3
500	2.88e-3
1000	1.99e-3
4000	6.47e-4

Particle reflection coefficient of He backscattered from Si
zl= 2, ml= 4.00, z2= 14, m2= 28.09, sbe=4.70, rho=2.32 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trspvmcx
ne= 6, na= 1

E_0 (eV)	0°
50	3.60e-l
100	3.16e-l
300	2.57e-l
500	2.27e-l
1000	1.88e-l
4000	1.06e-l

Energy reflection coefficient of He backscattered from Si
ne= 6, na= 1

E_0 (eV)	0°
50	1.47e-l
100	1.24e-l
300	9.54e-2
500	8.37e-2
1000	6.68e-2
4000	3.32e-2

Average depth (mean range) in Ä of He implanted in Si
ne= 6, na= 1

E_0 (eV)	0°
50	1.69e + 1
100	2.66e+l
300	5.75e+l
500	8.46e+l
1000	1.48e+2
4000	5.04e+2

C → Si

C on Si, Maxwellian velocity distribution, sheath potential 9 kT
zl = 6, ml= 12.01, z2 = 14, m2= 28.09, sbe=4.70 eV, rho= 2.32 g/cm**3
ef=4.65 eV, esb = 4.70 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc
ne= 5

kT(eV)	Y	Ye	E_{sn}	■R-n	Rje?	E_{k}	range
5	5.27e-2	4.74e-3	4.94e+0	1.42e-l	2.72e-2	1.05e+l	7.91e+0
10	1.46e-l	9.82e-3	7.41e+0	1.50e-l	2.95e-2	2.15e+l	1.24e+l
20	2.75e-l	1.30e-2	1.04e+l	1.40e-l	2.72e-2	4.26e + l	1.92e + l
40	4.10e-l	1.35e-2	1.45e + l	1.24e-l	2.35e-2	8.37e + l	3.04e + l
50	5.57e-l	1.31e-2	1.58e+l	1.17e-l	2.14e-2	1.01e+2	3.54e + l

C on Si, Maxwellian velocity distribution, sheath potential 9 kT
zl= 6, ml= 12.01, z2 = 14, m2 = 28.09, sbe=4.70 eV, rho= 2.32 g/cm**3
ef=0.98 eV, esb=1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l(KrC)
program: trvmc
ne= 4

kT(eV)	Y	Yß	E sp	■R/V	Re	Bfe	range
5	4.79e-2	4.27e-3	4.90e+0	2.27e-l	4.62e-2	1.12e + l	8.29e + 0
10	1.42e-l	9.32e-3	7.24e4-0	1.90e-l	3.69e-2	2.14e + l	1.26e4-l
20	2.71e-l	1.30e-2	1.05e + l	1.57e-l	2.94e-2	4.13e + l	1.94e + l
40	4.10e-l	1.34e-2	1.43e + l	1.34e-l	2.48e-2	8.15e + l	3.05e+l

Ne -4- Si

Sputtering yield of Si by Ne
zl = 10, ml= 20.18, z2 = 14, m2= 28.09, sbe=4.70, rho=2.32 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : IPP 9/82
ne=12, na= 1

Bo(eV)	0°
30	7.60e-4
40	4.50e-3
50	1.15e-2
70	3.60e—2
100	8.00e-2
300	3.00e-l
1000	6.20e-l
3000	7.70e-l
10000	7.90e-l
30000	6.80e-l
100000	4.10e-l
300000	2.70e-l

Mg -4- Si

Particle reflection coefficient of Mg backscattered from Si
zl = 12, miss 24.00, z2= 14, m2= 28.09. rho= 2.33 g/cm**3
ef=1.00 eV. esb = 1.00 eV. ca=1.00. kk0 = 2. kdeel = 3, ipot = l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

E_0 (eV)	0°
100000	1.55e-3
200000	6.10e-4

Energy reflection coefficient of Mg backscattered from Si
only low fluence!
ne= 2, na= 1

E_0 (eV)	0°
100000	1.03e-4
200000	3.36e-5

Average depth (mean range) in Ä of Mg implanted in Si
only low fluence!
ne= 2, na= 1

B_0 (eV)	0°
100000	1.78e + 3
200000	3.47e+3

Al → Si

Particle reflection coefficient of Al backscattered from Si
zl = 13, miss 27.00; z2=14. m2 = 28.09, rho= 2.33 g/cm**3
ef=1.00 eV, esb=1.00 eV, ca=1.00, kk0=2, kdeel=3, ipot=l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

E_0 (eV)	0°
100000	9.17e-4
200000	3.65e-4

Energy reflection coefficient of Al backscattered from Si
only low fluence!
ne= 2, nass 1

Bo(eV)	0°
100000	4.86e-5
200000	1.73e-5

Average depth (mean range) in Ä of Al implanted in Si
only low fluence!
ne= 2, na= 1

E_0 (eV)	0°
100000	1.65e+3
200000	3.22e+3

Si Si

Sputtering yield of Si by Si
zl = 14, ml = 28.09. z2 = 14, m2= 28.09. sbe=4.70 eV. rho=2.32 g/cm**3
ef=4.65 eV, esb=4.70 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc, trvmc95, IPP 9/82
ne=18, na= 9

Bo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
30	4.70e-4								
40	2.00e-3								
50	1.40e-2								
70	3.80e-2								
100	6.20e-2								
300	3.00e-l								
500	4.40e-l	5.38e-l	8.43e-l	1.35e-0	1.76e-0	2.03e-0	1.69e-0	1.07e-0	3.50e-l
1000	7.00e-l								
1000	4.60e-l								
2000	8.96e-l	1.02e-0	1.47e-0	2.32e-0	3.12e-0	3.97e-0	4.24e-0	3.52e-0	1.26e-0
3000	9.60e-l								
10000	1.20e-0								
25000	1.13e-0								
30000	1.02e-0								
50000	1.09e-0								
75000	9.13e-l								
100000	7.36e-l								
100000	7.90e-l								

Sputtered energy of Si by Si
program : trvmc95
ne= 2, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
500	9.04e-3	1.33e-2	2.87e-2	6.38e-2	1.01e-l	1.44e-l	1.54e-l	1.12e-l	
2000	9.22e-3	1.23e-2	2.46e-2	5.24e-2	8.53e-2	1.29e-l	1.69e-l	1.60e-l	6.76e-2

Particle reflection coefficient of Si backscattered from Si
zl = 14, ml= 28.09, z2 = 14, m2= 28.09, sbe=4.70 eV, rho=2.32 g/cm**3
ef=4.65 eV, esb = 4.70 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc95
ne= 2, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
500	1.20e-2	1.87e-2	4.32e-2	1.06e-l	1.91e-l	3.38e-l	6.05e-l	8.01e-l	
2000	1.08e-2	1.52e-2	3.13e-2	8.07e-2	1.42e-l	2.51e-l	4.44e-l	6.14e-l	9.00e-l

Energy reflection coefficient of Si backscattered from Si
ne= 2, na= 9

B_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
500	5.55e-4	1.16e-3	4.46e-3	1.86e-2	4.77e-2	1.24e-l	3.39e-l	5.58e-l	
2000	4.51e-4	8.81e-4	3.00e-3	1.24e-2	3.06e-2	7.76e-2	2.09e-l	3.80e-l	7.57e-l

Average depth (mean range) in Å of Si implanted in Si
ne= 2, na= 9

B_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
500	2.28e + l	2.21e-f-l	2.02e + l	1.75e4-l	1.55e-)-l	1.35e+l	1.16e + l	1.06e-}-l	
2000	5.55e-|-l	5.39e+l	4.91e+l	4.23e-f-l	3.71e + l	3.21e-j-l	2.77e + l	2.57e-|-l	2.37e + l

Si —> Si

Sputtering yield of Si by Si
zl = 14. ml= 28.09. z2=14. m2= 28.09. sbe=4.70 eV. rho=2.32 g/cm**3
ef=4.60 eV. esb=4.70 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3. KrC potential
program : testsi. Gauss-Mehler integration (nn-n=16)
ne=12. na=15

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	1.64e-4											
30	5.42e-4											
40	2.79e-3											
50	7.93e-3											
70	2 72e-2											
100	6.81e-2											
200	2.13e-l	2.46e-l	3.40e-l	5.07e-l	7.06e-l	9.34e-l	1.03e-0	1.08e-0	1.06e-0	9.66e-l	7.47e-l	4.63e-l
500	5.08e-l											
1000	7.52e-l											
2000	9.72e-l											
5000	1.19e-0											
10000	1.24e-0											

E_0 (eV)	85°	87°	88°	89°
200	2.44e-l	1.89e-l	1.70e-l	1.64e-l

Sputtered energy of Si by Si
ne=12. na=15

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	9.07e-6											
30	3.17e-5											
40	1.60e-4											
50	4.21e-4											
70	1.28e-3											
100	2.78e-3											
200	6.40e-3	8.36e-3	1.46e-2	2.82e-2	4.99e-2	8.33e-2	1.04e-l	1.21e-l	1.33e-l	1.36e-l	1.18e-l	7.73e-2
500	1.00e-2											
1000	1.05e-2											
2000	9.64e-3											
5000	7.41e-3											
10000	5.48e-3											

E_0 (eV)	85°	87°	88°	89°
200	3.97e-2	2.91e-2	2.64e-2	2.54e-2

Si → Si

Particle reflection coefficient of Si backscattered from Si
z1 = 14, m1 = 28.09, z2 = 14, m2 = 28.09, sbe = 4.70 eV, rho=2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV, ca=1.00. kk0=kk0r=2, kdee1 = kdee2=3, KrC potential
program : testsi, Gauss-Mehler integration (nnn=16)
ne=12, na=15

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	5.38e-6											
30	2.91e-5											
40	1.83e-4											
50	4.77e-4											
70	1.57e-3											
100	3.11e-3											
200	7.34e-3	1.02e-2	2.09e-2	4.50e-2	8.87e-2	1.77e-1	2.41e-1	3.27e-1	4.40e-1	5.71e-1	7.23e-1	8.67e-1
500	1.15e-2											
1000	1.11e-2											
2000	9.77e-3											
5000	6.89e-3											
10000	5.02e-3											

E_0 (eV)	85°	87°	88°	89°
200	9.48e-1	9.68e-1	9.71e-1	9.74e-1

Energy reflection coefficient of Si backscattered from Si
ne=12, na=15

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	3.04e-7											
30	1.98e-6											
40	1.27e-5											
50	3.20e-5											
70	8.79e-5											
100	1.69e-4											
200	3.41e-4	6.05e-4	1.75e-3	5.17e-3	1.49e-2	4.14e-2	6.80e-2	1.10e-1	1.78e-1	2.74e-1	4.11e-1	5.78e-1
500	5.06e-4											
1000	4.59e-4											
2000	4.39e-4											
5000	3.29e-4											
10000	2.40e-4											

E_0 (eV)	85°	87°	88°	89°
200	7.15e-1	7.52e-1	7.62e-1	7.68e-1

Average depth (mean range) in Å of Si implanted in Si
ne=12, na=15

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	2.81e+0											
30	3.21e+0											
40	3.93e+0											
50	4.56e+0											
70	5.71e+0											
100	7.16e+0											
200	1.11e+1	1.09e+1	1.05e+1	9.79e+0	8.96e+0	7.86e+0	7.43e+0	6.91e+0	6.26e+0	5.76e+0	5.25e+0	4.29e+0
500	1.97e+1											
1000	3.08e+1											
2000	4.93e+1											
5000	9.70e+1											
10000	1.70e+2											

E_0 (eV)	85°	87°	88°	89°
200	3.55e+0	3.19e+0	3.28e+0	2.88e+0

Si —> Si

Sputtering yield of Si by Si
z1 = 14. m1 = 28.09. z2=14. m2= 28.09. sbe=4.70 eV. rho=2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV, ca=1.00. kk0=kk0r=2. kdeel=kdee2 = 3. *ipot=ipotr=2 (Moliere potential)*
program : testsi, Gauss-Mehler integration (nnn=16)
ne=12. na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	1.86e-4											
30	5.83e-4											
40	3.16e-3											
50	9.53e-3											
70	3.48e-2											
100	8.76e-2											
200	2.86e-1	3.19e-1	4.37e-1	6.16e-1	8.25e-1	1.03e-0	1.11e-0	1.12e-0	1.05e-0	9.12e-1	6.87e-1	4.18e-1
500	6.75e-1											
1000	9.64e-1											
2000	1.18e-0											
5000	1.27e-0											
10000	1.25e-0											

E_0 (eV)	85°	87°	88°	89°
200	2.08e-1	1.64e-1	1.53e-1	1.40e-1

Sputtered energy of Si by Si
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	1.01e-5											
30	3.36e-5											
40	1.86e-4											
50	5.28e-4											
70	1.74e-3											
100	3.69e-3											
200	8.63e-3	1.08e-2	1.89e-2	3.43e-2	5.85e-2	9.36e-2	1.14e-1	1.27e-1	1.35e-1	1.30e-1	1.06e-1	6.67e-2
500	1.29e-2											
1000	1.26e-2											
2000	1.05e-2											
5000	7.01e-3											
10000	4.67e-3											

Bo(eV)	85°	87°	88°	89°
200	3.09e-2	2.26e-2	2.11e-2	1.87e-2

Si Si

Particle reflection coefficient of Si backscattered from Si
zl = 14, ml = 28.09. z2 = 14, m2= 28.09. sbe=4.70 eV, rho=2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, *ipot=ipotr=2* *(Moliere potential)*
program : testsi, Gauss-Mehler integration (nnn = 16)
ne=12, na=16

Bo(eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	2.13e-6											
30	2.78e-5											
40	1.93e-4											
50	6.27e-4											
70	1.67e-3											
100	4.03e-3											
200	9.50e-3	1.27e-2	2.56e-2	5.34e-2	1.13e-l	2.13e-l	2.86e-l	3.77e-l	4.96e-l	6.36e-l	7.71e-l	8.97e-l
500	1.23e-2											
1000	1.lle-2											
2000	8.58e-3											
5000	6.04e-3											
10000	4.03e-3											

E_0 (eV)	85°	87°	88°	89°
200	9.67e-l	9.78e-l	9.80e-l	9.83e-l

Energy reflection coefficient of Si backscattered from Si
ne=12, na=16

Bo(eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	1.91e-7											
30	1.95e-6											
40	1.40e-5											
50	4.14e-5											
70	1.06e-4											
100	2.27e-4											
200	4.65e-4	7.71e-4	2.14e-3	6.34e-3	1.99e-2	5.16e-2	8.39e-2	1.32e-l	2.05e-l	3.16e-l	4.52e-l	6.07e-l
500	5.43e-4											
1000	4.69e-4											
2000	3.86e-4											
5000	2.91e-4											
10000	2.10e-4											

E_0 (eV)	85°	87°	88°	89°
200	7.38e-l	7.69e-l	7.75e-l	7.84e-l

Average depth (mean range) in Å of Si implanted in Si
ne=12, na=16

B_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	2.26e+0											
30	2.59e+0											
40	3.19e+0											
50	3.72e+0											
70	4.67e+0											
100	5.88e+0											
200	9.17e+0	9.04e+0	8.65e+0	8.06e4-0	7.38e+0	6.56e+0	6.06e+0	5.71e+0	5.24e4-0	4.69e+0	4.24e+0	3.54e+0
500	1.65e4-l											
1000	2.65e4-l											
2000	4.38e+l											
5000	9.16e + l											
10000	1.67e+2											

E_0 (eV)	85°	87°	88°	89°
200	2.66e+0	2.36e4-0	2.25e+0	2.35e+0

Si -> Si

Sputtering yield of Si by Si
zl = 14, ml = 28.09, z2 = 14, m2 = 28.09. sbe=4.70 eV. rho=2.33 g/cm**3
ef=4.60 eV. esb=4.70 eV, *ca=0.65.* kk0=kk0r=2, kdeel = kdee2=3, *ipot=ipotr=2 (Moliere potential)*
program : testsi. Gauss-Mehler integration (nnn = 16)
ne= 4, na= 1

Eq(eV)	0°
50	4.06e-3
70	1.38e-2
100	3.77e-2
200	1.37e-l

Sputtered energy of Si by Si
ne= 4, na= 1

Bq(eV)	0°
50	1.99e-4
70	6.24e-4
100	1.62e-3
200	4.60e-3

Particle reflection coefficient of Si backscattered from Si
zl = 14, ml= 28.09, z2 = 14, m2= 28.09, sbe=4.70 eV, rho=2.33 g/cm**3
ef=4.60 eV, esb=4.70 eV, *ca=0.65,* kk0=kk0r=2, kdeel=kdee2=3, *ipot=ipotr=2 (Moliere potential)*
program : testsi, Gauss-Mehler integration (nnn=16)
ne= 4, na= 1

Eo (eV)	Ö73
50	3.35e-4
70	1.16e-3
100	2.97e-3
200	7.31e-3

Energy reflection coefficient of Si backscattered from Si
ne= 4, na= 1

Ep(eV)	0 s
50	1.82e-5
70	6.87e-5
100	1.69e-4
200	3.86e-4

Average depth (mean range) in Ä of Si implanted in Si
ne= 4, na= 1

B o (eV)	0°
50	9.47e+0
70	1.13e+l
100	1.35e + l
200	1.94e+l

Si Si

Sputtering yield of Si by Si
z1 = 14, m1 = 28.09, z2=14, m2 = 28.09, sbe=4.70 eV, rho=2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, *ipot=ipotr=4 (Si-Si potential (with attractive part))*
program : testsi, Gauss-Mehler integration (nnn=16)
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	1.29e-4											
30	3.84e-4											
40	1.77e-3											
50	5.16e-3											
70	1.83e-2											
100	4.74e-2											
200	1.70e-1	1.86e-1	2.54e-1	3.74e-1	5.30e-1	7.13e-1	8.00e-1	8.71e-1	9.09e-1	8.99e-1	8.24e-1	7.25e-1
500	4.11e-1											
1000	6.61e-1											
2000	9.50e-1											
5000	1.24e-0											
10000	1.29e-0											

E_0 (eV)	85°	87°	88°	89°
200	5.87e-1	5.44e-1	5.40e-1	5.37e-1

Sputtered energy of Si by Si
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	7.26e-6											
30	2.17e-5											
40	9.58e-5											
50	2.73e-4											
70	8.55e-4											
100	1.92e-3											
200	5.39e-3	6.49e-3	1.08e-2	2.01e-2	3.61e-2	6.05e-2	7.56e-2	9.22e-2	1.08e-1	1.19e-1	1.18e-1	1.13e-1
500	8.61e-3											
1000	1.00e-2											
2000	1.03e-2											
5000	8.36e-3											
10000	6.03e-3											

E_0 (eV)	85°	87°	88°	89°
200	9.71e-2	9.11e-2	9.01e-2	9.05e-2

Si -> Si

Particle reflection coefficient of Si backscattered from Si
zl = 14, ml= 28.09, z2= 14, m2= 28.09, sbe=4.70 eV, rho=2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, *ipot=ipotr=4 (Si-Si potential (with attractive part))*
program : testsi, Gauss-Mehler integration (nnn = 16)
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	1.38e-6											
30	9.13e-6											
40	7.08e-5											
50	1.99e-4											
70	6.20e-4											
100	1.83e-3											
200	5.10e-3	7.25e-3	1.28e-2	2.78e-2	5.67e-2	1.16e-l	1.63e-l	2.19e-l	2.95e-l	3.83e-l	4.96e-l	5.98e-l
500	9.35e-3											
1000	1.12e-2											
2000	1.03e-2											
5000	7.89e-3											
10000	5.32e-3											

E_0 (eV)	85°	87°	88°	89°
200	6.97e-l	7.22e-l	7.28e-l	7.32e-l

Energy reflection coefficient of Si backscattered from Si
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	9.83e-8											
30	7.67e-7											
40	4.46e-6											
50	1.12e-5											
70	3.07e-5											
100.	9.83e-5											
200	2.37e-4	4.21e-4	1.01e-3	2.75e-3	8.18e-3	2.34e-2	3.84e-2	6.08e-2	9.63e-2	1.47e-l	2.17e-l	3.02e-l
500	4.18e-4											
1000	4.93e-4											
2000	4.73e-4											
5000	3.80e-4											
10000	2.64e-4											

E_0 (eV)	85°	87°	88°	89°
200	3.87e-l	4.13e-l	4.15e-l	4.19e-l

Average depth (mean range) in Ä of Si implanted in Si
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	3.20e + 0											
30	3.65e+0											
40	4.43e+0											
50	5.12e + 0											
70	6.35e-|-0											
100	7.96e+0											
20Ö	1.22e + l	1.21e+l	1.16e-|-l	1.07e + l	9.87e-f-0	8.73e+0	8.18e4-0	7.67e+0	7.13e+0	6.56e+0	6.04e+0	5.44e4-0
500	2.13e + l											
1000	3.22e + l											
2000	4.98e+l											
5000	9.66e-}-l											
10000	1.70e + 2											

E_0 (eV)	85°	87°	88°	89°
200	5.00e+0	4.85e4-0	4.85e+0	4.85e-|-0

Si —> Si

Sputtering yield of Si by Si
zl = 14, ml = 28.09. z2 = 14, m2= 28.09, sbe=4.70 eV, rho = 2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, *ipot=ipotr=3 (ZBL potential)*
program : testsi, Gauss-Mehler integration (nnn=16)
ne=12, na=16

Eq(eV)	0°	10“	20°	30“	40°	50°	55“	60“	65°	70“	75“	80°
25	1.27e-4											
30	4.29e-4											
40	2.21e-3											
50	6.15e-3											
70	2.12e-2											
100	5.28e-2											
200	1.73e-l	1.99e-l	2.82e-l	4.33e-l	6.28e-l	8.43e-l	9.52e-l	1.03e-0	1.03e-0	9.81e-l	8.02e-l	5.18e-l
500	4.18e-l											
1000	6.26e-l											
2000	8.37e-l											
5000	1.06e-0											
10000	1.12e-0											

E_0 (eV)	85°	87°	88“	89“
200	2.77e-l	2.14e-l	1.97e-l	1.87e-l

Sputtered energy of Si by Si
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	-75°	80°
25	7.06e-6											
30	2.44e-5											
40	1.20e-4											
50	3.14e-4											
70	9.70e-4											
100	2.06e-3											
200	5.30e-3	6.84e-3	1.23e-2	2.40e-2	4.48e-2	7.46e-2	9.47e-2	1.15e-l	1.28e-l	1.38e-l	1.26e-l	8.94e-2
500	8.58e-3											
1000	9.25e-3											
2000	8.83e-3											
5000	7.10e-3											
10000	5.34e-3											

E_0 (eV)	85°	87°	88“	89“
200	4.77e-2	3.72e-2	3.26e-2	3.04e-2

Si -> Si

Particle reflection coefficient of Si backscattered from Si
zl = 14. ml = 28.09. z2= 14. m2 = 28.09. sbe=4.70 eV, rho = 2.32 g/cm*"3
ef=4.60 eV. esb=4.70 eV, ca=1.00. kk0=kk0r=2. kdeel=kdee2 = 3. *ipot=ipotr=3 (ZBL potential)*
program : testsi. Gauss- Mehler integration (nnn=16)
ne=12. na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	3.50e-6											
30	2.38e-5											
40	1.45e-4											
50	3.83e-4											
70	1.14e-3											
100	2.45e-3											
200	7.06e-3	9.40e-3	1.94e-2	3.89e-2	8.17e-2	1.61e-l	2.22e-l	2.97e-l	4.03e-l	5.19e-l	6.71e-l	8.30e-l
500	1.05e-2											
1000	1.08e-2											
2000	9.57e-3											
5000	7.58e-3											
10000	5.53e-3											

E_0 (eV)	85°	87°	88°	89°
200	9.36e-l	9.54e-l	9.61e-l	9.63e-l

Energy reflection coefficient of Si backscattered from Si
ne=12. na=16

Bo (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	2.33e-7											
30	1.47e-6											
40	8.95e-6											
50	2.21e-5											
70	6.02e-5											
100	1.33e-4											
200	3.46e-4	5.44e-4	1.61e-3	4.36e-3	1.29e-2	3.63e-2	5.98e-2	9.47e-2	1.56e-l	2.40e-l	3.67e-l	5.38e-l
500	4.80e-4											
1000	4.60e-4											
2000	4.31e-4											
5000	3.54e-4											
10000	2.87e-4											

E_0 (eV)	85°	87°	88°	89°
200	6.84e-l	7.21e-l	7.32e-l	7.41e-l

Average depth (mean range) in Å of Si implanted in Si
ne=12, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
25	3.33e+0											
30	3.79e+0											
40	4.60e + 0											
50	5.32e-|-0											
70	6.59e-|-0											
100	8.22e+0											
200	1.26e + l	1.24e4-l	1.19e-H	l.lle + 1	1.01e+l	8.92e+0	8.30e + 0	7.76e+0	7.20e+0	6.49e-}-0	5.84e + 0	5.05e+0
500	2.22e + l											
1000	3.45e+l											
2000	5.48e + l											
5000	1.06e+2											
10000	1.84e+2											

E_0 (eV)	85°	87°	88°	89°
200	4.16e + 0	3.82e+0	3.76e+0	3.90e+0

Si –> Si

Sputtering yield of Si by Si
zl = 14, ml = 28.09. z2 = 14, m2 = 28.09, sbe=4.70 eV, rho = 2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC potential)
program : testsi, Gauss-Mehler integration (nnn=number of pivots)
ne=l, n(nnn)=4

Bo(eV)	2	4	8	16
100	6.20e-2	6.61e-2	6.82e-2	6.79e-2

Sputtered energy of Si by Si
ne=l, np(nnn)=4

E_0 (eV)	2	4	8	16
100	2.48e-3	2.65e-3	2.73e-3	2.77e-3

Particle reflection coefficient of Si backscattered from Si
zl = 14, ml= 28.09, z2 = 14, m2= 28.09, sbe=4.70 eV, rho=2.32 g/cm**3
ef=4.60 eV, esb=4.70 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC potential)
program : testsi, Gauss-Mehler integration (nnn=number of pivots)
ne=l, n(nnn)=4

B_0 (eV)	2	4	8	16
100	3.07e-3	3.38e-3	3.17e-3	3.03e-3

Energy reflection coefficient of Si backscattered from Si
ne=l, n(nnn)=4

E_0 (eV)	2	4	8	16
100	1.61e-4	1.90e-4	1.73e-4	1.64e-4

Average depth (mean range) in Å of Si implanted in $i
ne=l, h(nnn)=4

B_0 (eV')'	2	4	8	16
100	8.15e4-0	7.39e+0	7.19e+0	7.15e+0

Si -> Si

Sputtering yield of Si by Si
21= 14, ml = 28.09. z2= 14, m2= 28.09. sbe=4.70 eV, rho= 2.33 g/cm**3
ef=4.65 eV, esb=4.70 eV, ca=1.00, kk0=kk0r, kdeel = kdee2=3, KrC potential
e0= 100 eV. alpha=0.0
program : testsi. Gauss-Mehler integration (nnn=16)
ne=l, n(kk0)=4

Potential	kk0 = 0	1	2	3
KrC	7.53e-2	6.35e-2	6.81e-2	7.13e-2
Mol	1.01e-l	8.20e-2	8.76e-2	9.39e-2
ZBL	5.82e-2	5.Ole-2	5.28e-2	5.76e-2
Si-Si	7.45e-2	7.12e-2	4.74e-2	3.36e-2

Sputtered energy of Si by Si
ne=l, n(kk0) = 4

Potential	kk0=0	1	2	3
KrC	2.99e-3	2.62e-3	2.78e-3	2.87e-3
Mol	4.10e-3	3.41e-3	3.69e-3	3.89e-3
ZBL	2.29e-3	2.00e-3	2.06e-3	2.22e-3
Si- Si	3.17e-3	3.04e-3	1.92e-3	1.39e-3

Particle reflection coefficient of Si backscattered from Si
zl=14, ml= 28.09, z2= 14, m2= 28.09, sbe=4.70 eV, rho=2.33 g/cm**3
ef=4.65 eV, esb=4.70 eV, ca—1.00. kkO=kkOr, kdeel = kdee2=3, KrC potential
e0= 100 eV, alpha=0.0
program' : testsi, Gauss-Mehler integration (nnn=16)
ne=l, n(kk0)=4

Potential	kk0 = 0	1	2	3
KrC	2.59e-3	2.69e-3	3.11e-3	3.33e-3
Mol	3.06e-3	3.44e-3	4.03e-3	3.96e-3
ZBL	2.45e-3	2.29e-3	2.45e-3	2.78e-3
Si-Si	3.05e-3	3.05e-3	1.83e-3	1.15e-3

Energy reflection coefficient of Si backscattered from Si
ne=l, n(kk0) = 4

Potential	kk0 = 0	1	2	3
KrC	1.25e-4	1.48e-4	1.69e-4	1.97e-4
Mol	1.43e-4	1.92e-4	2.27e-4	2.21e-4
ZBL	1.21e-4	1.23e-4	1.33e-4	1.39e-4
Si- Si	1.63e-4	1.47e-4	9.83e-5	6.52e-5

Average depth (mean range) in Ä *of* Si implanted in Si
ne=l, n(kk0) = 4

Potential	kk0=0	1	2	3
KrC	7.83e+0	7.21ed-0	7.16e-f-0	7.14e+0
Mol	6.53e + 0	5.93e+0	5.88e-f-0	5.89e-f-0
ZBL	8.84e + 0	8.32e+0	8.22e+0	8.24e+0
Si-Si	8.36e + 0	8.13e-f-0	7.96e-J-0	7.75e+0

Si -4 Si

Sputtering yield of Si by Si
zl = 14, ml = 28.09. z2=14, m2= 28.09. sbe=4.70 eV. rho = 2.32 g/cm**3
ef=4.65 eV. esb = 4.70 eV, kk0=kk0r=2, kdeel=kdee2=3
program : trspvmcx
ne=l; alpha=0.

E_0 (eV)	Pot. = KrC ca=1.00	Mol 1.00	ZBL 1.00	Mol 0.62
200	1.73e-l	2.84e-l	1.78e-l	1.26e-l

Sputtered energy of Si by Si
ne=l; alpha=0.

E_0 (eV)	Pot.=KrC ca=1.00	Mol 1.00	ZBL 1.00	Mol 0.62
200	5.34e-3	8.63e-3	5.55e-3	4.39e-3

Particle reflection coefficient of Si backscattered from Si
zl = 14, ml = 28.09, z2 = 14, m2= 28.09, sbe=4.70 eV, rho=2.32 g/cm**3
ef=4.65 eV, esb = 4.70 eV, kk0=kk0r=2, kdeel=kdee2=3
program : trspvmcx
ne=l; alpha=0.

B_0 (eV)	Pot. = KrC ca=1.00	Mol 1.00	ZBL 1.00	Mol 0.62
200	8.46e-3	l.lle-2	7.28e-3	6.54e-3

Energy reflection coefficient of Si backscattered from Si
ne=l; alpha=0.

E_0 (eV)	Pot. = KrC ca=1.00	Mol 1.00	ZBL 1.00	Mol 0.62
200	4.54e-4	5.77e-4	3.59e-4	3.49e-4

Average depth (mean range) in Ä of Si implanted in Si
ne=l; alpha=0.

E_0 (eV)	Pot. = KrC ca=1.00	Mol 1.00	ZBL 1.00	Mol 0.62
200	1.31e+l	9.03e+0	1.24e+l	2.07e+l

P -> Si

Particle reflection coefficient of P backscattered from Si
zl = 15, ml= 31.00. z2 = 14, m2= 28.09, rho= 2.33 g/cm**3
ef=1.00 eV. esb = 1.00 eV, ca=1.00, kk0 = 2, kdeel = 3, ipot = l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

Eo(eV)	0°
100000	5.50e-4
200000	2.25e-4

Energy reflection coefficient of P backscattered from Si
only low fluence!
ne= 2, na= 1

Bo(eV)	0°
100000	2.56e-5
200000	9.26e-6

Average depth (mean range) in Ä of P implanted in Si
only low fluence!
ne= 2, na= 1

Eo(eV)	0°
100000	1.43e+3
200000	2.81e+3

Ar —> Si

Sputtering yield of Si by Ar
zl = 18, ml = 39.95, z2 = 14, m2= 28.09; sbe=4.70, rho=2.32 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr = l (KrC)
program : trspvmcx, TPP 9/82
ne=15, na= 1

Bp(eV)	0°
50	1.79e-3
50	1.60e-3
100	3.08e-2
100	3.20e-2
300	2.33e-l
300	2.30e-l
500	3.96e-l
500	3.50e-l
1000	6.64e-l
1000	6.20e-l
3000	9.50e-l
4000	1.19e-0
10000	1.20e-0
30000	1.25e-0
100000	1.20e-0

Sputtered energy of Si by Ar
program : trspvmcx
ne= 6, na= 1

Eq(eV)	Ö73
50	1.79e-3
50	1.60e-3
100	3.08e-2
100	3.20e-2
300	2.33e-l
300	2.30e-l
500	3.96e-l
500	3.50e-l
1000	6.64e-l
1000	6.20e-l
3000	9.50e-l
4000	1.19e-0
10000	1.20e-0
30000	1.25e-0
100000	1.20e-0

Particle reflection coefficient of Ar backscattered from Si
zl = 18, ml= 39.95, z2=14, m2= 28.09, sbe=4.70, rho=2.32 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kkO= kkÖr=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : trspvmcx
ne= 6, na= 1

Ep(eV)	Ö3
50	7.83e-3
100	4.Ole-3
300	3.93e-3
500	3.55e-3
1000	3.40e-3
4000	1.29e-3

Energy reflection coefficient of Ar backscattered from Si
ne= 6, na= 1

Bp(eV)	0°
50	1.04e-4
100	7.12e-5
300	8.09e-5
500	6.04e-5
1000	7.64e-5
4000	1.68e-5

Average depth (mean range) in Ä of Ar implanted in Si
ne= 6, na= 1

Bp(eV)	0°
50	6.27e-|-0
100	9.36e4-0
300	1.73e+l
500	2.30e+l
1000	3.44e + l
4000	8.24e + l

Xe Si

Sputtering yield of Si by Xe
zl=54, ml = 131.30, z2= 14, m2= 28.09, sbe=4.70, rho=2.32 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trspvmcx. TPP 9/82
ne=18, na= 1

E_0 (eV)	0°
50	3.54e-5
50	4.00e-5
100	3.84e-3
100	3.65e-3
200	4.83e-2
300	1.14e-l
500	2.56e-l
500	2.74e-l
1000	5.53e-l
1000	5.84e-l
2000	9.76e-l
4000	1.48e-0
5000	1.54e-0
10000	2.09e-0
20000	2.51e-0
50000	2.99e-0
100000	3.13e-0
200000	3.10e-0

Sputtered energy of Si by Xe
program : trspvmcx
ne = 6, na= 1

Eo(eV)	0°
50	8.90e-7
100	9.24e-5
300	2.09e-3
500	3.87e-3
1000	5.98e-3
4000	7.87e-3

Particle reflection coefficient of Xe backscattered from Si
zl=54, 1111= 131.30, z2= 14. m2 = 28.09, sbe=4.70, rho=2.32 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trspvmcx
ne= 1, na= 1

Bo(eV)	0°
50	6.13e-6

Energy reflection coefficient of Xe backscattered from Si
ne= 1, na= 1

E_0 (eV)	"O'
50	1.44e-6

Average depth (mean range) in Å of Xe implanted in Si
ne= 6, na= 1

E_0 (eV)	0°
50	1.24e+l
100	1.72e+l
300	2.79e+l
500	3.48e+l
1000	4.72e+1
4000	8.91e+1

Bi -> Si

Average depth (mean range) in Ä of Bi implanted in Si
zl=83. ml = 209.00, z2 = 14. m2= 28.09. rho= 2.33 g/cm**3
ef=1.00 eV. esb = 1.00 eV, ca=1.00, kk0=2, kdeel=3, ipot = l (KrC)
program: trrange3
only low fluence.'
ne= 2. na= 1

E_0 (eV)	0°
200000	8.94e4-2
400000	1.48e+3

D —> Ti

Sputtering yield of Ti by D
zl = 1, ml= 2.01, z2 = 22, m2= 47.90, sbe=4.89 eV, rho = 4.52 g/cm**3
ef=0.98, esb = 1.00, ca=1.00, kk0 = kk0r=2, kdeel = 4,kdee2 = 3, ipot=ipotr= 1 (KrC)
program: testvmcx, IPP 9/82
ne= 8, na=l

Bo (eV)	0°
50	3.64e-4
70	2.49e-3
100	6.53e-3
300	2.14e-2
1000	2.72e-2
3000	2.17e-2
10000	1.13e-2
30000	5.00e-3

Sputtered energy of Ti by D
program: testvmcx
ne= 8, na=l

E_0 (eV)	0°
50	5.69e-6
70	6.59e-5
100	1.92e-4
300	5.04e-4
1000	3.56e-4
3000	1.36e-4
10000	3.13e-5
30000	3.70e-6

Particle reflection coefficient of D backscattered from Ti
zl= 1, ml= 2.01, z2 = 22, m2 = 47.90, sbe=4.89 eV, rho=4.52 g/cm**3
ef=0.98, esb = 1.00, ca=1.00, kk0=kk0r=2, kdeel = 4,kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 8, na=l

B_0 (eV)	0°
50	5.13e-l
70	4.95e-l
100	4.73e-l
300	4.01e-l
1000	3.09e-l
3000	1.89e-l
10000	7.85e-2
30000	1.95e-2

Energy reflection coefficient of D backscattered from Ti
ne= 8, na=l

B_0 (eV)	0°
50	2.94e-l
70	2.78e-l
100	2.61e-l
300	2.08e-l
1000	1.46e-l
3000	7.62e-2
10000	2.55e-2
30000	5.22e-3

Average depth (mean range) in Ä of D implanted in Ti
ne= 8, na=l

E_0 (eV)	0°
50	2.78e4-l
70	3.42e + l
100	4.29e+l
300	9.04e+l
1000	2.23e + 2
3000	5.48e + 2
10000	1.53e+3
30000	3.93e + 3

He -> Ti

Sputtering yield of Ti by He
zl = 2, ml = 4.00.. z2=22, m2= 47.90, sbe=4.89 eV, rho=4.52 g/cm**3
ef=0.50, esb=0.00, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, TPP 9/82
ne= 8, na=l

E_0 (eV)	0°
40	3.31e-3
60	1.50e-2
100	3.58e-2
300	8.09e-2
1000	1.13e-l
3000	1.07e-l
10000	6.63e-2
30000	3.40e-2

Sputtered energy of Ti by He
program: testvmcx
ne= 8, na=l

Bp(eV)	O73
40	1.30e-4
60	7.34e-4
100	1.72e-3
300	2.62e-3
1000	1.82e-3
3000	8.56e-4
10000	2.07e-4
30000	4.89e-5

Particle reflection coefficient of He backscattered from Ti
zl= 2, ml = 4.00, z2=22, m2= 47.90, sbe=4.89 eV, rho=4.52 g/cm**3
ef=0.50, esb=0.00, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 8, na=l

E_0 (eV)	0°
40	4.93e-l
60	4.58e-l
100	4.27e-l
300	3.62e-l
1000	2.87e-l
3000	2.06e-l
10000	1.09e-l
30000	3.95e-2

Energy reflection coefficient of He backscattered from Ti
ne= 8, na=l

E_0 (eV)	0°
40	2.53e-l
60	2.28e-l
100	2.06e-l
300	1.66e-l
1000	1.23e-l
3000	8.11e-2
10000	3.59e-2
30000	1.10e-2

Average depth (mean range) in Ä of He implanted in Ti
ne= 8, na=l

E_0 (eV)	0°
40	1.38e+1
60	1.76e+l
100	2.39e+l
300	4.89e+l
1000	1.17e+2
3000	2.83e4-2
10000	7.96e4-2
30000	2.12e+3

Ne -> Ti

Sputtering yield of Ti by Ne
zl = 10, ml = 20.18. z2=22. m2= 47.90. sbe=4.89 eV. rho = 4.51 g/cm**3
ef=0.50. esb=0.00. ca=1.00. kk0=kk0r=2. kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, TPP 9/82
ne=15. na=12

E_0 (eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
38	1.02e-2	1.12e-2	1.43e-2	1.98e-2	2.75e-2	3.24e-2	3.71e-2	3.79e-2	2.34e-2	1.04e-2	2.10e-3	2.00e-5
50	3.00e-2											
100	1.45e-l											
200	3.23e-l											
380	5.33e-l	5.62e-l	6.58e-l	8.17e-l	1.03e-0	1.13e-0	1.24e-0	1.37e-0	1.18e-0	8.51e-l	3.46e-l	1.25e-2
500	6.14e-l											
1000	8.20e-l											
2000	9.98e-l											
3800	1.08e-0	1.15e-0	1.27e-0	1.61e-0	2.00e-0	2.32e-0	2.65e-0	3.47e-0	4.22e-0	4.30e-0	3.81e-0	1.38e-0
5000	1.09e-0											
10000	1.08e-0											
20000	9.40e-l											
50000	7.32e-l											
100000	5.51e-l											
200000	4.14e-l											

Sputtered energy of Ti by Ne
program: testvmcx. IPP 9/82
ne=15, na=12

Eo(eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
38	8.60e-4	1.04e-3	1.44e-3	2.39e-3	3.72e-3	4.67e-3	5.83e-3	6.97e-3	4.73e-3	2.26e-3	4.66e-4	7.46e-6
50	2.30e-3											
100	9.00e-3											
200	1.34e-2											
380	1.57e-2	1.70e-2	2.24e-2	3.12e-2	4.74e-2	5.60e-2	6.85e-2	9.23e-2	9.99e-2	8.31e-2	3.77e-2	8.54e-4
500	1.55e-2											
1000	1.41e-2											
2000	1.17e-2											
3798	8.92e-3	9.86e-3	1.24e-2	1.78e-2	2.62e-2	3.27e-2	4.01e-2	6.08e-2	8.71e-2	9.82e-2	9.83e-2	4.30e-2
5000	7.83e-3											
10000	5.21e-3											
20000	3.13e-3											
50000	1.43e-3											
100000	6.29e-4											
200000	3.03e-4											

Ne -> Ti

Particle reflection coefficient of Ne backscattered from Ti
zl = 10. ml = 20.18. z2=22; m2= 47.90. sbe=4.89 eV. rho=4.51 g/cm**3
ef=0.50. esb=0.00. ca=1.00, kkO=kkOr=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx
ne=15 ; na=12

Eo(eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
38	3.27e-l	3.49e-l	3.95e-l	4.60e-l	5.60e-l	6.14e-l	6.79e-l	8.17e-l	9.43e-l	9.83e-l	9.98e-l	1.00e-0
50	3.07e-l											
100	2.34e-l											
200	1.81e-l											
380	1.50e-l	1.58e-l	1.79e-l	2.11e-l	2.67e-l	3.00e-l	3.49e-l	4.67e-l	6.71e-l	8.07e-l	9.47e-l	1.00e-0
500	1.40e-l											
1000	1.15e-l											
2000	9.90e-2											
3798	8.05e-2	8.54e-2	9.52e-2	1.23e-l	1.60e-l	1.82e-l	2.14e-l	2.96e-l	4.24e-l	5.10e-l	6.40e-l	9.02e-l
5000	7.45e-2											
10000	5.89e-2											
20000	4.35e-2											
50000	2.39e-2											
100000	1.42e-2											
200000	7.56e-3											

Energy reflection coefficient of Ne backscattered from Ti
ne=15, na=12

E_0(eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
38	5.58e-2	6.46e-2	8.59e-2	1.23e-l	1.88e-l	2.34e-l	2.90e-l	4.43e-l	6.56e-l	7.81e-l	8.92e-l	9.68e-l
50	5.21e-2											
100	3.98e-2											
200	2.97e-2											
380	2.48e-2	2.74e-2	3.41e-2	4.70e-2	7.24e-2	9.00e-2	1.18e-l	2.04e-l	3.97e-l	5.64e-l	7.93e-l	9.68e-l
500	2.32e-2											
1000	1.85e-2											
2000	1.60e-2											
3798	1.32e-2	1.46e-2	1.76e-2	2.63e-2	4.04e-2	4.95e-2	6.41e-2	1.09e-l	2.01e-l	2.80e-l	4.27e-l	7.95e-l
5000	1.24e-2											
10000	9.68e-3											
20000	7.12e-3											
50000	3.89e-3											
100000	2.07e-3											
200000	1.10e-3											

Average depth (mean range) in Ä of Ne implanted in Ti
ne=15. na=12

E_0(eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
38	6.91e+0	6.86e+0	6.76e+0	6.65e+0	6.49e+0	6.42e+0	6.35e+0	6.07e+0	5.70e-|-0	5.50e+0	5.19e-f-0	
50	7.58e4-0											
100	9.90e+0											
200	1.35e-{-l											
380	1.87e + l	1.86e+l	1.82e+l	1.76e + l	1.67e + l	1.63e+l	1.58e + l	1.49e+l	1.40e + l	1.35e+l	1.27e+l	1.26e + l
500	2.17e4-l											
1000	3.27e+l											
2000	5.51e+l											
3798	7.99e + l	7.91e+l	7.67e + l	7.31e-f-l	6.85e + l	6.58e-|-l	6.32e+l	5.75e + l	5.26e + l	5.13e-|-l	4.88e+l	4.65e+l
5000	9.84e-|-l											
10000	1.70e+2											
20000	3.09e+2											
50000	7.12e+2											
100000	1.37e+3											
200000	2.60e+3											

Ar -> Ti

Sputtering yield of Ti by Ar
zl = 18, ml = 39.95, z2 = 22, m2= 47.90. sbe=4.89 eV. rho=4.52 g/cm**3
ef=0.20, 0.50 eV, esb = 0.00 eV. ca=1.00. kk0 = kk0r=2, kdeel =kdee2 = 3, ipot = ipotr= 1 (KrC)
program : trvmc95
ne= 5, na= 5

E_0 (eV)	0°	20°	45°	50°	60°
640					2.29e-0
1000	1.04e-0				
1040		1.15e-0	2.14e-0		3.15e-0
1440					3.84e-0
5000				4.62e-0	

Sputtered energy of Ti by Ar
ne= 5, na= 5

E_0 (eV)	0°	20°	45°	50°	60°
640					1.34e-l
1000	1.52e-2				
1040		2.22e-2	7.00e-2		1.33e-l
1440					1.34e-l
5000				6.66e-2	

Particle reflection coefficient of Ar backscattered from Ti
zl = 18, ml = 39.95, z2=22, m2= 47.90, sbe=4.89 eV, rho=4.52 g/cm**3
ef=0.20, 0.50 eV, esb=0.00 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2 = 3, ipot=ipotr= 1 (KrC)
program : trvmc95
ne= 5, na= 5

Eq(eV)	0°	20°	45°	50°	60°
640					3.28e-l
1000	3.76e-2				
1040		6.04e-2	1.49e-l		3.08e-l
1440					2.88e-l
5000				1.33e-l	

Energy reflection coefficient of Ar backscattered from Ti
ne= 5, na= 5

E_0 (eV)	0°	20°	45°	50°	60°
640					9.65e-2
1000	2.06e-3				
1040		4.33e-3	2.47e-2		9.13e-2
1440					8.45e-2
5000				2.59e-2	

Average depth (mean range) in Ä of Ar implanted in Ti
ne= 5, na= 5

E_0 (eV)	0°	20°	45°	50°	60°
640					1.33e4-l
1000	2.40e+l				
1040		2.54e+l	2.10e + l		1.65e+l
1440					2.04e + l
5000				4.85e+l	

Ti -> Ti

Sputtering yield of Ti by Ti
zl=22, ml = 47.90. z2=22, m2= 47.90, sbe=4.89 eV, rho = 4.52 g/cm**3
ef=4.85, esb=4.89, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, IPP 9/82
ne=13, na=l

E_0 (eV)	0°
60	7.14e-3
80	1.96e-2
100	6.62e-2
100	3.62e-2
200	2.39e-l
300	2.41e-l
1000	1.04e-0
1000	7.16e-l
10000	2.14e-0
10000	1.73e-0
50000	1.62e-0
100000	1.71e-0
100000	1.39e-0

Sputtered energy of Ti by Ti
program: testvmcx
ne= 5, na=l

E_0 (eV)	0°
100	2.73e-3
200	7.43e-3
1000	1.45e-2
10000	8.88e-3
100000	2.10e-3

Particle reflection coefficient of Ti backscattered from Ti
zl=22, ml = 47.90, z2=22, m2= 47.90. sbe=4.89 eV, rho=4.52 g/cm**3
ef=4.85, esb=4.89, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 5, na=l

E_0 (eV)	0°
100	4.19e-3
200	1.08e-2
1000	1.65e-2
10000	7.70e-3
100000	2.00e-3

Energy reflection coefficient of Ti backscattered from Ti
ne= 5, na=l

E_0 (eV)	0°
100	2.36e-4
200	5.31e-4
1000	6.48e-4
10000	4.30e-4
100000	1.55e-4

Average depth (mean range) in Å of Ti implanted in Ti
ne= 5, na=l

E_0 (eV)	0°
100	6.04e-f-0
200	9.03e+0
1000	2.23e + l
10000	9.72e + l
100000	6.60e+2

Ti → Ti

Sputtering yield of Ti by Ti
zl=22, ml = 47.90, z2=22, m2= 47.90. sbe=4.89 eV. rho=4.52 g/cm**3
ef=4.85, esb=4.89, *ca=0.75.* kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 8, na=l

E_0 (eV)	0°
60	7.14e-3
80	1.96e-2
100	3.62e-2
300	2 41e-l
1000	7.16e-l
10000	1.73e-0
50000	1.62e-0
100000	1.39e-0

Sputtered energy of Ti by Ti
program: testvmcx
ne= 8, na=l

E_0 (eV)	0°
60	3.29e-4
80	8.63e-4
100	1.49e-3
300	6.66e-3
1000	1.12e-2
10000	8.54e-3
50000	3.22e-3
100000	1.87e-3

Particle reflection coefficient of Ti backscattered from Ti
zl=22, ml= 47.90, z2=22, m2= 47.90, sbe=4.89 eV, rho=4.52 g/cm**3
ef=4.85, esb=4.89, *ca=0.75.* kk0=kk0r=2, kdeel = kdee2=3, ipots=ipotr=l (KrC)
program: testvmcx
ne= 8, nas=l

Eo(eV)	0°
60	7.96e-4
80	1.75e-3
100	2.91e-3
300	1.08e-2
1000	1.46e-2
10000	9.50e-3
50000	4.50e-3
100000	2.43e-3

Energy reflection coefficient of Ti backscattered from Ti
ne= 8, na=l

E_0 (eV)	0°
60	4.19e-5
80	9.48e-5
100	1.61e-4
300	5.39e-4
1000	6.40e-4
10000	3.43e-4
50000	2.08e-4
100000	1.14e-4

Average depth (mean range) in Å of Ti implanted in Ti
ne= 8, na=l

E_0 (eV)	0°
60	8.23e + 0
80	9.56e + 0
100	1.07e + l
300	1.86e + 1
1000	3.49e + l
10000	1.36e+2
50000	4.59e+2
100000	8.27e+2

D -> V

Sputtering yield of V by T)
zl = I, ml= 2.01, z2=23, m2= 50.94. sbe=5.33 eV, rho = 6.10 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = 4,kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne=ll. . na=l

Eo(eV)	0°
50	7.42e-5
60	5.72e-4
70	1.49e-3
80	2.72e-3
100	5.27e-3
200	1.56e-2
500	2.60e-2
1000	2.68e-2
2000	2.49e-2
5000	1.84e-2
10000	1.30e-2

Sputtered energy of V by D
ne=ll, na=l

E_0 (eV)	0°
50	6.86e-7
60	9.59e-6
70	3.12e-5
80	6.52e-5
100	1.36e-4
200	4.08e-4
500	5.15e-4
1000	3.53e-4
2000	2.09e-4
5000	7.78e-5
10000	3.00e-5

Particle reflection coefficient of D backscattered from V
zl= 1, ml= 2.01, z2=23, m2= 50.94, sbe=5.33 eV, rho=6.10 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = 4,kdee2=3, ipot=ipotr=l (KrC)
■program: testvmcx
ne=ll, na=l

Bo(eV)	0°
50	5.32e-l
60	5.20e-l
70	5.10e-l
80	5.00e-l
100	4.86e-l
200	4.42e-l
500	3.75e-l
1000	3.17e-l
2000	2.50e-l
5000	1.52e-l
10000	8.55e-2

Energy reflection coefficient of D backscattered from V
ne=ll, na=l

Bo(eV)	0°
50	3.12e-l
60	3.02e-l
70	2.93e-l
80	2.86e-l
100	2.74e-l
200	2.39e-l
500	1.90e-l
1000	1.51e-l
2000	1.09e-l
5000	5.61e-2
10000	2.74e-2

Average depth (mean range) in Å of D implanted in V
ne=ll, na=l

E_0 (eV)	0°
50	2.18e + l
60	2.44e+l
70	2.70e+l
80	2.93e + l
100	3.38e+l
200	5.35e+l
500	1.03e+2
1000	1.73e+2
2000	3.03e+2
5000	6.53e+2
10000	1.19e+3

V → V

Sputtering yield of V by V
zl = 23. ml = 50.94. z2=23, m2= 50.94. sbe=5.33 eV. rho = 6.10 g/cm**3
ef=5.28 eV. esb=5.33 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2 = 3. ipot=ipotr=l (KrC)
program: testvmcx
ne=13. na=l

E_0 (eV)	0°
30	2.15e-4
40	1.18e-3
50	4.07e-3
60	9.75e-3
70	1.85e-2
80	3.04e-2
100	6.05e-2
200	2.48e-l
500	7.13e-l
1000	1.17e-0
2000	1.66e-0
5000	2.23e-0
10000	2.56e-0

Sputtered energy of V by V
ne=13. na=l

MeV)	o'
30	1.16e-5
40	6.67e-5
50	2.32e-4
60	5.35e-4
70	9.56e-4
80	1.48e-3
100	2.70e-3
200	8.11e-3
500	1.51e-2
1000	1.71e-2
2000	1.67e-2
5000	1.36e-2
10000	1.08e-2

V → V

Particle reflection coefficient of V backscattered from V
zl=23, ml = 50.94, z2= 23, m2= 50.94. sbe=5.33 eV. rho=6.10 g/cm**3
ef=5.28 eV, esb=5.33 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne=13, na=l

Bq(eV)	0°
30	4.37e-6
40	1.06e-4
50	4.65e-4
60	1.05e-3
70	1.75e-3
80	2.61e-3
100	4.23e-3
200	1.07e-2
500	1.57e-2
1000	1.69e-2
2000	1.65e-2
5000	1.27e-2
10000	1.Ole-2

Energy reflection coefficient of V backscattered from V
ne=13, na=l

E_0 (eV)	0°
30	2.91e-7
40	7.69e-6
50	3.36e-5
60	7.39e-5
70	1.18e-4
80	1.79e-4
100	2.67e-4
200	5.59e-4
500	7.29e-4
1000	7.20e-4
2000	6.45e-4
5000	5.35e-4
10000	4.48e-4

Average depth (mean range) in Å of V implanted in V
ne=13, na=l

B_0 (eV)	0°
30	1.90e-J-0
40	2.36e+0
50	2.77e4-0
60	3.14e+0
70	3.47e-{-0
80	3.79e-}-0
100	4.36e+0
200	6.65e-J-0
500	1.13e+l
1000	1.70e+l
2000	2.55e4-l
5000	4.55e+l
10000	7.32e-}-l

H → Fe

Particle reflection coefficient of H backscattered from Fe
zl = 1, ml = 1.01, z2= 26. m2 = 55.85. sbe=4.34 eV, rho = 7.87 g/cm**3
ef=100.00 eV, esb = 1.00 eV, ca—1.00, *kkO=O,* kk0r=2, *kdeel=4,* kdee2=3, ipot=ipotr= 1 (KrC)
dx= 50000.00 A
program: trvmc95
ne= 1, na= 4

Ro (eV)	83°	86°	88°	89°
3000000	5.19e-2	1.81e-l	3.83e-l	5.52e-l

Energy reflection coefficient of H backscattered from Fe
ne= 1, na= 4

E_0 (eV)	83°	86°	88°	89°
3000000	1.91e-2	8.16e-2	2.32e-l	4.05e-l

Average depth (mean range) in Ä of H implanted in Fe
ne= 1, na= 4

E_0 (eV)	83°	86°	88°	89°
3000000	3.06e + 4	2.54e4-4	2.23e-f-4	2.13e+4

Particle transmission coefficient of IT transmitted through Fe
ne= 1, na= 4

E_0 (eV)	83°	86°	88°	89°
3000000	3.99e-l	1.53e-l	6.71e-2	4.08e-2

Energy transmission coefficient of H transmitted through Fe
ne= 1, na= 4

E_0 (eV)	83°	86°	88°	89°
3000000	1.18e-l	3.60e-2	1.48e-2	9.05e-3

D —> Fe

D on Fe, Maxwellian velocity distribution, sheath potential 3 kT
zl = 1, ml= 2.01, z2=26, m2= 55.85, sbe=4.34 eV, rho= 7.87 g/cm**3
ef=0.95 eV, esb=1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel=kdee2 = 3, ipot=ipotr = l (KrC)
program: trvmc95
ne= 11

kT(eV)	Y	Y_E	E sp	Rat	Re	Efe	range
7	1.57e-4	5.87e-6	1.31ed-0	6.20e-l	4.02e-l	2.27e + l	1.44e + l
8	3.56e-4	1.27e-5	1.43e + 0	6.09e-l	3.91e-l	2.57e4-l	1.56e+l
9	7.04e-4	2.44e-5	1.56e+0	5.99e-l	3.81e-l	2.86e + l	1.67e+l
10	1.20e-3	4.06e-5	1.70e + 0	5.91e-l	3.73e-l	3.16e + l	1.78eRl
14	4.42e-3	1.39e-4	2.20e+0	5.67e-l	3.50e-l	4.32e4-l	2.20e + l
20	1.10e-2	3.25e-4	2.95e + 0	5.42e-l	3.27e-l	6.04e + l	2.75e + l
50	3.41e-2	7.66e-4	5.63e + 0	4.84e-l	2.75e-l	1.42e+2	5.03e+l
100	4.50e-2	7.22e-4	8.02e + 0	4.29e-l	2.33e-l	2.71e + 2	8.21e + l
200	4.99e-2	5.44e-4	1.09e + l	3.75e-l	1.91e-l	5.11e + 2	1.37e + 2
500	4.55e-2	2.66e-4	1.46e+l	2.88e-l	1.31e-l	1.14e+3	2.82e + 2
1000	3.63e-2	1.29e-4	1.77e+l	2.13e-l	8.51e-2	2.00e+3	4.96e + 2

T → Fe

Particle reflection coefficient of T backscattered from Fe
zl = 1. ml= 3.02. z2=26. m2= 55.85. sbe=4.34 eV. rho= 7.87 g/cm**3
ef=100.00 eV, esb = 1.00 eV, ca=1.00. *kkO=O,* kk0r=2, *kdeel =4,* kdee2 = 3. ipot=ipotr=l (KrC)
dx= 15000.00 A
program: trvmc95
ne= 1, na= 4

Eo(eV)	79°	83°	86°	88°	89°
1000000	4.06e-2	1.35e-l	3.03e-l	4.94e-l	6.37e-l

Energy reflection coefficient of T backscattered from Fe
ne= 1, na= 4

Eo(eV)	79°	83°	86°	88°	89°
1000000	5.60e-3	2.Ole-2	7.24e-2	2.02e-l	3.68e-l

Average depth (mean range) in Å of T implanted in Fe
ne= 1, na= 4

E_0 (eV)	79°	83°	86°	88°	89°
1000000	8.63e-|-3	6.77e-|-3	5.57e+3	5.04e+3	4.90e+3

Particle transmission coefficient of T transmitted through Fe
ne= 1, na= 4

E_0 (eV)	79°	83°	86°	88°	89°
1000000	1.33e-l	3.73e-2	1.41e-2	7.72e-3	5.24e-3

Energy transmission coefficient of T transmitted through Fe
ne= 1, na= 4

E_0 (eV)	79°	83°	86°	88°	89°
1000000	6.63e-3	1.91e-3	8.99e-4	5.86e-4	4.35e-4

He —> Fe

Sputtering yield of Fe by He
zl = 2, ml= 4.00. z2 = 26, m2 = 55.85. sbe=4.34 eV. rho= 7.87 g/cm**3
ef=0.50 eV. esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr = l (KrC)
program: trspvmcx. TPP 9/82
ne=10. na= 1

E_0 (eV)	0°
40	5.02e-3
50	1.26e-2
70	3.04e-2
100	5.52e-2
300	1.24e-l
1000	1.66e-l
1000	1.72e-l
5000	1.42e-l
10000	1.06e-l
30000	5.15e-2

Sputtered energy of Fe by He
program: testvmcx, trspvmcx
ne=ll, na=l

E_0 (eV)	0°
40	1.79e-4
50	5.15e-4
70	1.31e-3
100	2.30e-3
300	3.48e-3
1000	2.38e-3
1000	2.36e-3
3000	1.03e-3
5000	6.37e-4
10000	2.77e-4
30000	5.50e-5

He —> Fe

Particle reflection coefficient of He backscattered from Fe
zl = 2, ml = 4.00. z2=26, m2= 55.85; sbe=4.34 eV, rho= 7.87 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00 , kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
5.5 MeV : kkO=O, kdeel=5, ef=100 eV, esb=1.00 eV, dx=7000 nm
program: testvmcx, trvmc95
ne=ll, na=5

Bo (eV)	0 ^u^	83°	86°	88°	89°
40	5.62e-l				
50	5.38e-l				
70	5.05e-l				
100	4.75e-l				
300	3.99e-l				
1000	3.19e-l				
3000	2.40e-l				
5000	1.93e-l				
10000	1.33e-l				
30000	5.34e-2				
5500000		1.38e-2	8.17e-2	2.76e-l	4.72e-l

Energy reflection coefficient of He backscattered from Fe
ne=ll. na=5

E_0 (eV)	0°	83°	86°	88°	89°
40	3.11e-l				
50	2.92e-l				
70	2.67e-l				
100	2.45e-l				
300	1.94e-l				
1000	1.43e-l				
3000	1.01e-l				
5000	7.59e-2				
10000	4.52e-2				
30000	1.51e-2				
5500000		3.67e-3	1.86e-2	9.78e-2	2.51e-l

Average depth (mean range) in Å of He implanted in Fe
program: testvmcx, trspvmcx
ne=10, na=l

E_0 (eV)	0°
40	9.20e+0
50	1.05e-|-l
70	1.28e-f-l
100	1.59e+l
300	3.21e+l
1000	7.55e + l
3000	1.79e+2
5000	2.72e+2
10000	4.92e+2
30000	1.30e4-3

Fe –> Fe

Sputtering yield of Fe by Fe
zl = 26, ml = 55.85, z2=26, m2 = 55.85. sbe=4.34 eV. rho = 7.87 g/cm**3
ef=4.29 eV. esb = 4.34 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, TPP 9/82
ne=ll. na= 1

E_0 (eV)	0°
50	9.84e-3
70	4.00e-2
100	1.18e-l
200	4.10e-l
500	1.12e-0
1000	1.80e-0
2000	2.47e-0
5000	3.19e-0
10000	3.91e-0
30000	3.88e-0
100000	3.38e-0

Sputtered energy of Fe by Fe
program: testvmcx
ne=ll, na= 1

E_0 (eV)	0°
50	5.35e-4
70	2.05e-3
100	4.90e-3
200	1.29e-2
500	2.12e-2
1000	2.24e-2
2000	2.03e-2
5000	1.58e-2
10000	1.32e-2
30000	7.94e-3
100000	3.10e-3

Particle reflection coefficient of Fe backscattered from Fe
zl = 26, ml= 55.85, z2=26, m2= 55.85, sbe=4.34 eV, rho = 7.87 g/cm**3
ef=4.29 eV, esb=4.34 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne=ll, na= 1

E_0 (eV)	0°
50	9.25e-4
70	3.06e-3
100	5.95e-3
200	1.38e-2
500	1.98e-2
1000	2.34e-2
2000	1.88e-2
5000	1.24e-2
10000	1.30e-2
30000	6.67e-3
100000	4.00e-3

Energy reflection coefficient of Fe backscattered from Fe
ne=ll, na= 1

E_0 (eV)	0°
50	6.52e-5
70	2.10e-4
100	3.79e-4
200	6.23e-4
500	8.52e-4
1000	9.52e-4
2000	7.11e-4
5000	4.40e-4
10000	4.76e-4
30000	3.61e-4
100000	2.29e-4

Average depth (mean range) in Å of Fe implanted in Fe
ne=ll, na= 1

E_0 (eV)	0°
50	2.06e+0
70	2.63e+0
100	3.36e+0
200	5.21e+0
500	8.82e+0
1000	1.31e + l
2000	1.98e + l
5000	3.57e4-l
10000	5.52e4-l
30000	1.26e+2
100000	3.39e+2

$\mu \to$ Ni

Particle reflection coefficient of /j. backscattered from Ni
zl = 1. ml = 0.11, z2=28. m2= 58.71, sbe=4.46 eV, rho = 8.90 g/cm**3
ef=0.50 eV, esb=0.00 eV. ca=1.00, kk0=kk0r=2, kdee2 = 3, ipot=ipotr=l (KrC)
10 - 1000 eV : kdeel = 3, 1000 - 20000 eV : kdeel = 4
program: trvmc
ne= 8, na= 1

B 0 (eV)	0°
10	7.08e-l
100	4.25e-l
500	2.64e-l
1000	2.01e-l
1000	1.78e-l
5000	5.99e-2
10000	3.05e-2
20000	1.29e-2

Energy reflection coefficient of *p*, backscattered from Ni
ne= 8, na= 1

E_0 (eV)	0°
10	4.39e-l
100	2.04e-l
500	1.04e-l
1000	7.05e-2
1000	6.25e-2
5000	1.81e-2
10000	8.96e-3
20000	4.63e-3

Average depth (mean range) in Å of p implanted in Ni
ne= 8, na= 1

E_0 (eV)	0°
10	5.53e+0
100	1.80e+ l
500	4.61e+ l
1000	7.19e+l
1000	6.60e+l
5000	2.13e+2
10000	3.76e+2
20000	7.21e+2

H -> Ni

Sputtering yield of Ni by H
z1 = 1, m1 = 1.01, z2=28, m2 = 58.71, sbe=4.46 eV, rho = 8.90 g/cm**3
ef=0.98 eV, esb=1.00 eV, ca=1.00, kk0=kk0r=2. kdee1 = kdee2 = 3, ipot=ipotr=1 (KrC)
program: TESTVMCX, TPP 9/82
ne=13, na=16

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	65°	70°	75°	80°
150	2.00e-3	2.10e-3	2.05e-3	2.20e-3	2.35e-3	2.35e-3	2.25e-3	2.05e-3	1.80e-3	1.20e-3	6.40e-4	
200	4.50e-3	4.50e-3	4.80e-3	5.40e-3	5.50e-3	6.20e-3	5.90e-3	6.10e-3	5.80e-3	4.70e-3	3.03e-3	1.05e-3
400	1.16e-2	1.25e-2	1.35e-2	1.45e-2	1.60e-2	1.90e-2		2.40e-2	2.65e-2	2.80e-2	3.05e-2	2.50e-2
500	1.44e-2											
700	1.52e-2											
1000	1.52e-2	1.40e-2	1.70e-2	1.95e-2	2.40e-2	3.30e-2		4.80e-2		7.10e-2	9.30e-2	9.80e-1
2000	1.42e-2											
3000	1.20e-2											
5000	1.10e-2											
10000	8.20e-3											
20000	4.50e-3											
50000	2.70e-3		2.55e-3		4.09e-3			9.68e-3				4.42e-2
100000	1.20e-3											

E_0 (eV)	85°	87°	88°	89°
1000	3.80e-2	3.60e-4		
50000	8.97e-2	1.54e-1	1.72e-1	7.68e-2

Sputtered energy of Ni by H
program: TESTVMCX
ne= 1, na= 3

E_0 (eV)	87°	88°	89°
50000	1.12e-4	1.39e-4	7.97e-5

Particle reflection coefficient of H backscattered from Ni
z1= 1, m1= 1.01, z2=28, m2= 58.71, sbe=4.46 eV, rho= 8.90 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdee1 = kdee2=3, ipot=ipotr = 1 (KrC)
program: TESTVMCX
ne= 1, na= 3

Bp (eV)	87°	88°	89°
50000	6.69e-1	7.46e-1	9.26e-1

Energy reflection coefficient of H backscattered from Ni
ne= 1, na= 3

E_0 (eV)	87°	88°	89°
50000	4.20e-1	5.34e-1	8.55e-1

Average depth (mean range) in Å of H implanted in Ni
ne= 1, na= 3

E_0 (eV)	87°	88°	89°
50000	9.38e+2	9.41e + 2	9.35e + 2

D Ni

Sputtering yield of Ni by D
zl = 1. ml= 2.01, z2=28, m2= 58.71. sbe=4.46 eV. rho= 8.90 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TPP 9/82
ne=14, na= 1

Ro(eV)	0°
75	3.10e-3
100	7.90e-3
150	1.84e-2
200	2.52e-2
300	3.27e-2
500	4.13e-2
700	3.86e-2
1000	4.03e-2
2000	3.72e-2
3000	3.26e-2
5000	2.64e-2
10000	1.85e-2
50000	6.00e-3
100000	4.00e-3

^{3}He Ni

Sputtering yield of Ni by ^{3}He
zl= 2, ml = 3.02, z2=28, m2= 58.71, sbe=4.46 eV, rho=8.90 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TPP 9/82
ne=13, na= 1

Eo(eV)	0°
40	7.60e-4
50	3.70e-3
70	1.35e-2
100	3.50e-2
200	8.00e-2
300	1.00e-l
750	1.30e-l
1500	1.40e-l
2000	1.40e-l
5000	1.20e-l
20000	5.50e-2
30000	6.47e-2
50000	3.18e-2

He -> Ni

Sputtering yield of Ni by He
zl = 2. ml= 4.00. z2=28, m2= 58.71, sbe=4.46 eV, rho = 8.90 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: TESTVMCX, TRSPV1CS, TRSPV1C, IPP 9/82
ne=30, na= 9

E_0 (eV)	0°	30°	60°	75°	80°	85°	87°	88°	89°
26	4.28e-6								
28	5.49e-5								
30	2.06e-4								
35	1.27e-3								
40	3.27e-3								
50	1.00e-2								
70	2.83e-2								
100	5.38e-2								
150	8.20e-2								
150	7.14e-2								
200	1.02e-l								
200	9.64e-2								
300	1.29e-l								
300	1.20e-l								
500	1.54e-l								
500	1.40e-l								
700	1.54e-l								
1000	1.75e-l								
1000	1.63e-l								
1500	1.68e-l								
2000	1.58e-l								
3000	1.77e-l								
3000	1.48e-l								
5000	1.35e-l								
10000	1.19e-l								
10000	1.03e-l								
20000	6.97e-2								
30000	6.47e-2								
50000	3.64e-2								
100000	2.23e-2	3.28e-2	8.44e-2	2.34e-l	3.27e-l	7.50e-l	9.37e-l	9.98e-l	4.12e-l

Sputtered energy of Ni by He
program: TESTVMCX, TRSPV1CS, TRSPV1C
ne=17, na= 6

Bq (eV)	0°	75°	85°	87°	88°	89°
26	6.35e-8					
28	1.42e-6					
30	3.60e-6					
35	3.37e-5					
40	1.04e-4					
50	3.95e-4					
70	1.18e-3					
100	2.20e-3					
150	3.06e-3					
200	3.41e-3					
300	3.56e-3					
500	3.19e-3					
1000	2.38e-3					
3000	1.15e-3					
10000	3.38e-4					
30000	6.86e-5					
100000		1.99e-4	8.59e-4	9.78e-4	1.08e-3	5.17e-4

He -4- Ni

Particle reflection coefficient of He backscattered from Ni
zl = 2. ml = 4.00, z2=28, m2= 58.71. sbe=4.46 eV, rho = 8.90 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX, TRSPV1CS, TRSPV1C
ne=17, na= 6

Ro(eV)	0°	75°	85°	87°	88°	89°
26	6.37e-l					
28	6.27e-l					
30	6.18e-l					
35	5.98e-l					
40	5.81e-l					
50	5.58e-l					
70	5.23e-l					
100	4.91e-l					
150	4.61e-l					
200	4.37e-l					
300	4.13e-l					
500	3.81e-l					
1000	3.30e-l					
3000	2.50e-l					
10000	1.46e-l					
30000	6.06e-2					
100000		3.04e-l	5.76e-l	6.76e-l	7.37e-l	9.26e-l

Energy reflection coefficient of He backscattered from Ni
ne=17, na= 6

Ro(eV)	0°	75°	85°	87°	88°	89°
26	3.72e-l					
28	3.64e-l					
30	3.57e-l					
35	3.41e-l					
40	3.28e-l					
50	3.09e-l					
70	2.83e-l					
100	2.58e-l					
150	2.37e-l					
200	2.22e-l					
300	2.05e-l					
500	1.83e-l					
1000	1.54e-l					
3000	1.05e-l					
10000	5.32e-2					
30000	1.82e-2					
100000		9.81e-2	3.15e-l	4.43e-l	5.37e-l	8.55e-l

Average depth (mean range) in Ä of He implanted in Ni
ne=17, na= 6

E_0(eV)	0°	75°	85°	87°	88°	89°
26	6.79e+0					
28	7.06e4-0					
30	7.33e+0					
35	7.98e4-0					
40	8.60e+0					
50	9.77e + 0					
70	1.19e + 1					
100	1.47e+l					
150	1.90e+l					
200	2.27e + 1					
300	2.95e + 1					
500	4.18e + 1					
1000	6.78e + 1					
3000	1.60e+2					
10000	4.43e+2					
30000	1.15e+3					
100000		1.24e+3	1.08e4-3	1.07e + 3	1.08e+3	1.03e4-3

Ne -> Ni

Sputtering yield of Ni by Ne
zl = 10. ml= 20.18. z2= 28. m2= 58.71. sbe=4.46 eV. rho = 8.90 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX, TPP 9/82
ne=49. na= 18

E₀ (eV)	0°	5°	10°	15°	20°	25°	30°	40°	45°	50°	55°	60°
18	2.61e-6											
19	1.05e-5											
20	3.Ole-5											
22	1.22e-4											
23	2.18e-4											
25	5.44e-4											
25	5.40e-4											
27	1.12e-3											
27	l.lle-3											
28	1.52e-3											
30	2.50e-3											
30	2.00e-3											
35	7.38e-3											
40	1.51e-2											
40	1.30e-2-											
50	3.91e-2											
50	3.90e-2											
70	1.08e-l											
70	l.lle-1											
100	2.23e-l											
100	2.38e-l											
150	3.90e-l											
150	4.17e-l											
200	5.32e-l											
200	5.66e-l											
300	7.53e-l											
300	8.05e-l											
500	1.03e-0											
500	1.09e-0											
700	1.29e-0											
1000	1.41e-0											
1000	1.47e-0	1.45e-0	1.52e-0	1.57e-0	1.68e-0	1.80e-0	1.95e-0	2.29e-0	2.50e-0	2.63e-0	2.76e-0	2.82e-0
1500	1.62e-0											
2000	1.75e-0											
3000	1.85e-0											
3000	1.78e-0											
5000	1.90e-0											
7000	1.79e-0											
10000	1.86e-0											
10000	1.81e-0											
15000	1.67e-0											
20000	1.56e-0											
30000	1.48e-0											
30000	1.39e-0											
50000	1.18e-0											
100000	9.33e-l											
100000	8.89e-l											
200000	6.94e-l											
300000	5.00e-l											

E₀ (eV)	65°	70°	75°	80°	82.5°	89°
1000	2.77e-0	2.44e-0	1.81e-0	7.62e-l	2.93e-l	3.23e-2

Ne –> Ni

Sputtered energy of Ni by Ne
program: TRSTVMCX
ne = 26, na = 18

R_0 (eV)	0°	5°	10°	15°	20°	25°	30°	40°	45°	50°	55°	60°
18	1.15e-6											
19	2.88e-6											
20	2.29e-6											
22	9.66e-6											
23	2.10e-5											
25	4.22e-5											
25	4.14e-5											
27	9.91e-5											
27	8.54e-5											
28	1.20e-4											
30	2.00e-4											
35	6.21e-4											
40	1.28e-3											
50	3.24e-3											
70	8.17e-3											
100	1.45e-2											
150	2.03e-2											
200	2.34e-2											
300	2.57e-2											
500	2.56e-2											
1000	2.26e-2											
1000	2.27e-2	2.17e-2	2.38e-2	2.59e-2	2.88e-2	3.25e-2	3.81e-2	5.12e-2	6.15e-2	7.29e-2	8.13e-2	9.37e-2
3000	1.52e-2											
10000	7.18e-3											
30000	3.12e-3											
100000	7.92e-4											

R_0 (eV)	65°	70°	75°	80°	82.5°	89°
1000	1.02e-1	1.03e-1	8.78e-2	4.19e-2	1.50e-2	9.96e-4

Ne -> Ni

Particle reflection coefficient of Ne backscattered from Ni
z1 = 10. m1 = 20.18. z2 = 28. m2 = 58.71. sbe = 4.46 eV. rho=8.90 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00. kk0=kk0r=2. kdee1 = kdee2 = 3. ipot=ipotr=1 (KrC)
program: TESTVMCX
ne=25. na= 18

E_0 (eV)	0°	5°	10°	15°	20°	25°	30°	40°	45°	50°	55°	60°
18	5.48e-1											
19	5.47e-1											
20	5.45e-1											
22	5.41e-1											
25	5.33e-1											
25	5.51e-1											
27	5.28e-1											
27	5.54e-1											
28	5.40e-1											
30	5.16e-1											
35	5.01e-1											
40	4.86e-1											
50	4.56e-1											
70	4.08e-1											
100	3.57e-1											
150	3.12e-1											
200	2.83e-1											
300	2.48e-1											
500	2.13e-1											
1000	1.79e-1											
1000	1.59e-1	1.68e-1	1.70e-1	1.79e-1	1.90e-1	2.01e-1	2.15e-1	2.66e-1	3.08e-1	3.37e-1	3.97e-1	4.55e-1
3000	1.31e-1											
10000	8.58e-2											
30000	5.52e-2											
100000	2.60e-2											

Bq (eV)	65°	70°	75°	80°	82.5°	89°
1000	5.37e-1	6.46e-1	7.79e-1	9.35e-1	9.83e-1	1.00e-0

Energy reflection coefficient of Ne backscattered from Ni
ne = 25, na= 18

E_0 (eV)	0°	5°	10°	15°	20°	25°	30°	40°	45°	50°	55°	60°
18	1.08e-1											
19	1.09e-1											
20	1.09e-1											
22	1.10e-1											
25	1.10e-1											
25	1.10e-1											
27	1.10e-1											
27	1.10e-1											
28	1.09e-1											
30	1.08e-1											
35	1.07e-1											
40	1.05e-1											
50	9.94e-2											
70	9.03e-2											
100	7.97e-2											
150	6.87e-2											
200	6.15e-2											
300	5.35e-2											
500	4.48e-2											
1000	3.66e-2											
1000	3.35e-2	3.52e-2	3.61e-2	3.93e-2	4.26e-2	4.91e-2	5.58e-2	8.05e-2	1.02e-1	1.23e-1	1.62e-1	2.08e-1
3000	2.65e-2											
10000	1.71e-2											
30000	1.06e-2											
100000	4.54e-3											

E_0 (eV)	65°	70°	75°	80°	82.5°	89°
1000	2.78e-1	3.89e-1	5.57e-1	7.93e-1	9.02e-1	9.70e-1

Ne —> Ni

Average depth (mean range) in Ä of Ne implanted in Ni
21= 10, ml= 20.18. z2=28, m2= 58.71, sbe=4.46 eV, rho = 8.90 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX
ne=25, na= 18

E_0 (eV)	0°	5°	10°	15°	20°	25°	30°	40°	45°	50°	55°	60°
18	1.73e4-0											
19	1.80e+0											
20	1.87e + 0											
22	1.99e+0											
25	2.16e + 0											
25	2.21e+0											
27	2.26e+0											
27	2.31e+0											
28	2.36e+0											
30	2.41e+0											
35	2.64e+0											
40	2.84e + 0											
50	3.22e + 0											
70	3.87e-f-0											
100	4.69e+0											
150	5.90e+0											
200	6.93e4-0											
300	8.76e+0											
500	1.19e+l											
1000	1.83e + l											
1000	1.94e+l	1.94e+l	1.91e + l	1.91e + l	1.88e + l	1.85e+l	1.81e + l	1.72e + l	1.70e + l	1.64e+l	1.59e+l	1.55e4-l
3000	3.81e+l											
10000	9.50e+l											
30000	2.47e4-2											
100000	7.48e4-2											

E_0 (eV)	65°	70°	75°	80°	82.5°	89°
1000	1.50e4-l	1.48ed-l	1.41e+l	1.35e + l	1.40e + l	8.58e+0

Ar → Ni

Sputtering yield of Ni by Ar
z1 = 18, m1= 39.95. z2= 28, m2 = 58.71. sbe=4.46 eV, rho=8.90 g/cm**3
ef=0.20 (0.5) eV, esb = 0.00 eV, ca=1.00. kk0 = kk0r=2. kdeel = kdee2=3, ipot=ipotr= 1 (KrC)
program: TRS1C, TESTVMCX, TRVMC, TRSPV1C,' TPP 9/82, newtrspd, trsplcn
ne=42. na= 8

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°	80°
18	3.92e-6							
19	1.45e-5							
20	2.02e-5		9.43e-4				6.41e-4	
22	7.61e-5							
25	1.51e-4		4.47e-3				2.17e-3	
27	3.44e-4							
30	5.39e-4		1.27e-2				4.37e-3	
32	9.48e-4							
35	1.54e-3							
40	3.43e-3		4.35e-2				1.13e-2	
50	1.30e-2		8.87e-2				2.05e-2	
50	1.16e-2							
60	2.92e-2							
70	5.21e-2		2.03e-1				4.34e-2	
70	5.35e-2							
100	1.49e-1		3.87e-1				8.27e-2	
100	1.60e-1							
150	3.52e-1							
200	4.93e-1		9.25e-1				2.53e-1	
200	5.32e-1							
290	7.65e-1	1.09e-0	1.32e-0	1.33e-0	1.29e-0	1.19e-0	4.30e-1	
300	7.78e-1	1.12e-0	1.35e-0	1.38e-0	1.35e-0	1.25e-0	4.49e-1	1.32e-1
300	8.51e-1							
500	1.19e-0		2.02e-0				8.71e-1	
500	1.29e-0							
700	1.61e-0							
1000	1.80e-0		3.15e-0				1.95e-0	
1000	1.90e-0							
1000	1.97e-0	2.70e-0	3.32e-0			3.62e-0	2.05e-0	
2000	2.49e-0							
3000	2.69e-0							
3000	2.70e-0							
10000	3.25e-0							
10000	3.13e-0							
20000	2.88e-0							
30000	3.06e-0							
30000	2.92e-0							
50000	2.81e-0							
100000	2.48e-0							
100000	2.24e-0							
200000	1.82e-0							
300000	1.64e-0							

Ar —> Ni

Sputtered energy of Ni by Ar
zl = 18. ml= 39.95. z2=28. m2= 58.71. sbe=4.46 eV. rho=8.90 g/cm**3
efs=0.20 (0.5) eV. esb=0.00 eV. ca=1.00. kk0=kk0r=2, kdeel=kdee2 = 3, ipot=ipotr=l (KrC)
program: TRS1C. TESTVMCX. TRVMC, TRSPV1C, newtrspd. trsplcn
ne=24. na= 8

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°	80°
18	3.92e-6							
19	1.45e-5							
20	2.02e-5		9.43e-4				6.41e-4	
22	7.61e-5							
25	1.51e-4		4.47e-3				2.17e-3	
27	3.44e-4							
30	5.39e-4		1.27e-2				4.37e-3	
32	9.48e-4							
35	1.54e-3							
40	3.43e-3		4.35e-2				1.13e-2	
50	1.30e-2		8.87e-2				2.05e-2	
50	1.16e-2							
60	2.92e-2							
70	5.21e-2		2.03e-l				4.34e-2	
70	5.35e-2							
100	1.49e-l		3.87e-l				8.27e-2	
100	1.60e-l							
150	3.52e-l							
200	4.93e-l		9.25e-l				2.53e-l	
200	5.32e-l							
290	7.65e-l	1.09e-0	1.32e-0	1.33e-0	1.29e-0	1.19e-0	4.30e-l	
300	7.78e-l	1.12e-0	1.35e-0	1.38e-0	1.35e-0	1.25e-0	4.49e-l	1.32e-l
300	8.51e-l							
500	1.19e-0		2.02e-0				8.71e-l	
500	1.29e-0							
700	1.61e-0							
1000	1.80e-0		3.15e-0				1.95e-0	
1000	1.90e-0							
1000	1.97e-0	2.70e-0	3.32e-0			3.62e-0	2.05e-0	
2000	2.49e-0							
3000	2.69e-0							
3000	2.70e-0							
10000	3.25e-0							
10000	3.13e-0							
20000	2.88e-0							
30000	3.06e-0							
30000	2.92e-0							
50000	2.81e-0							
100000	2.48e-0							
100000	2.24e-0							
200000	1.82e-0							
300000	1.64e-0							

Ar –> Ni

Particle reflection coefficient of Ar backscattered from Ni
zl = 18, ml = 39.95. z2=28, m2= 58.71, sbe=4.46 eV, rho=8.90 g/cm**3
ef=0.20 (0.5) eV. esb = 0.00 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr= 1 (KrC)
program: TRS1C, TESTVMCX, TRVMC, TRSPV1C newtrspd, trsplcn
ne=24., na= 8

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°	80°
18	2.61e-l							
19	2.55e-l							
20	2.51e-l		6.15e-l				9.85e-l	
22	2.43e-l							
25	2.34e-l		6.07e-l				9.85e-l	
27	2.29e-l							
30	2.24e-l		5.97e-l				9.85e-l	
32	2.21e-l							
35	2.18e-l							
40	2.12e-l		5.82e-l				9.84e-l	
50	2.05e-l		5.68e-l				9.83e-l	
60	2.00e-l							
70	1.97e-l		5.41e-l				9.81e-l	
100	1.83e-l		5.02e-l				9.77e-l	
200	1.52e-l		4.20e-l				9.59e-l	
290	1.35e-l	2.23e-l	3.64e-l	4.35e-l	5.27e-l	6.17e-l	9.42e-l	
300	1.37e-l	2.23e-l	3.62e-l	4.31e-l	5.16e-l	6.09e-l	9.38e-l	9.92e-l
500	1.13e-l		3.02e-l				8.95e-l	
1000	8.44e-2		2.41e-l				7.97e-l	
1000	7.71e-2	1.31e-l	2.21e-l			4.11e-l	8.00e-l	
3000	5.77e-2							
10000	3.65e-2							
30000	2.43e-2							
100000	1.Ole-2							

Energy reflection coefficient of Ar backscattered from Ni
ne=24, na= 8

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°	80°
18	1.09e-2							
19	1.12e-2							
20	1.14e-2		1.49e-l				6.78e-l	
22	1.19e-2							
25	1.25e-2		1.53e-l				6.91e-l	
27	1.27e-2							
30	1.31e-2		1.56e-l				6.98e-l	
32	1.34e-2							
35	1.37e-2							
40	1.40e-2		1.59e-l				7.09e-l	
50	1.43e-2		1.59e-l				7.15e-l	
60	1.44e-2							
70	1.42e-2		1.53e-l				7.20e-l	
100	1.34e-2		1.42e-l				7.20e-l	
200	1.13e-2		1.14e-l				6.99e-l	
290	9.74e-3	3.38e-2	9.44e-2	1.34e-l	1.95e-l	2.69e-l	6.73e-l	
300	9.82e-3	3.34e-2	9.31e-2	1.31e-l	1.87e-l	2.62e-l	6.74e-l	8.49e-l
500	8.48e-3		7.14e-2				6.26e-l	
1000	6.22e-3		5.29e-2				5.26e-l	
1000	5.79e-3	1.84e-2	4.94e-2			1.52e-l	5.28e-l	
3000	4.27e-3							
10000	3.04e-3							
30000	2.11e-3							
100000	8.23e-4							

Average depth (mean range) in Å of Ar implanted in Ni
ne=24, na= 8

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°	80°
18	l.lle+0							
19	1.15e+0							
20	1.19e+0		1.02e+0				5.29e-l	
22	1.27e+0							
25	1.39e+0		1.20e+0				6.05e-l	
27	1.47e+0							
30	1.58e + 0		1.36e+0				6.93e-l	
32	1.65e+0							
35	1.76e+0							
40	1.93e + 0		1.66e + 0				8.80e-l	
50	2.24e + 0		1.93e + 0				1.03e + 0	
60	2.54e+0							
70	2.80e + 0		2.40e + 0				1.36e+0	
100	3.51e + 0		3.00e4-0				1.81e-}-0	
200	5.30e + 0		4.50e+0				3.01e+0	
290	6.57e + 0	6.04e+0	5.47e+0	5.30e + 0	5.07e + 0	4.83e + 0	3.86e4-0	
300	6.69e+0	6.18e4-0	5.57e+0	5.39e-f-0	5.16e + 0	4.91e+0	3.96e+0	3.29e+0
500	8.93e+0		7.38e + 0				5.38e + 0	
1000	1.33e + l		1.08e + l				8.12e+0	
1000	1.20e + l	1.09e+l	1.21e+l			1.08e+l	9.39e+0	
3000	2.63e + l							
10000	6.03e + l							
30000	1.42e + 2							
100000	4.23e + 2							

Ar -> Ni

Sputtering yield of Ni by Ar
zl = 18, ml = 39.95, z2=28, m2 = 58.71, sbe=4.46 eV, rho = 8.90 g/cm**3
ef=0.20, esb=O.OO, ca=1.00, kk0=kk0r=2. kdeel=kdee2 = 3, *ipot=ipotr=3* *(ZBL)*
program: TRVMC
ne= 7, na= 7

Bo(eV)	0°	30°	45°	50°	55°	60°	75°
50	1.10e-2		6.83e-2				
70	4.61e-2		1.62e-l				
100	1.38e-l		3.31e-l				
200	5.06e-l		8.55e-l				
290	7.80e-l	1.06e-0	1.26e-0	1.25e-0	1.22e-0	1.10e-0	3.88e-l
500	1.32e-0		1.99e-0				
1000	2.04e-0		3.21e-0				

Sputtered energy of Ni by Ar
ne= 7, na= 7

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°
50	7.04e-4		9.70e-3				
70	2.95e-3		2.20e-2				
100	7.95e-3		4.07e-2				
200	2.13e-2		7.90e-2				
290	2.57e-2	5.47e-2	9.43e-2	1.06e-l	1.13e-l	1.16e-l	4.94e-2
500	3.02e-2		1.03e-l				
1000	2.97e-2		1.00e-l				

Particle reflection coefficient of Ar backscattered from Ni
zl = 18, ml = 39.95. z2=28, m2 = 58.71, sbe=4.46 eV, rho=8.90 g/cm 3
ef=0.20, esb=0.00, ca=1.00, kk0=kk0r=2, kdeel=kdee2 = 3, *ipot=ipotr-3* *(ZBLJ*
program: TRVMC
ne= 7, na= 7

Eo(eV)	0°	30°	45°	50°	55°	60°	75°
50	[illegible]		5.82e-l				
70	[illegible]		5.61e-l				
100	[illegible]		5.20e-l				
200	[illegible]		4.33e-l				
290	[illegible]	2.32e-l	3.69e-l	4.48e-l	5.33e-l	6.35e-l	9.44e-l
500	[illegible]		3.04e-l				
1000	[illegible]		2.27e-l				

Energy reflection coefficient of Ar backscattered from Ni
ne= 7, na= 7

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°
50	1.29e-2		1.47e-l				
70	1.32e-2		1.48e-l				
100	1.35e-2		1.39e-l				
200	1.22e-2		1.15e-l				
290	9.96e-3	3.52e-2	9.26e-2	1.35e-l	1.90e-l	2.69e-l	6.68e-l
500	8.53e-3		7.27e-2				
1000	6.56e-3		5.15e-2				

Average depth (mean range) in Å of Ar implanted in Ni
ne= 7, na= 7

E_0 (eV)	0°	30°	45°	50°	55°	60°	75°
50	1.58e+0		1.33e-f0				
70	2.08e4-0		1.73e+0				
100	2.71e-J-0		2.27e+0				
200	4.36e-|-0		3.64e+0				
290	5.55e4-0	5.12e+0	4.49ed-0	4.42e+0	4.13e+0	3.92e+0	3.09e + 0
500	7.76e+0		6.30e+0				
1000	1.19e+l		9.62e+0				

Ni → Ni

Sputtering yield of Ni by Ni
zl=28, ml = 58.71, z2=28, m2= 58.71. sbe=4.46 eV, rho=8.90 g/cm**3
ef=4.41 eV, esb=4.46 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX, TRSPV1C, TRSPV1CS, IPP 9/82
ne=26, na=13

E_0 (eV)	0°	15°	30°	45°	50°	55°	60°	65°	70°	75°	80°	85°	87°
14										1.20e-3			
15	2.49e-6												
16										2.93e-3			
18	1.51e-5												
20	3.72e-5									8.86e-3			
25	1.79e-4									2.00e-2			
30	5.33e-4									3.28e-2			
40	2.63e-3									6.01e-2			
50	8.72e-3												
60										1.13e-l			
70	3.63e-2												
80										1.56e-l			
100	1.08e-l									1.98e-l			
100	1.24e-l		3.30e-l	4.80e-l	5.00e-l	4.90e-l	4.80e-l	4.20e-l	3.80e-l	2.90e-l	2.10e-l	1.80e-l	1.70e-l
200	4.08e-l									4.04e-l			
500	1.16e-0									1.07e-0			
1000	1.89e-0									2.18e-0			
1000	2.03e-0		2.90e-0	3.70e-0	3.90e-0	4.00e-0	3.90e-0	3.80e-0	3.10e-0	2.30e-0	1.10e-0	2.10e-l	8.00e-2
2000	2.81e-0									4.24e-0			
2500	2.90e-0	3.22e-0	4.10e-0	5.47e-0		6.38e-0	6.66e-0	6.70e-0		5.19e-0		5.35e-l	
3000	3.06e-0												
5000	3.63e-0									8.72e-0			
10000	4.11e-0									1.29e+l			
30000	4.40e-0									2.02e4-l			
100000	4.20e-0									2.41e+l			
300000	3.05e-0												

Sputtered energy of Ni by Ni
program: TESTVMCX, TRSPV1C, TRSPV1CS
ne=23, na= 9

Eo(eV)	0°	15°	30°	45°	55°	60°	65°	75°	85°
14								4.09e-4	
15	9.94e-6								
16								6.05e-4	
18	4.18e-6								
20	4.61e-6							1.92e-3	
25	1.17e-5							4.36e-3	
30	2.92e-5							7.41e-3	
40	1.53e-4							1.33e-2	
50	4.80e-4								
60								2.35e-2	
70	1.86e-3								
80								3.07e-2	
100	4.81e-3							3.65e-2	
200	1.31e-2							5.72e-2	
500	2.26e-2							9.95e-2	
1000	2.42e-2							1.38e-l	
2000								1.75e-l	
2500	2.14e-2	2.73e-2	4.80e-2	9.03e-2	1.34e-l	1.58e-l	1.80e-l	1.81e-l	1.31e-2
3000	2.10e-2								
5000								1.93e-l	
10000	1.43e-2							1.87e-l	
30000	8.56e-3							1.53e-l	
100000	4.24e-3							1.07e-l	

Ni -4- Ni

Particle reflection coefficient of Ni backscattered from Ni
zl=28, ml = 58.71, z2=28, m2= 58.71. sbe=4.46 eV. rho = 8.90 g/cm**3
ef=4.41 eV, esb = 4.46 eV, ca=1.00. kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX, TRSPV1C, TRSPV1CS
ne=23., na= 9

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	85°
14								1.42e-2	
15	1.45e-7								
16								3.16e-2	
18	7.47e-7								
20	5.50e-7							8.73e-2	
25								1.87e-l	
30	2.75e-6							2.99e-l	
40	1.24e-4							5.02e-l	
50	5.72e-4								
60								7.39e-l	
70	2.69e-3								
80								8.31e-l	
100	6.13e-3							8.65e-l	
200	1.39e-2							8.98e-l	
500	2.16e-2							8.59e-l	
1000	2.15e-2							7.81e-l	
2000								6.75e-l	
2500	1.90e-2	2.62e-2	5.30e-2	1.20e-l	2.09e-l	2.71e-l	3.62e-l	6.32e-l	9.93e-l
3000	1.76e-2								
5000								5.24e-l	
10000	1.23e-2							4.37e-l	
30000	8.27e-3							3.82e-l	
100000	4.00e-3							3.16e-l	

Energy reflection coefficient of Ni backscattered from Ni
ne=23, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	85°
14								3.87e-3	
15	6.08e-6								
16								9.38e-3	
18	1.63e-6								
20	1.62e-6							2.85e-2	
25								6.63e-2	
30	1.50e-7							1.13e-l	
40	7.34e-6							2.08e-l	
50	4.27e-5								
60								3.50e-l	
70	1.89e-4								
80								4.34e-l	
100	3.98e-4							4.79e-l	
200	7.14e-4							5.56e-l	
500	8.74e-4							5.48e-l	
1000	8.32e-4							4.84e-l	
2000								3.88e-l	
2500	7.22e-4	1.39e-3	4.85e-3	1.88e-2	4.85e-2	7.60e-2	1.26e-l	3.55e-l	9.12e-l
3000	6.28e-4								
5000								2.64e-l	
10000	4.57e-4							2.09e-l	
30000	4.46e-4							1.66e-l	
100000	1.86e-4							1.33e-l	

Average depth (mean range) in Å of Ni implanted in Ni
ne=23, na= 9

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	75°	85°
15	4.63e-l								
18	6.47e-l								
20	7.44e-l								
25	9.41e-l								
30	1.12e+0								
40	1.47e+0							2.40e-2	
50	1.76e+0								
60								2.77e-l	
70	2.27e+0								
80								5.74e-l	
100	2.91e+0							8.09e-l	
200	4.52e+0							1.79e+0	
500	7.84e + 0							3.83e+0	
1000	1.16e + l							6.00e+0	
2000								9.11e+0	
2500	1.99e + l	1.94e+l	1.77e + l	1.54e+l	1.37e+l	1.29e+l	1.21e + l	1.04e + l	8.13e+0
3000	2.24e+l								
5000								1.59e+l	
10000	4.79e + l							2.41e+l	
30000	1.05e+2							5.00e+l	
100000	2.85e+2							1.26e+2	

Kr –> Ni

Sputtering yield of Ni by Kr
zl=36. ml = 83.80. z2=28. m2= 58.71. sbe=4.46 eV, rho=8.90 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00. kk0 = kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: TESTVMCX, IPP 9/82
ne = 20. na= 2

E_0 (eV)	0°	75°
20		8.09e-4
22	5.93e-6	
25	2.19e-5	
30	1.08e-4	6.12e-3
40	8.67e-4	1.54e-2
50	3.02e-3	2.77e-2
70	1.65e-2	5.96e-2
100	6.46e-2	1.14e-l
100	6.36e-2	
150	1.80e-l	
200	3.07e-l	3.32e-l
300	6.34e-l	
500	1.01e-0	1.07e-0
1000	1.93e-0	2.23e-0
2000		4.49e-0
3000	3.26e-0	
5000		9.48e-0
10000	4.43e-0	1.50e+l
30000	5.06e-0	2.36e+l
100000	4.99e-0	

Sputtered energy of Ni by Kr
program: TESTVMCX
ne=16, na= 2

E_0 (eV)	0°	75°
20		1.53e-4
22	3.32e-6	
25	1.48e-6	
30	4.16e-6	1.24e-3
40	3.88e-5	3.05e-3
50	1.28e-4	5.44e-3
70	6.78e-4	1.08e-2
100	2.41e-3	1.87e-2
150	5.81e-3	
200	8.96e-3	4.36e-2
500	1.81e-2	9.66e-2
1000		1.42e-l
2000		1.89e-l
5000		2.16e-l
10000		2.16e-l
30000		1.83e-l

Kr → Ni

Particle reflection coefficient of Kr backscattered from Ni
zl=36, ml= 83.80, z2=28, m2 = 58.71. sbe=4.46 eV, rho = 8.90 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX
ne=16, na= 2

E_0 (eV)	0°	75°
20		9.77e-l
22	1.86e-l	
25	1.60e-l	
30	1.28e-l	9.78e-l
40	8.98e-2	9.77e-l
50	6.78e-2	9.76e-l
70	4.42e-2	9.73e-l
100	2.79e-2	9.69e-l
150	1.56e-2	
200	1.05e-2	9.50e-l
500	5.00e-3	8.91e-l
1000		8.07e-l
2000		6.83e-l
5000		5.29e-l
10000		4.31e-l
30000		3.57e-l

Energy reflection coefficient of Kr backscattered from Ni
ne=16, na= 2

Eo(eV)	0°	75°
20		5.58e-l
22	6.62e-5	
25	7.65e-5	
30	1.04e-4	5.82e-l
40	1.33e-4	5.94e-l
50	1.45e-4	6.02e-l
70	1.58e-4	6.11e-l
100	1.50e-4	6.14e-l
150	1.28e-4	
200	1.09e-4	6.02e-l
500	7.86e-5	5.46e-l
1000		4.70e-l
2000		3.66e-l
5000		2.50e-l
10000		1.75e-l
30000		1.34e-l

Average depth (mean range) in Ä of Kr implanted in Ni
ne=16, na= 2

E_0 (eV)	0°	75°
20		4.33e-l
22	1.17e+0	
25	1.27e+0	
30	1.45e4-0	5.39e-l
40	1.79e+0	6.37e-l
50	2.08e+0	7.38e-l
70	2.60e4-0	9.34e-l
100	3.27e+0	1.23e+0
150	4.17e4-0	
200	4.94e+ 0	2.03e+0
500	8.26e+0	3.80e4-0
1000		5.75e+0
2000		8.54e+0
5000		1.39e+l
10000		2.11e-f-l
30000		4.14e+l

Xe -4- Ni

Sputtering yield of Ni by Xe
zl=54. ml = 131.30. z2=28. m2= 58.71. sbe=4.46 eV. rho = 8.90 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00, kkO= kkOr=2; kdeel = kdee2 = 3, ipot=ipotr=:l (KrC)
program: TESTVMCX, IPP 9/82 '
ne=38, na= 2

E_0 (eV)	0°	60°
15		7.78e-6
18		1.52e-4
20		5.87e-4
25	6.23e-6	4.38e-3
30	3.83e-5	1.34e-2
40	3.53e-4	4.56e-2
50	1.36e-3	9.03e-2
70	8.28e-3	2.00e-l
70	6.40e-3	
100	3.66e-2	3.90e-l
100	3.47e-2	
150	1.22e-l	
200	2.19e-l	9.61e-l
200	2.39e-l	
300	4.25e-l	
300	4.88e-l	
500	8.13e-l	2.34e-0
500	9.68e-l	
1000	1.60e-0	4.16e-0
1000	1.77e-0	
1500	2.40e-0	
2000	2.60e-0	6.81e-0
2000	2.82e-0	
3000	3.44e-0	
5000	3.98e-0	1.17e+l
5000	4.18e-0	
7000	4.78e-0	
10000	5.20e-0	1.55e+l
10000	4.95e-0	
15000	5.67e-0	
20000	5.98e-0	1.94e4-l
20000	5.90e-0	
30000	6.53e-0	
50000	7.06e-0	2.38e+l
50000	6.63e-0	
100000	7.18e-0	2.41e+l
100000	6.76e-0	
200000	6.79e-0	

Sputtered energy of Ni by Xe
program: TESTVMCX
ne=19, na= 2

E_0 (eV)	0°	60°
15		7.19e-6
18		1.83e-5
20		7.12e-5
25	1.92e-6	7.52e-4
30	3.64e-6	1.86e-3
40	1.38e-5	6.73e-3
50	4.75e-5	1.34e-2
70	2.95e-4	2.92e-2
100	1.24e-3	5.36e-2
200	5.76e-3	1.04e-l
300	8.98e-3	
500	1.38e-2	1.58e-l
1000	1.85e-2	1.79e-l
2000	1.96e-2	1.77e-l
5000	1.76e-2	1.59e-l
10000	1.57e-2	1.45e-l
20000	1.25e-2	1.24e-l
50000	9.31e-2	1.03e-l
100000	6.41e-2	8.22e-2

Xe -> Ni

Particle reflection coefficient of Xe backscattered from Ni
zl=54, 1111= 131.30, z2=28, m2 = 58.71, sbe = 4.46 eV, rho=8.90 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX
ne=18, na= 2

E_0 (eV)	0°	60°
15		6.67e-l
18		6.60e-l
20		6.56e-l
25	1.20e-l	6.48e-l
30	8.73e-2	6.38e-l
40	4.86e-2	6.31e-l
50	2.87e-2	6.18e-l
70	1.17e-2	5.99e-l
100	3.34e-3	5.70e-l
200	1.00e-4	4.98e-l
500		3.67e-l
1000		2.63e-l
2000		2.04e-l
5000		1.31e-l
10000		1.10e-l
20000		8.46e-2
50000		7.20e-2
100000		4.96e-3

Energy reflection coefficient of Xe backscattered from Ni
ne=18, na= 2

E_0 (eV)	0°	60°
15		1.18e-l
18		1.22e-l
20		1.25e-l
25	1.43e-6	1.29e-l
30	4.90e-7	1.33e-l
40	1.94e-6	1.39e-l
50	1.67e-6	1.39e-l
70	1.52e-6	1.39e-l
100	1.03e-6	1.36e-l
200	1.16e-6	1.19e-l
500		8.11e-2
1000		5.13e-2
2000		3.33e-2
5000		1.68e-2
10000		1.39e-2
20000		1.03e-2
50000		8.15e-3
100000		5.77e-3

Average depth (mean range) in Ä of Xe implanted in Ni
ne=19, na= 2

E_0 (eV)	0°	60 "
15		5.83e-l
18		6.44e-l
20		6.84e-l
25	1.47e+0	7.79e-l
30	1.69e+0	8.71e-l
40	2.10e + 0	1.05e+0
50	2.46e+0	1.23e4-0
70	3.10e+0	1.54e+0
100	3.91e+0	1.97e+0
200	5.93e+0	3.08e+0
300	7.37e+0	
500	9.64e+0	5.18e+0
1000	1.36e + l	7.44e4-0
2000	1.92e4-l	1.05e+l
5000	3.08e + l	1.67e+l
10000	4.50e+l	2.46e4-l
20000	6.65e + l	3.65e+l
50000	1.19e+2	6.32e4-l
100000	1.93e+2	1.02e+2

H -> Cu

Sputtering yield of Cu by H
z1= 1. m1 = 1.01, z2=29. m2 = 63.54. sbe=3.52 eV, rho= 8.95 g/cm**3
ef=0.98 eV. esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = 3. 4, kdee2=3, ipot=ipotr=1 (KrC)
program: TESTVMCX, TPP 9/82
ne=16, na=10

E_0 (eV)	0°	30°	50°	70°	78°	80°	85°	87°	88°	89°
80	1.57e-4									
100	1.01e-3									
150	4.82e-3									
200	8.89e-3									
300	1.39e-2									
500	2.10e-2									
1000	1.95e-2									
2000	1.80e-2									
5000	1.40e-2									
10000	9.68e-3									
20000	3.20e-3									
26700	5.10e-3									
40000	2.80e-3									
50000	3.01e-3	3.87e-3	7.02e-3	2.27e-2	3.87e-2	6.02e-2	1.22e-1	1.75e-1	1.97e-1	9.74e-2
80000	2.30e-3									
100000	2.20e-3									

Sputtered energy of Cu by H
program: TESTVMCX
ne= 9, na= 6

E_0 (eV)	0°	80°	85°	87°	88°	89°
80	9.12e-7					
100	8.93e-6					
150	5.37e-5					
200	1.03e-4					
300	1.55e-4					
1000	1.34e-4					
2000	7.86e-5					
10000	9.70e-6					
50000		3.58e-5	7.65e-5	1.13e-4	1.35e-4	8.36e-5

Particle reflection coefficient of H backscattered from Cu
z1= 1, m1 = 1.01, z2=29, m2= 63.54, sbe=3.52 eV, rho= 8.95 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = 3, 4, kdee2=3, ipot=ipotr=1 (KrC)
program: TESTVMCX
ne= 9, na= 6

E_0 (eV)	0°	80°	85°	87°	88°	89°
80	5.62e-1					
100	5.46e-1					
150	5.14e-1					
200	4.94e-1					
300	4.62e-1					
1000	3.48e-1					
2000	2.74e-1					
10000	9.79e-2					
50000		4.13e-1	5.78e-1	6.71e-1	7.45e-1	9.17e-1

Energy reflection coefficient of H backscattered from Cu
ne= 9, na= 6

E_0 (eV)	0°	80°	85°	87°	88°	89°
80	3.41e-1					
100	3.26e-1					
150	2.98e-1					
200	2.80e-1					
300	2.54e-1					
1000	1.69e-1					
2000	1.20e-1					
10000	3.14e-2					
50000		1.62e-1	3.08e-1	4.26e-1	5.37e-1	8.40e-1

Average depth (mean range) in Å of H implanted in Cu
ne= 9, na= 6

E_0 (eV)	0°	80°	85°	87°	88°	89°
80	2.58e+1					
100	2.94e+1					
150	3.75e+1					
200	4.47e+1					
300	5.76e+1					
1000	1.29e+2					
2000	2.15e+2					
10000	7.61e+2					
50000		1.06e+3	9.98e+2	9.85e+2	9.79e+2	1.01e+3

D -> Cu

Sputtering yield of Cu by D
zl = 1, ml= 2.01, z2=29, m2= 63.54. sbe=3.52 eV. rho = 8.95 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, IPP 9/82. newtrim
ne=28., na=ll

E_0 (eV)	0°	30°	45°	60°	65°	70°	75°	77.5°	80°	85°	87°
37	2.80e-5										
40	1.43e-4		1.10e-4								
42	2.89e-4										
45	5.69e-4		4.68e-4								
47	8.71e-4		7.56e-4								
50	1.47e-3		1.26e-3	7.31e-4	5.60e-4	3.10e-4	1.31e-4		3.85e-5		
53					8.95e-4						
55			2.27e-3								
60	3.56e-3										
70	6.24e-3						1.34e-3				
75	8.80e-3								6.39e-4		
80	9.39e-3										
100	1.64e-2	1.81e-2	1.84e-2	1.71e-2	1.49e-2	.	8.95e-3		3.60e-3		
120	2.17e-2										
150	2.59e-2										
200	3.50e-2						6.57e-2				
250	4.06e-2										
300	4.34e-2	5.52e-2	6.39e-2	9.37e-2	1.05e-l		1.24e-l	1.09e-l	8.55e-2		
500	4.62e-2										
1000	5.39e-2	6.93e-2	9.19e-2	1.44e-l	1.75e-l		2.50e-l		2.58e-l	1.00e-l	
2000	5.16e-2				1.85e-l						
2000	4.83e-2										
3000	3.93e-2		8.51e-2	1.39e-l	1.62e-l		2.70e-l		3.34e-l	3.04e-l	
10000	2.47e-2		5.45e-2		1.13e-l		1.92e-l		2.85e-l	4.16e-l	3.47e-l
30000	9.31e-3										
53000	6.10e-3										
80000	6.20e-3										
160000	2.90e-3										

Sputtered energy of Cu by D
program: testvmcx, newtrim
ne=15., na= 8

E_0 (eV)	0°	30°	45°	60°	65°	75°	77.5°	80°
40			9.90e-7					
45			6.20e-6					
47			1.09e-5					
50				1.16e-5		1.94e-6		5.60e-7
53					1.51e-5			
55			4.17e-5					
70						2.83e-5		
75								1.36e-5
100		4.19e-4		4.13e-4				
200	7.16e-4					1.62e-3		
300	7.60e-4	9.23e-4		1.74e-3			2.53e-3	
500	6.15e-4							
1000	4.75e-4		8.33e-4	1.45e-3		2.99e-3		
2000	2.63e-4				1.24e-3			
3000	1.69e-4		3.78e-4	7.05e-4		1.47e-3		

D -> Cu

Particle reflection coefficient of D backscattered from Cu
zl = 1. ml= 2.01. z2=29, m2= 63.54, sbe=3.52 eV, rho = 8.95 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: testvmcx, newtrim
ne=15, na= 8

B_0 (eV)	0°	30°	45°	60°	65°	75°	77.5°	80°
40			7.09e-l					
45			6.99e-l					
47			6.95e-l					
50				7.98e-l		9.48e-l		9.83e-l
53					8.40e-l			
55			6.81e-l					
70						9.32e-l		
75								9.77e-l
100		5.74e-l		7.35e-l				
200	4.87e-l					8.44e-l		
300	4.53e-l	5.00e-l		6.49e-l			8.50e-l	
500	4.21e-l							
1000	3.59e-l		4.75e-l	5.65e-l		7.01e-l		
2000	2.91e-l				5.49e-l			
3000	2.45e-l		3.67e-l	4.71e-l		6.19e-l		

Energy reflection coefficient of D backscattered from Cu
ne=15, na= 8

B_0 (eV)	0°	30°	45°	60°	65°	75°	77.5°	80°
40			5.09e-l					
45			4.97e-l					
47			3.92e-l					
50				6.32e-l		8.67e-l		9.35e-l
53					6.22e-l			
55			4.70e-l					
70						8.43e-l		
75								8.18e-l
100		3.55e-l		5.50e-l				
200	2.76e-l					7.17e-l		
300	2.50e-l	2.90e-l		4.48e-l			7.28e-l	
500	2.25e-l							
1000	1.81e-l		2.72e-l	3.60e-l		5.24e-l		
2000	1.34e-l				3.45e-l			
3000	1.08e-l		1.85e-l	2.67e-l		4.21e-l		

Average depth (mean range) in A of D implanted in Cu
ne=15, na= 8

B_0 (eV)	0°	30°	45°	60°	65°	75°	77.5°	80°
40			1.60e + l					
45			1.71e+l					
47			1.61e-f-l					
50				1.79e + l		1.75e+l		1.74e + l
53					1.80e+l			
55			1.89e + l					
70						2.14e-f-l		
75								2.19e + l
100		2.79e+l		2.71e+l				
200	4.47e+l					4.11e+l		
300	5.84e-f-l	5.69e+l		5.45e-f-l			5.31e-H	
500	8.33e+l							
1000	1.39e+2		1.31e+2	1.24e+2		1.20e+2		
2000	2.37e+2				2.03e+2			
3000	3.28e+2		2.99e+2	2.78e+2		2.70e+2		

D on Cu, Maxwellian velocity distribution, sheath potential 3 kT
zl = 1, ml= 2.01, z2=29, m2= 63.54, sbe=3.52 eV, rho = 8.95 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 4

kT(eV)	Y	Y_E	B_{sp}	R/V	Rfi	B_b	range
15	8.64e-3	2.37e-4	2.06e+0	5.85e-l	3.67e-l	4.71e + l	2.35e + l
20	1.64e-2	4.25e-4	2.59e+0	5.65e-l	3.49e-l	6.17e4-l	2.82e-H
25	2.35e-2	5.78e-4	3.08e4-0	5.50e-l	3.35e-l	7.60e + l	3.23e + l
1000	4.55e-2	1.39e-4	1.52e + l	2.33e-l	9.75e-2	2.10e-|-3	4.79e+2

He -> Cu

Sputtering yield of Cu by He
zl = 2. ml= 4.00. z2=29j m2= 63.54. sbe=3.52 eV. rho= 8.95 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: trspvmcx. IPP 9/82
ne~~15; na 1

Bo(eV)	0°
50	2.04e-2
50	1.93e-2
70	4.58e-2
100	7.86e-2
100	7.77e-2
200	1.33e-l
300	1.60e-l
500	1.90e-l
500	1.91e-l
1000	2.17e-l
1000	2.13e-l
2000	2.16e-l
4000	1.92e-l
5000	1.74e-l
10000	1.31e-l

Sputtered energy of Cu by He
program: trspvmcx
ne=14. na= 1

E_0(eV)	0°
50	8.02e-4
50	7.59e-4
70	1.84e-3
100	2.87e-3
100	2.92e-3
200	3.84e-3
300	3.88e-3
500	3.49e-3
500	3.53e-3
1000	2.48e-3
2000	1.65e-3
4000	8.52e-4
5000	5.99e-4
10000	2.96e-4

He -4 Cu

Particle reflection coefficient of He backscattered from Cu
zl= 2, miss 4.00. z2=29. m2= 63.54, sbe=3.52 eV, rho= 8.95 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0rs=2, kdeel = kdee2=3, ipot=sipotr=l (KrC)
program: trspvmcx
ne=14, na= 1

E_0 (eV)	0°
50	5.62e-l
50	5.63e-l
70	5.29e-l
100	5.00e-l
200	4.54e-l
300	4.20e-l
500	3.91e-l
500	3.93e-l
1000	3.49e-l
1000	3.50e-l
2000	2.92e-l
4000	2.33e-l
5000	2.20e-l
10000	1.50e-l

Energy reflection coefficient of He backscattered from Cu
ne=13, nass 1

E_0 (eV)	0°
50	3.17e-l
70	2.89e-l
100	2.68e-l
200	2.33e-l
300	2.11e-l
500	1.90e-l
500	1.91e-l
1000	1.64e-l
1000	1.66e-l
2000	1.32e-l
4000	9.66e-2
5000	8.78e-2
1000.0	5.45e-2

Average depth (mean range) in Ä of He implanted in Cu
ne=14. na= 1

B_0 (eV)	0°
50	1.08e + l
70	1.31e-H
100	1.61e + l
100	1.60e + l
200	2.47e+l
300	3.21e + l
500	4.55e+l
500	4.58e + l
1000	7.33e + l
1000	7.34e + l
2000	1.25e+2
4000	2.15e+2
5000	2.63e+2
10000	4.70e+2

Ne -> Cu

Sputtering yield of Cu by Ne
zl = 10, ml = 20.18. z2=29, m2 = 63.54. sbe=3.52 eV. rho= 8.95 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 7, na= 1

Eq (eV)	O'
50	8.36e-2
100	3.33e-l
200	7.10e-l
500	1.30e-0
1000	1.72e-0
2000	2.08e-0
4000	2.26e-0

Sputtered energy of Cu by Ne
ne= 7, na= 1

E_0 (eV)	0°
50	6.64e-3
100	1.98e-2
200	2.80e-2
500	2.85e-2
1000	2.44e-2
2000	1.93e-2
4000	1.36e-2

Particle reflection coefficient of Ne backscattered from Cu
zl = 10, ml= 20.18, z2=29, m2= 63.54. sbe=3.52 eV, rho= 8.95 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 7, na= 1

Ep(eV)	o'
50	4.65e-l
100	3.67e-l
200	2.91e-l
500	2.28e-l
1000	1.86e-l
2000	1.60e-l
4000	1.32e-l

Energy reflection coefficient of Ne backscattered from Cu
ne= 7, na= 1

Ep(eV)	0°
50	1.13e-l
100	8.89e-2
200	6.90e-2
500	5.13e-2
1000	4.13e-2
2000	3.40e-2
4000	2.89e-2

Average depth (mean range) in Å of Ne implanted in Cu
ne= 7, na= 1

E_o (eV)	0°
50	3.58e4-0
100	5.17e+0
200	7.57e+0
500	1.30e+l
1000	1.98e + l
2000	3.14e+l
4000	5.07e+l

Ar → Cu

Sputtering yield of Cu by Ar
zl = 18, ml = 39.95, z2=29, m2= 63.54, sbe=3.52 eV, rho= 8.95 g/cm**3
ef=0.50 eV, esb=0.00 eV, cas=1.00, kk0=kk0rs=2, kdeels=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, trspvmcx, trspvlcs
ne=20, na=12

E_0 (eV)	0°	15°	30°	45°	50°	55°	60°	65°	70°	75°	80°	85°
10								4.63e-6			1.14e-6	
11				3.65e-6								
12			3.16e-6	2.10e-5				1.06e-4			1.45e-5	
13		2.49e-6										
14	1.84e-6	9.58e-6	5.61e-5	2.17e-4		4.71e-4	5.66e-4	6.10e-4	4.65e-4	2.56e-4	5.73e-5	
15						9.79e-4	1.20e-3	1.10e-3	8.64e-4			
16	2.12e-5	6.31e-5	2.41e-4	9.23e-4		1.60e-3	1.86e-3	1.78e-3	1.29e-3	6.58e-4	1.43e-4	
18	7.78e-5	1.86e-4	6.09e-4	2.34e-3		3.96e-3		3.99e-3				
20	1.80e-4	4.00e-4	1.44e-3	4.77e-3		7.79e-3	7.98e-3	6.80e-3	4.82e-3	2.03e-3	4.80e-4	
25	8.40e-4	1.72e-3	5.36e-3	1.57e-2		2.25e-2		1.78e-2			1.16e-3	
30	3.12e-3	5.52e-3	1.46e-2	3.34e-2	4.05e-2	4.33e-2	4.08e-2	3.33e-2	2.08e-2	9.09e-3	2.06e-3	
40	1.54e-2	2.38e-2	4.85e-2	8.92e-2		9.89e-2		6.94e-2			4.46e-3	
50	3.96e-2	5.54e-2	9.91e-2	1.55e-l	1.65e-l	1.61e-l		1.13e-l	7. 14e-2	3.21e-2	7.62e-3	
100	2.65e-l											
300	1.05e-0	1.15e-0	1.41e-0	1.66e-0	1.65e-0	1.64e-0	1.52e-0	1.28e-0	9.67e-l	5.76e-l	1.83e-l	7.76e-3
500	1.55e-0											
1000	2.27e-0											
2000	3.10e-0											
3000	3.48e-0											
4000	3.50e-0											

Sputtered energy of Cu by Ar
ne = 21, na=12

E_0 (eV)	0°	15°	30°	45°	50°	55°	60°	65°	70°	75°	80°	85°
10								1.03e-6			3.44e-7	
11				2.20e-6								
12			1.54e-6	3.61e-6				1.63e-5			2.70e-6	
13		2.60e-6										
14	1.89e-6	1.99e-6	6.55e-6	2.83e-5		6.90e-5	8.63e-5	9.70e-5	7.92e-5	4.66e-5	1.08e-5	
15						1.46e-4	1.85e-4	1.91e-4	1.61e-4			
16	3.65e-6	5.32e-6	2.31e-5	1.23e-4		2.49e-4	3.02e-4	3.03e-4	2.32e-4	1.28e-4	2.77e-5	
18	6.24e-6	1.36e-5	6.12e-5	3.10e-4		6.00e-4		7.09e-4				
20	1.21e-5											
20	1.09e-5	2.93e-5	1.58e-4	7.Ole-4		1.23e-3	1.36e-3	1.23e-3	9.29e-4	4.03e-4	9.47e-5	
25	5.57e-5	1.39e-4	5.73e-4	2.21e-3		3.66e-3		3.35e-3			2.58e-4	
30	2.16e-4	4.65e-4	1.60e-3	4.70e-3	6.17e-3	7.21e-3	7.31e-3	6.35e-3	4.26e-3	1.84e-3	3.99e-4	
40	1.10e-3	2.04e-3	5.23e-3	1.23e-2		1.65e-2		1.34e-2			8.27e-4	
50	2.72e-3	4.43e-3	1.03e-2	2.08e-2	2.40e-2	2.60e-2		2.10e-2	1.38e-2	6.12e-3	1.31e-3	
100	1.34e-2											
300	2.87e-2	3.55e-2	5.98e-2	9.99e-2	1.12e-l	1.23e-l	1.28e-l	1.20e-l	9.62e-2	5.95e-2	1.57e-2	3.19e-4
500	3.03e-2											
1000	2.85e-2											
2000	2.68e-2											
3000	2.32e-2											
4000	1.85e-2											

Ar -> Cu

Particle reflection coefficient of Ar backscattered from Cu
zl = 18. ml = 39.95. z2=29 . m2= 63.54. sbe=3.52 eV. rho= 8.95 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00. kkO=kkOr=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcXj trspvmcx. trspvlcs
ne=22. na=12

Ro(eV)	0°	15°	30°	45°	50°	55°	60°	65°	70°	75°	80°	85°
5	4.86e-l											
10	3.42e-l							9.08e-l			9.97e-l	
11				6.44e-l								
12			4.57e-l	6.40e-l				9.08e-l			9.98e-l	
13		3.39e-l										
14	2.93e-l	3.33e-l	4.45e-l	6.34e-l		7.75e-l	8.46e-l	9.07e-l	9.54e-l	9.85e-l	9.98e-l	
15						7.74e-l	8.45e-l	9.07e-l	9.55e-l			
16	2.81e-l	3.23e-l	4.37e-l	6.28e-l		7.73e-l	8.43e-l	9.06e-l	9.55e-l	9.85e-l	9.98e-l	
18	2.73e-l	3.16e-l	4.31e-l	6.24e-l		7.70e-l		9.06e-l				
20	2.67e-l	3.11e-l	4.15e-l	6.20e-l		7.67e-l	8.40e-l	9.05e-l	9.54e-l	9.86e-l	9.98e-l	
25	2.57e-l	3.01e-l	4.17e-l	6.12e-l		7.59e-l		9.01e-l			9.98e-l	
30	2.52e-l	2.95e-l	4.08e-l	6.04e-l	6.76e-l	7.53e-l	8.29e-l	8.98e-l	9.52e-l	9.85e-l	9.98e-l	
40	2.44e-l	2.85e-l	3.98e-l	5.88e-l		7.38e-l		8.90e-l			9.98e-l	
50	2.38e-l	2.77e-l	3.85e-l	5.74e-l	6.47e-l	7.27e-l		8.82e-l	9.45e-l	9.83e-l	9.98e-l	
100	2.14e-l											
300	1.51e-l	1.75e-l	2.36e-l	3.63e-l	4.36e-l	5.08e-l	6.05e-l	7.21e-l	8.31e-l	9.32e-l	9.91e-l	1.00e-0
500	1.25e-l											
1000	9.64e-2											
1000	1.01e-l											
2000	8.42e-2											
3000	7.03e-2											
4000	6.26e-2											

Energy reflection coefficient of Ar backscattered from Cu
ne=22, na=12

Ro(eV)	0°	15°	30°	45°	50°	55°	60°	65°	70°	75°	80°	85°
5	3.27e-3											
10	1.18e-2							4.34e-l			7.67e-l	
11				1.49e-l								
12			6.29e-2	1.51e-l				4.43e-l			7.81e-l	
13		2.74e-2										
14	1.46e-2	2.82e-2	6.63e-2	1.56e-l		2.72e-l	3.53e-l	4.50e-l	5.60e-l	6.77e-l	7.91e-l	
15						2.74e-l	3.55e-l	4.52e-l	5.64e-l			
16	1.55e-2	2.95e-2	6.89e-2	1.60e-l		2.77e-l	3.57e-l	4.55e-l	5.67e-l	6.85e-l	7.99e-l	
18	1.63e-2	3.04e-2	7.08e-2	1.63e-l		2.79e-l		4.59e-l				
20	1.71e-2	3.11e-2	7.22e-2	1.66e-l		2.82e-l	3.64e-l	4.62e-l	5.77e-l	6.96e-l	8.12e-l	
25	1.82e-2	3.21e-2	7.45e-2	1.69e-l		2.86e-l		4.68e-l			8.23e-l	
30	1.90e-2	3.25e-2	7.53e-2	1.72e-l	2.23e-l	2.90e-l	3.71e-l	4.72e-l	5.89e-l	7.13e-l	8.31e-l	
40	1.99e-2	3.23e-2	7.47e-2	1.73e-l		2.91e-l		4.75e-l			8.42e-l	
50	1.99e-2	3.18e-2	7.27e-2	1.71e-l	2.23e-l	2.90e-l		4.74e-l	5.95e-l	7.26e-l	8.49e-l	
100	1.85e-2											
300	1.31e-2	1.79e-2	3.87e-2	9.61e-2	1.37e-l	1.87e-l	2.64e-l	3.69e-l	5.07e-l	6.70e-l	8.49e-l	9.68e-l
500	l.lle-2											
1000	8.26e-3											
1000	8.72e-3											
2000	7.59e-3											
3000	6.63e-3											
4000	5.Ole-3											

Average depth (mean range) in Ä of Ar implanted in Cu
ne=21. na=ll

Ro(eV)	0°	15°	30°	45°	50°	55°	60°	65°	70°	75°.	80°
5	5.43e-l										
10	8.65e-l							5.60e-l			3.30e-l
11				7.70e-l							
12			8.51e-l	8.16e-l				6.21e-l			3.53e-l
13		9.54e-l									
14	1.06e+0	1.00e + 0	9.49e-l	9.04e-l		8.14e-l	7.54e-l	6.83e-l	5.96e-l	4.95e-l	3.79e-l
15						8.53e-l	7.88e-l	7.10e-l	6.23e-l		
16	1.16e+0	l.lle+0	1.05e-}-0	9.90e-l		8.87e-l	8.20e-l	7.41e-l	6.48e-l	5.33e-l	4.01e-l
18	1.26e+0	1.21e+0	1.14e+0	1.08e+0		9.66e-l		8.01e-l			
20	1.35e+0	1.30e+0	1.23e+0	1.16e-}-0		1.04e+0	9.60e-l	8.68e-l	7.51e-l	6.17e-l	4.63e-l
25	1.58e+0	1.53e+0	1.45e+0	1.35e-}-0		1.22e+0		1.01e+0			5.34e-l
30	1.79e+0	1.74e+0	1.66e+0	1.54e-|-0	1.47e+0	1.39e-}-0	1.27e + 0	1.16e + 0	9.94e-l	8.44e-l	5.88e-l
40	2.17e+0	2.12e+0	2.02e+0	1.87e+0		1.69e+0		1.42e+0			8.14e-l
50	2.53e-f-0	2.47e+0	2.36e+0	2.17e+0	2.08e+0	1.97e+0		1.68e-|-0	1.47e+0	1.24e+0	9.14e-l
100	3.90e+0										
300	7.25e+0	7.10e+0	6.64e+0	6.05e4-0	5.86e-}-0	5.68e+0	5.34e+0	5.14e+0	4.82e+0	4.53e4-0	4.00e+0
500	9.61e+0										
1000	1.45e4-l										
2000	2.22e+l										
3000	2.89e+ l										
4000	3.39e-f-l										

Ar → Cu

Sputtering yield of Cu by Ar
z1 = 18, m1 = 39.95, z2=29, m2= 63.54, sbe=3.52 eV, rho= 8.95 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel=kdee2=3, ipot=ipotr
alpha=0.
program: trspvmcx
ne= 1, na= 1

Eo(eV)	Y	Y_E	R_N	Rg	range	potential
100	2.65e-1	1.34e-2	2.14e-1	1.85e-2	3.90e+0	KrC
100	2.52e-1	1.53e-2	2.88e-1	2.34e-2	2.43e+0	Moliere
100	2.41e-1	1.36e-2	2.35e-1	1.92e-2	3.01e+0	ZRL

Cu->Cu

Sputtering yield of Cu by Cu
z1=29, m1 = 63.54, z2=29, m2= 63.54, sbe=3.52 eV, rho=8.95 g/cm**3
ef=3.45 eV, esb=3.52 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=r1 (KrC)
program: IPP 9/82
ne=24, na=10

Eo(eV)	0°	15°	30°	45°	55°	65°	70°	75°	80°	85°
14	1.00e-5									
16	4.00e-5									
18	1.00e-4									
20	1.90e-4	6.10e-4	2.54e-3	9.63e-3	1.71e-2	2.13e-2		2.06e-2	1.82e-2	1.58e-2
23	4.60e-4									
25	7.50e-4									
28	1.39e-3									
30	1.98e-3									
32	2.70e-3									
50	2.45e-2	4.28e-2	1.02e-1	1.83e-1	2.06e-1	1.83e-1		1.14e-1	8.45e-2	6.04e-2
60	4.84e-2									
70	7.93e-2									
80	1.16e-1									
100	1.87e-1	2.55e-1	4.19e-1	5.60e-1	5.69e-1	4.60e-1		2.42e-1	1.44e-1	8.22e-2
200	5.85e-1									
300	9.47e-1	1.07e-0	1.40e-0	1.71e-0	1.71e-0	1.43e-0		7.64e-1	3.72e-1	1.07e-1
500	1.50e-0									
1000	2.40e-0	2.59e-0	3.30e-0	4.06e-0	4.42e-0	4.14e-0	3.56e-0		1.35e-0	2.54e-1
2000	3.35e-0									
3000	3.80e-0	4.21e-0	5.33e-0	6.96e-0		8.86e-0	8.46e-0		4.38e-0	8.84e-1
5000	4.51e-0									
10000	5.14e-0	5.84e-0	7.24e-0	1.02e+1	1.26e+1	1.53e+1	1.57e+1	1.56e+1	1.26e+1	4.25e-0
30000	5.57e-0									
100000	4.66e-0	5.35e-0	6.71e-0	9.45e-0		1.95e+1			3.03e+1	1.85e+1

Cu –> Cu

Sputtered energy of Cu by Cu
zl = 29. ml = 63.54. z2 = 29. m2= 63.54. sbe=3.52 eV. rho=8.95 g/cm**3
ef=3.47 eV. esb = 3.52 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne=43, na=14

E_0 (eV)	0°	15°	25°	30°	35°	40°	45°	55°	60°	65°	70°	75°
7										7. 19e-6		
7.5										2.12e-6		
8				2.51e-6			2.20e-6			4.48e-6		
9				2.36e-6			4.36e-6			1.83e-5		
10		3.00e-6		5.25e-6			1.21e-5			5.59e-5		
11		2.55e-6		9.23e-6			1.12e-4					
11.8										2.34e-4		
12	4.09e-6	2.56e-6	2.06e-5	1.51e-5	2.39e-5	3.66e-5	5.89e-5	1.42e-4		2.71e-4		3.80e-4
13				2.56e-5						5.07e-4		
14	3.91e-6	6.11e-6		3.86e-5			1.82e-4			7.74e-4		
15				5.98e-5								
16	3.26e-6	1.35e-5		8.14e-5			4.24e-4	9.62e-4		1.55e-3		1.88e-3
17				1.17e-4						2.25e-3		
18	1.28e-5	2.66e-5		1.56e-4			8.26e-4					
20	9.71e-6	4.10e-5		2.69e-4			1.44e-3	3.02e-3		4.22e-3		
22		6.71e-5										
23	2.31e-5	8.70e-5		5.73e-4			2.68e-3					
25	6.85e-5			8.35e-4								
27		2.24e-4										
28	7.23e-5											
30	1.06e-4	3.64e-4		1.92e-3			6.82e-3	1.18e-2		1.39e-2	1.31e-2	
32	1.46e-4											
35		7.24e-4		3.43e-3								
40	4.96e-4	1.38e-3		5.47e-3			1.55e-2			2.46e-2		
50	1.30e-3	2.97e-3		1.Ole-2			2.50e-2	3.44e-2				2.34e-2
60	2.43e-3											
70	3.77e-3	7.27e-3		1.98e-2			4.26e-2			5.25e-2		
95							6.00e-2					
100	8.00e-3	1.35e-2		3.20e-2			6.32e-2	7.76e-2		7.16e-2		3.99e-2
120							7.30e-2					
200	1.74e-2	2.55e-2		5.22e-2			9.52e-2			1.15e-l		
300	2.27e-2	3.09e-2		5.91e-2			1.10e-l	1.38e-l		1.41e-l		8.03e-2
500	2.58e-2						1.15e-l			1.70e-l		
1000	2.78e-2	3.39e-2		6.10e-2			l.lle-1	1.53e-l		1.88e-l	1.84e-l	
2000										1.90e-l		
3000	2.17e-2	2.75e-2		4.69e-2			8.81e-2		1.61e-l	1.82e-l	1.98e-l	
5000	1.96e-2									1.68e-l		
10000	1.46e-2	1.92e-2		3.33e-2			6.51e-2	9.96e-2		1.50e-l	1.68e-l	1.87e-l
30000	9.30e-3	l.lle-2		2.08e-2			4.48e-2			1.10e-l		
100000	3.32e-3	5.67e-3		9.98e-3			2.02e-2			6.34e-2		

E_0 (eV)	80°	85°
6.5	1.61e-6	
7	2.98e-6	
7.4	4.40e-6	
8	1.14e-5	
9	3.83e-5	4.15e-5
10	1.04e-4	l.lle-4
11	2.27e-4	
12	4.16e-4	4.19e-4
14	1.02e-3	1.02e-3
15		1.42e-3
16	1.85e-3	1.86e-3
18	2.89e-3	
20	4.04e-3	3.66e-3
30	9.53e-3	8.10e-3
40	1.36e-2	1.03e-2
50	1.64e-2	1.17e-2
70	1.96e-2	
100	2.21e-2	1.16e-2
200	2.83e-2	
300	3.39e-2	7.35e-3
500	4.76e-2	
1000	7.27e-2	7.63e-3
3000	1.32e-l	1.80e-2
10000	1.76e-l	6.68e-2
30000	1.75e-l	1.15e-l
100000	1.30e-l	1.18e-l
300000		9.87e-2

Cu - 4 Cu

Particle reflection coefficient of Cu backscattered from Cu
z1=29. m1 = 63.54. z2=29. m2 = 63.54. sbe=3.52 eV. rho=8.95 g/cm**3
ef=3.47 eV. esb=3.52 eV, ca=1.00, kk0=kk0r=2. kdee1=kdee2=3. ipot=ipotr=1 (KrC)
program: testvmcx
ne=43, na=14

E 0 (eV)	0°	15°	25°	30°	35°	40°	45°	55°	60°	65°	70°	75°
7										8.29e-6		
7.5										4.60e-5		
8				5.05e-8			5.25e-7			1.38e-4		
9				5.00e-8			6.70e-6			7.32e-4		
10		2.02e-8		1.50e-7			3.64e-5			2.38e-3		
11				3.33e-7			1.29e-4					
11.8										9.07e-3		
12	2.22e-8	2.00e-7	4.29e-7	2.00e-6	1.03e-5	8.04e-5	3.09e-4	2.50e-3		1.02e-2		2.33e-2
13				7.00e-6						1.64e-2		
14	1.75e-7			1.98e-5			1.18e-3			2.46e-2		
15				6.10e-5								
16		1.33e-6		1.33e-4			3.21e-3	1.54e-2		4.61e-2		9.13e-2
17				2.61e-4						5.89e-2		
18	1.00e-6	9.00e-6		4.41e-4			6.95e-3					
20	7.50e-7	3.70e-5		1.08e-3			1.26e-2	4.29e-2		1.06e-1		
22		9.40e-5										
23	1.14e-6	1.49e-4		3.04e-3			2.47e-2					
25	4.00e-6			5.13e-3								
27		4.48e-4										
28	2.60e-5											
30	4.87e-5	8.78e-4		1.16e-2			6.47e-2	1.49e-1		2.92e-1	3.78e-1	
32	9.71e-5											
35		2.25e-3		2.03e-2								
40	5.15e-4	3.71e-3		2.96e-2			1.26e-1			4.42e-1		
50	1.92e-3	7.71e-3		4.77e-2			1.74e-1	3.30e-1				7.62e-1
60	3.18e-3											
70	4.53e-3	1.63e-2		7.30e-2			2.35e-1			6.40e-1		
95							2.63e-1					
100	9.78e-3	2.47e-2		9.45e-2			2.64e-1	4.55e-1		6.84e-1		8.89e-1
120							2.70e-1					
200	1.83e-2	3.67e-2		1.03e-1			2.62e-1			6.67e-1		
300	2.08e-2	3.83e-2		1.01e-1			2.35e-1	4.08e-1		6.25e-1		8.88e-1
500	2.28e-2						2.07e-1			5.55e-1		
1000	2.18e-2	3.13e-2		7.03e-2			1.67e-1	2.79e-1		4.64e-1	6.01e-1	
2000										3.72e-1		
3000	2.44e-2	2.76e-2		5.46e-2			1.14e-1		2.70e-1	3.35e-1	4.44e-1	
5000	1.62e-2									2.96e-1		
10000	1.44e-2	1.30e-2		4.33e-2			7.97e-2	1.50e-1		2.53e-1	3.36e-1	4.54e-1
30000	9.67e-3	1.00e-2		2.70e-2			5.40e-2			2.13e-1		
100000	3.00e-3	4.67e-3		1.36e-2			4.10e-2			1.80e-1		

E 0 (eV)	80°	85°
6.5	1.84e-5	
7	8.86e-5	
7.4	2.26e-4	
8	7.76e-4	
9	3.48e-3	4.24e-3
10	8.85e-3	1.04e-2
11	1.74e-2	
12	2.96e-2	3.35e-2
14	6.42e-2	7.35e-2
15		9.68e-2
16	1.11e-1	1.25e-1
18	1.68e-1	
20	2.29e-1	2.54e-1
30	5.26e-1	5.70e-1
40	7.29e-1	7.76e-1
50	8.36e-1	8.78e-1
70	9.19e-1	
100	9.51e-1	9.79e-1
200	9.70e-1	
300	9.70e-1	9.97e-1
500	9.61e-1	
1000	9.30e-1	9.98e-1
3000	8.05e-1	9.88e-1
10000	6.14e-1	9.13e-1
30000	5.09e-1	7.58e-1
100000	4.70e-1	6.17e-1

Cu Cu

Energy reflection coefficient of Cu backscattered from Cu
z1=29. m1 = 63.54. z2=29. m2= 63.54. sbe=3.52 eV. rbo=8.95 g/cm**3
ef=3.47 eV, esb=3.52 eV, ca=1.00. kk0=kk0r=2. kdee1 = kdee2=3. ipot=ipotr=1 (KrC)
program: testvmcx
ne=43. na=14

E_0 (eV)	0°	15°	25°	30°	35°	40°	45°	55°	60°	65°	70°	75°
7										2.24e-6		
7.5										6.90e-6		
8				5.06e-7			1.98e-7			2.18e-5		
9				7.35e-6			1.05e-6			1.35e-4		
10		6.78e-7		3.77e-7			5.24e-6			5.01e-4		
11				5.51e-7			2.09e-5					
11.8										2.24e-3		
12	2.64e-8	9.95e-8	8.71e-8	8.68e-7	1.68e-6	1.15e-5	5.21e-5	5.19e-4		2.55e-3		6.66e-3
13				6.42e-7						4.35e-3		
14	4.76e-7			2.04e-6			2.07e-4			6.73e-3		
15				6.53e-6								
16		2.53e-7		1.57e-5			5.77e-4	3.61e-3		1.32e-2		2.99e-2
17				3.00e-5						1.70e-2		
18	2.44e-6	3.29e-6		5.45e-5			1.27e-3					
20	2.93e-7	1.11e-5		1.44e-4			2.37e-3	1.04e-2		3.22e-2		
22		9.40e-6										
23	7.58e-7	1.51e-5		4.26e-4			4.78e-3					
25	2.80e-7			7.45e-4								
27		4.71e-5										
28	1.49e-6											
30	2.91e-6	9.15e-5		1.73e-3			1.34e-2	3.92e-2		9.81e-2	1.40e-1	
32	6.25e-6											
35		2.28e-4		3.11e-3								
40	3.30e-5	3.67e-4		4.52e-3			2.76e-2			1.59e-1		
50	1.37e-4	8.10e-4		7.45e-3			3.95e-2	9.69e-2				3.67e-1
60	2.02e-4											
70	3.10e-4	1.61e-3		1.11e-2			5.53e-2			2.62e-1		
95							6.27e-2					
100	6.02e-4	2.23e-3		1.39e-2			6.28e-2	1.47e-1		2.98e-1		5.17e-1
120							6.40e-2					
200	9.33e-4	2.84e-3		1.34e-2			6.04e-2			3.02e-1		
300	1.15e-3	2.62e-3		1.22e-2			5.01e-2	1.28e-1		2.82e-1		5.68e-1
500	9.76e-4						4.10e-2			2.41e-1		
1000	8.42e-4	1.61e-3		7.18e-3			2.96e-2	7.48e-2		1.84e-1	2.99e-1	
2000										1.31e-1		
3000	9.87e-4	1.28e-3		4.57e-3			1.58e-2		7.24e-2	1.11e-1	1.83e-1	
5000	5.77e-4									9.18e-2		
10000	5.02e-4	8.13e-4		3.44e-3			1.14e-2	3.20e-2		7.66e-2	1.25e-1	2.04e-1
30000	4.25e-4	5.81e-4		2.87e-3			7.83e-3			6.66e-2		
100000	7.11e-5	3.04e-4		1.09e-3			5.56e-3			5.46e-2		

E_0 (eV)	80°	85°
6.5	3.16e-6	
7	1.42e-5	
7.4	3.98e-5	
8	1.48e-4	
9	7.91e-4	9.91e-4
10	2.27e-3	2.75e-3
11	4.87e-3	
12	8.83e-3	1.02e-2
14	2.08e-2	2.45e-2
15		3.33e-2
16	3.82e-2	4.41e-2
18	6.02e-2	
20	8.54e-2	9.81e-2
30	2.27e-1	2.56e-1
40	3.50e-1	3.93e-1
50	4.39e-1	4.89e-1
70	5.48e-1	
100	6.28e-1	7.07e-1
200	7.18e-1	
300	7.38e-1	8.69e-1
500	7.39e-1	
1000	7.05e-1	9.18e-1
3000	5.70e-1	9.01e-1
10000	3.74e-1	7.82e-1
30000	2.69e-1	5.88e-1
100000	2.44e-1	4.25e-1
300000		4.28e-1

C11-4- Cu

Average depth (mean range) in Ä of Cu implanted in Cu
zl=29, ml = 63.54, z2=29, m2= 63.54. sbe=3.52 eV, rho=8.95 g/cm**3
ef=3.47 eV, esb=3.52 eV, ca=1.00, kkO=kkOr=2, kdeel=kdee2=3, ipot=ipotr = l (KrC)
program: testvmcx
ne=38, na=14

E_0 (eV)	0°	15°	25°	30°	35°	40°	45°	55°	60°	65°	70°	75°
8				5.15e-3								
9				6.78e-2			1.59e-2					
10		1.83e-l		1.35e-l			5.78e-2					
11		2.69e-l		2.02e-l			9.87e-2					
12	3.84e-l	3.52e-l	3.01e-l	2.67e-l	2.28e-l	1.85e-l	1.38e-l	3.00e-2				
13				3.27e-l								
14	5.45e-l	5.00e-l		3.82e-l			2.08e-l					
15				4.33e-l								
16	6.75e-l	6.18e-l		4.79e-l			2.69e-l	1.13e-l				
17				5.20e-l								
18	7.81e-l	7.19e-l		5.60e-l			3.24e-l					
20	8.73e-l	8.07e-l		6.35e-l			3.75e-l	1.87e-l		9.19e-3		
22		8.89e-l										
23	1.00e-0	9.32e-l		7.38e-l			4.49e-l					
25	1.09e-0			8.06e-l								
27		1.09e-0										
28	1.21e-0											
30	1.30e-0	1.20e-0		9.69e-l			6.36e-l	3.94e-l		1.57e-l	5.39e-2	
32	1.37e-0											
35		1.38e-0		1.13e-0								
40	1.66e-0	1.56e-0		1.28e-0			9.00e-l			3.49e-l		
50	1.97e-0	1.85e-0		1.57e-0			1.17e-0	8.87e-l				2.74e-l
60	2.26e-0											
70	2.51e-0	2.39e-0		2.09e-0			1.67e-0			1.02e-0		
95							2.21e-0					
100	3.21e-0	3.06e-0		2.75e-0			2.30e-0	1.99e-0		1.56e-0		9.91e-l
120							2.66e-0					
200	4.94e-0	4.79e-0		4.39e-0			3.83e-0			2.90e-0		
300	6.25e-0	6.06e-0		5.65e-0			4.92e-0	4.38e-0		3.72e-0		2.88e-0
500	8.36e-0						6.57e-0			5.10e-0		
1000	1.24e + l	1.21e+l		l.lle + 1			9.87e-0	8.73e-0		7.72e-0	7.25e-0	
2000										1.12e4-l		
3000	2.34e+l	2.30e+l		2.09e + l			1.85e + l		1.52e+l	1.42e+l	1.31e + l	
5000	3.16e + l									1.91e + l		
10000	5.02e + l	4.74e4-l		4.46e + l			3.86e-}-l	3.37e + l		2.86e + l	2.78e + l	2.54e-f-l
30000	1.07e+2	1.06e+2		9.73e-]-l			8.50e+l			5.96e + l		
100000	3.00e-f-2	2.81e+2		2.54e+ 2			2.19e-|-2			1.59e+2		

Bo (eV)	80°	85°
50	1.32e-l	3.05e-2
70	3.87e-l	
100	7.71e-l	4.52e-l
200	1.54e-0	
300	2.36e-0	1.46e-0
500	3.67e-0	
1000	5.55e-0	4.57e-0
3000	1.12e+l	9.26e-0
10000	2.44e+l	2.28e+l
30000	4.83e + l	4.52e-f-l
100000	1.30e+2	1.06e+2
300000		1.78e+2

Cu on Cu, Maxwellian velocity distribution, sheath potential 3 kT
zl=29, ml= 63.54, z2=29, m2= 63.54, sbe=3.52, rho=8.95 g/cm**3
ef=3.50 eV, esb=3.52 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 3

kT(eV)	Y	Y_E	Esp	R ?7	Re	E_b	range
15	5.67e-l	2.60e-2	7.57e-|-0	4.39e-2	4.37e-3	1.64e-|-l	4.20e4-0
20	8.15e-l	3.19e-2	8.64e+0	4.13e-2	4.00e-3	2.13e + l	5.05e4-0
25	1.01e-0	3.41e-2	9.32e+0	4.05e-2	3.40e-3	2.31e + l	5.71e+0

Sputtering yield of Cu by Xe
zl=54, ml = 131.30, z2=29. m2= 63.54. sbe=3.52 eV. rho = 8.95 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, trspvlcs
ne= 8, na= 1

MeV)	0°
50	6.48e-3
100	8.69e-2
300	6.50e-l
500	1.17e-0
1000	2.13e-0
2000	3.30e-0
3000	4.09e-0
4000	4.51e-0

Sputtering yield of Cu by Xe
ne= 8, na= 1

MeV)	(P
50	2.35e-4
100	2.79e-3
300	1.32e-2
500	1.80e-2
1000	2.19e-2
2000	2.32e-2
3000	2.23e-2
4000	1.97e-2

Particle reflection coefficient of Xe backscattered from Cu
zl=54. ml = 131.30, z2=29, m2= 63.54. sbe=3.52 eV. rho= 8.95 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, trspvlcs
ne= 7, na= 1

Bq(eV)	0°
50	2.77e-2
100	4.26e-3
300	2.20e-4
500	1.00e-4
2000	2.80e-4
3000	3.07e-4
4000	6.00e-4

Energy reflection coefficient of Xe backscattered from Cu
ne= 7, na= 1

Eo(eV)	cp5
50	2.40e-6
100	2.86e-6
300	1.54e-6
500	1.21e-6
2000	1.91e-6
3000	2.45e-6
4000	8.91e-7

Average depth (mean range) in Ä of Xe implanted in Cu
ne= 8, na= 1

B_0 (eV)	0°
50	2.66e + 0
100	4.17e+0
300	7.73e+0
500	1.01e+l
1000	1.42e+l
2000	2.03e + l
3000	2.49e + l
4000	2.86e+l

$D \rightarrow Ga$

Sputtering yield of Ga by D
z1= 1, m1= 2.01, z2=31, m2= 69.72, sbe=2.82 eV, rho=5.91 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdee1 = kdee2=3, ipot=ipotr=1 (KrC)
program: testvmcx, IPP 9/82
ne=10, na= 2

E_0 (eV)	0°	65°
30	1.58e-6	8.75e-7
50	2.54e-3	1.63e-3
70	7.80e-3	7.06e-3
100	1.55e-2	2.08e-2
200	3.13e-2	6.90e-2
500	4.45e-2	1.37e-1
1000	4.92e-2	1.65e-1
2000	4.52e-2	1.64e-1
5000	3.48e-2	1.38e-1
10000	2.38e-2	1.05e-1

Sputtered energy of Ga by D
program: testvmcx
ne=10, na= 2

E_0 (eV)	0°	65°
30	2.28e-9	3.45e-9
50	4.39e-5	2.95e-5
70	1.64e-4	1.63e-4
100	3.48e-4	4.75e-4
200	5.99e-4	1.40e-3
500	5.60e-4	1.84e-3
1000	4.08e-4	1.52e-3
2000	2.37e-4	9.67e-4
5000	8.52e-5	4.60e-4
10000	3.41e-5	2.22e-4

Particle reflection coefficient of D backscattered from Ga
z1= 1, m1 = 2.01, z2=31, m2= 69.72, sbe=2.82 eV, rho=5.91 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdee1 = kdee2=3, ipot=ipotr=1 (KrC)
program: testvmcx
ne=10, na= 2

E_0 (eV)	0°	65°
30	5.93e-1	8.32e-1
50	5.68e-1	7.95e-1
70	5.48e-1	7.69e-1
100	5.29e-1	7.47e-1
200	4.91e-1	7.04e-1
500	4.27e-1	6.48e-1
1000	3.71e-1	6.03e-1
2000	3.04e-1	5.57e-1
5000	2.03e-1	4.76e-1
10000	1.27e-1	4.03e-1

Energy reflection coefficient of D backscattered from Ga
ne=10, na= 2

E_0 (eV)	0°	65°
30	3.72e-1	6.80e-1
50	3.47e-1	6.30e-1
70	3.29e-1	5.96e-1
100	3.11e-1	5.63e-1
200	2.79e-1	5.10e-1
500	2.29e-1	4.46e-1
1000	1.88e-1	3.98e-1
2000	1.43e-1	3.49e-1
5000	8.20e-2	2.68e-1
10000	4.44e-2	2.00e-1

Average depth (mean range) in Å of D implanted in Ga
ne=10, na= 2

E_0 (eV)	0°	65°
30	2.42e+1	2.31e+1
50	3.25e+1	3.09e+1
70	3.96e+1	3.74e+1
100	4.89e+1	4.64e+1
200	7.54e+1	7.04e+1
500	1.38e+2	1.26e+2
1000	2.27e+2	2.03e+2
2000	3.85e+2	3.33e+2
5000	7.98e+2	6.50e+2
10000	1.43e+3	1.08e+3

D -+ Ga

D on Ga, Maxwellian velocity distribution, sheath potential 0 kT
zl = 1, ml = 2.01, z2=31, m2 = 69.72, sbe=2.82 eV. rho= 5.91 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne=10

kT(eV)	Y	Y_E	B sp	R A 7	R_E	B_b	range
10	2.71e-4	1.76e-5	1.30e+0	7.53e-l	5.49e-l	1.46e + l	1.86e+l
20	3.00e-3	1.53e-4	2.04e + 0	7.21e-l	5.03e-l	2.79e+l	2.79e + l
30	7.39e-3	3.13e-4	2.55e+0	6.99e-l	4.77e-l	4.10e+l	3.54e + l
50	1.83e-2	6.09e-4	3.32e+0	6.69e-l	4.42e-l	6.60e4-l	4.76e4-l
100	4.07e-2	9.38e-4	4.60e+0	6.34e-l	4.03e-l	1.27e-j-2	7.25e+l
200	6.73e-2	1.04e-3	6.16e+0	5.87e-l	3.57e-l	2.43e4-2	1.15e + 2
500	9.35e-2	8.54e-4	9.15e+0	5.24e-l	2.94e-l	5.62e+2	2.19e + 2
1000	1.03e-l	5.86e-4	1.14e + l	4.67e-l	2.42e-l	1.04e + 3	3.67e+2
2000	9.78e-2	3.32e-4	1.35e + l	3.98e-l	1.86e-l	1.87e+3	6.21e+2
5000	8.22e-2	1.43e-4	1.74e+l	3.06e-l	1.19e-l	3.88e+3	1.27e+3

D on Ga, Maxwellian velocity distribution, sheath potential 3 kT
ne=ll

kT(eV)	Y	Y_E	E sp	R;v	R_b	Bb	range
5	6.50e-5	2.23e-6	8.56e-l	6.39e-l	4.43e-l	1.66e + l	2.15e + l
7	6.93e-4	1.94e-5	9.81e-l	6.20e-l	4.02e-l	2.27eRl	2.60e+l
10	3.35e-3	9.02e-5	1.35e4-0	6.00e-l	3.82e-l	3.19e + l	3.18e + l
20	1.63e-2	3.95e-4	2.43e+0	5.64e-l	3.45e-l	6.12e4-l	4.81e+l
50	4.01e-2	7.06e-4	4.40e4-0	5.10e-l	2.97e-l	1.46e4-2	8.48e + l
100	5.30e-2	6.79e-4	6.41e + 0	4.64e-l	2.58e-l	2.78e+2	1.35e+2
200	5.90e-2	4.94e-4	8.39e4-0	4.07e-l	2.16e-l	5.30e+2	2.21e+2
500	5.36e-2	2.28e-4	1.07e+l	3.20e-l	1.50e-l	1.18e+3	4.41e+2
1000	4.28e-2	1.14e-4	1.34e + l	2.47e-l	1.04e-l	2.11e+3	7.65e+2
2000	3.40e-2	5.40e-5	1.59e+l	1.65e-l	5.98e-2	3.62e+3	1.34e+3
5000	1.72e-2	1.08e-5	1.57e + l	7.35e-2	2.07e-2	7.07e+3	2.87e+3

T → Ga

Sputtering yield of Ga by T
zl= 1, ml = 3.01, z2=31. m2= 69.72. sbe=2.97 eV. rho=5.91 g/cm**3
ef=0.90 eV. esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), TPP 9/82
ne= 8, na= 2

E_0 (eV)	0°	65°
50	8.73e-3	7.60e-3
100	2.85e-2	4.97e-2
200	5.00e-2	1.24e-l
500	6.84e-2	2.11e-l
1000	7.15e-2	2.46e-l
2000	6.81e-2	2.54e-l
5000	5.24e-2	2.00e-l
10000	3.56e-2	

Sputtered energy of Ga by T
program: newtrim (Laszlo)
ne= 8, na= 2

E_0 (eV)	0°	65°
50	2.62e-4	2.48e-4
100	8.73e-4	1.60e-3
200	1.23e-3	3.29e-3
500	1.05e-3	3.64e-3
1000	7.22e-4	2.84e-3
2000	4.07e-4	1.84e-3
5000	1.76e-4	8.14e-4
10000	6.22e-5	

Particle reflection coefficient of T backscattered from Ga
zl= 1, ml= 3.01, z2=31, m2= 69.72, sbe=2.97 eV, rho=5.91 g/cm**3
ef=0.90 eV. esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo)
ne= 8, na= 2

E_0 (eV)	0°	65°
50	5.36e-l	7.81e-l
100	5.02e-l	7.30e-l
200	4.65e-l	6.88e-l
500	4.11e-l	6.31e-l
1000	3.61e-l	5.98e-l
2000	3.00e-l	5.44e-l
5000	2.08e-l	4.74e-l
10000	1.37e-l	

Energy reflection coefficient of T backscattered from Ga
ne= 8, na= 2

E_0 (eV)	0°	65°
50	3.14e-l	6.08e-l
100	2.85e-l	5.43e-l
200	2.56e-l	4.90e-l
500	2.17e-l	4.32e-l
1000	1.82e-l	3.95e-l
2000	1.42e-l	3.43e-l
5000	8.66e-2	2.79e-l
10000	4.90e-2	

Average depth (mean range) in Ä of T implanted in Ga
ne= 8, na= 2

E_0 (eV)	0°	65°
50	3.02e+1	2.84e+l
100	4.60e+l	4.29e+l
200	7.17e+1	6.61e+l
500	1.35e+2	1.23e+2
1000	2.26e+2	2.01e+2
2000	3.92e+2	3.39e+2
5000	8.45e+2	6.97e+2
10000	1.55e+3	

T → Ga

T on Ga, Maxwellian velocity distribution, sheath potential 0 kT
zl = 1. ml = 3.01, z2=31, m2= 69.72. sbe=2.97 eV, rho= 5.91 g/cm**3
ef=0.90 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: newtrim(Laszlo)
ne= 9

kT(eV)	Y	YE	Egp	R?sr	Re	Efe	range
10	l.lle-3	9.34e-5	1.69e4-0	7.29e-l	5.17e-l	1.42e+l	1.69e+l
20	7.80e-3	5.20e-4	2.67e+0	6.98e-l	4.76e-l	2.73e+l	2.57e+l
50	3.46e-2	1.54e-3	4.34eR0	6.48e-l	4.22e-l	6.50e+l	4.47e+l
100	7.13e-2	2.03e-3	5.72e+0	6.07e-l	3.81e-l	1.26e+2	6.97eRl
200	1.08e-l	2.13e-3	7.88e4-0	5.73e-l	3.45e-l	2.41eR2	l.lle+2
500	1.42e-l	1.53e-3	1.08e+l	5.11e-l	2.88e-l	5.66e+2	2.20e+2
1000	1.58e-l	1.15e-3	1.46e+l	4.66e-l	2.44e-l	1.05e+3	3.75e4-2
2000	1.39e-l	6.18e-4	1.77e+l	4.04e-l	1.96e-l	1.92e+3	6.54e+2
5000	1.18e-l	2.56e-4	2.16e+l	3.14e-l	1.29e-l	4.07e+3	1.38e+3

T on Ga, Maxwellian velocity distribution, sheath potential 3 kT
ne= 9

kT(eV)	Y	Ye	Esp	RjV	Re	Eb	range
10	9.56e-3	3.68e-4	1.93e+0	5.70e-l	3.49e-l	3.06e+l	2.97e+l
20	3.07e-2	9.94e-4	3.23e+0	5.39e-l	3.21e-l	5.94e+l	4.49eRl
50	6.50e-2	1.46e-3	5.60e+0	4.84e-l	2.76e-l	1.43e+2	8.05e+l
100	8.10e-2	1.24e-3	7.63e+0	4.46e-l	2.45e-l	2.76eR2	1.33e+2
200	8.47e-2	8.85e-4	1.04e+l	3.99e-l	2.12e-l	5.30e+2	2.22e+2
500	7.77e-2	3.98e-4	1.28e+l	3.18e-l	1.56e-l	1.23e+3	4.55e+2
1000	6.48e-2	2.17e-4	1.67e+l	2.49e-l	1.07e-l	2.16eR3	8.12e4-2
2000	4.91e-2	9.75e-5	1.99e+l	1.76e-l	6.65e-2	3.79e+3	1.46e+3
5000	3.06e-2	2.81e-5	2.30e+l	8.45e-2	2.56e-2	7.58eR3	3.19e+3

T on Ga, Maxwellian velocity distribution, sheath potential 9 kT
ne= 5

kT(eV)	Y	Ye	Esp	Rw	Re	Eb	range
10	3.18e-2	9.61e-4	3.33e+0	5.15e-l	2.97e-l	6.35e+l	4.85eRl
20	5.52e-2	1.34e-3	5.32e+0	4.75e-l	2.66e-l	1.23e+2	7.54e+l
50	7.79e-2	1.17e-3	8.28e4-0	4.19e-l	2.25e-l	2.95e+2	1.43e+2
100	8.25e-2	7.50e-4	1.00e+l	3.69e-l	1.87e-l	5.58e4-2	2.40e+2
200	7.11e-2	4.15e-4	1.29e+l	3.16e-l	1.52e-l	1.06e+3	4.18eR2

Gei —y Gei

Sputtering yield of Ga by Ga
zl=31, ml = 69.72. z2=31, m2= 69.72. sbe=2.97 eV. rho=5.91 g/cm**3
ef=2.47 eV. esb=2.97 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr = l (KrC)
program: newtrim (Laszlo). TPP 9/82
ne=12., na= 8

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	5.56e-4				4.94e-2			
50	4.60e-2				3.48e-l			
100	2.37e-l	5.25e-l	7.57e-l	8.28e-l	8.03e-l		6.18e-l	2.84e-l
150	4.43e-l	8.22e-l	1.12e-0	1.22e-0	1.19e-0		9.18e-l	
200	6.33e-l	1.07e-0	1.45e-0	1.56e-0	1.55e-0		1.20e-0	5.11e-l
300	9.46e-l	1.49e-0	1.98e-0	2.17e-0	2.16e-0		1.75e-0	
500	1.43e-0				3.19e-0			
900	2.08e-0	3.02e-0	3.94e-0	4.57e-0	4.716-0		4.28e-0	
1000	2.22e-0	3.14e-0	4.20e-0	4.84e-0	5.02e-0	4.97e-0	4.63e-0	2.37e-0
2000	3.10e-0				7.32e-0			
5000	4.07e-0				1.08e4-l			
10000	4.96e-0				1.41e+l			

Sputtered energy of Ga by Ga
program: newtrim (Laszlo)
ne=12., na= 8

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	3.05e-5				9.85e-3			
50	2.13e-3				6.15e-2			
100	8.31e-3	3.53e-2	7.45e-2	1.01e-l	1.09erl		9.82e-2	4.68e-2
150	1.30e-2	4.43e-2	8.92e-2	1.21e-l	1.32e-l		1.21e-l	
200	1.59e-2	4.85e-2	9.64e-2	1.31e-l	1.45e-l		1.36e-l	6.10e-2
300	1.94e-2	5.23e-2	1.02e-l	1.40e-l	1.58e-l		1.59e-l	
500	2.21e-2				1.67e-l			
900	2.33e-2	5.43e-2	9.95e-2	1.44e-l	1.66e-l		1.96e-l	
1000	2.36e-2	5.30e-2	9.81e-2	1.41e-l	1.67e-l	1.86e-l	1.98e-l	1.24e-l
2000	2.23e-2				1.57e-l			
5000	1.73e-2				1.34e-l			
10000	1.49e-2				1.20e-l			

Ga —> Ga

Particle reflection coefficient of backscattered Ga from Ga
zl=31, ml = 69.72, z2= 31, m2 = 69.72, sbe=2.97 eV, rho=5.91 g/cm**3
ef=2.47 eV, esb=2.97 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: newtrim (Laszlo)
ne=12, na= 8

Eq(eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	2.43e-5				1.14e-l			
50	3.46e-3				4.10e-l			
100	1.13e-2·	7.66e-2	2.08e-l	3.68e-l	4.73e-l		7.08e-l	9.19e-l
150	1.63e-2	8.10e-2	2.06e-l	3.54e-l	4.53e-l		6.96e-l	
200	1.92e-2	8.08e-2	1.96e-l	3.38e-l	4.32e-l		6.80e-l	9.28e-l
300	2.34e-2	7.91e-2	1.82e-l	3.11e-l	3.97e-l		6.39e-l	
500	2.43e-2				3.54e-l			
900	2.15e-2	6.48e-2	1.37e-l	2.39e-l	3.02e-l		5.09e-l	
1000	2.66e-2	6.42e-2	1.35e-l	2.33e-l	2.93e-l	3.81e-l	4.93e-l	8.37e-l
2000	2.05e-2				2.49e-l			
5000	1.71e-2				2.11e-l			
10000	1.16e-2				1.87e-l			

Energy reflection coefficient of Ga backscattered from Ga
ne=12, na= 8

Eo(eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	3.37e-6				3.22e-2			
50	2.16e-4				1.41e-l			
100	6.Ole-4	1.02e-2	4.67e-2	1.14e-l	1.72e-l		3.49e-l	6.00e-l
150	7.95e-4	9.89e-3	4.37e-2	1.07e-l	1.64e-l		3.52e-l	
200	8.77e-4	9.50e-3	4.03e-2	9.96e-2	1.53e-l		3.43e-l	6.55e-l
300	1.05e-3	8.61e-3	3.53e-2	8.79e-2	1.35e-l		3.16e-l	
500	9.41e-4				1.12e-l			
900	7.65e-4	5.72e-3	2.18e-2	5.54e-2	8.73e-2		2.24e-l	
1000	9.73e-4	6.00e-3	2.10e-2	5.36e-2	8.31e-2	1.34e-l	2.15e-l	5.84e-l
2000	6.36e-4				6.39e-2			
5000	6.81e-4				5.05e-2			
10000	2.77e-4				4.46e-2			

Average depth (mean range) in Ä of Ga implanted in Ga
ne=12, na= 8

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	2.39e+0				7.67e-l			
50	4.24e+0				2.16e+0			
100	6.26e+0	5.52e+0	4.78e+0	4.21e-|-0	3.89e+0		3.15e+0	2.09e+0
150	7.80e+0	6.95e4-0	6.08e + 0	5.44e-}-0	5.09e4-0		4.23e+0	
200	9.07e+0	8.12e4-0	7.13e+0	- 6.42e + 0	6.01e+0		5.10e + 0	3.74e+0
300	1.12e+l	1.00e+l	8.84e+0	7.99e4-0	7.55e-}-0		6.51e-}-0	
500	1.46e+l				9.81e+0			
900	1.99e + l	1.78e4-l	1.57e + l	1.41e + l	1.32e + l		1.17e4-l	
1000	2.09e+l	1.88e+l	1.64e + l	1.49e + l	1.38e + l	1.31e+l	1.22e + l	1.05e + l
2000	3.02e+l				2.02e+l			
5000	5.18e+l				3.34e + l			
10000	7.99e-|-l				5.02e+l			

Ga —> Ga

Ga on Ga, Maxwellian velocity distribution, sheath potential 0 kT
zl = 31, ml= 69.72, z2= 31, m2= 69.72, sbe=2.97 eV. rho= 5.91 g/cm**3
ef=2.92 (2.47) eV, esb=2.97 eV, ca=1.00, kk0=kk0r=2, kdeel =kdee2 = 3, ipot=ipotr=l (KrC)
program: testvmcx, newtrim(Laszlo)
ne= 12

kT(eV)	Y	Ye	E sp	R Ar	R E	Eb	range
2	2.99e-4	1.90e-4	2.54e + 0	6.95e-4	7.41e-4	4.27e + 0	1.53e-l
3	1.47e-3	8.26e-4	3.38e + 0	3.79e-3	3.38e-3	5.35e4-0	3.29e-l
5	8.53e-3	3.81e-3	4.46e4-0	1.91e-2	1.47e-2	7.67e + 0	6.74e-l
10	4.91e-2	1.55e-2	6.29e+0	7.73e-2	4.91e-2	1.27e + l	1.26e4-0
20	1.77e-l	3.76e-2	8.48e4-0	1.66e-l	8.96e-2	2.16e + l	2.24e + 0
50	5.77e-l	7.00e-2	1.22e + l	2.54e-l	1.16e-l	4.58e + l	4.42e + 0
100	1.10e-0	8.75e-2	1.59e + l	2.75e-l	1.16e-l	8.40e + l	6.83e + 0
200	1.90e-0	9.78e-2	2.05e+l	2.65e-l	1.01e-l	1.52e + 2	1.00e + l
500	3.47e-0	9.96e-2	2.88e+l	2.31e-l	8.28e-2	3.61e + 2	1.63e+l
1000	4.98e-0	9.47e-2	3.82e + l	2.05e-l	7.15e-2	6.99e-|-2	2.36e+l
2000	6.67e-0	8.60e-2	5.10e + l	1.88e-l	6.12e-2	1.29e + 3	3.50e+l
5000	9.45e-0	7.25e-2	7.56e4-l	1.58e-l	5.07e-2	3.16e + 3	5.89e + l

Ga on Ga, Maxwellian velocity distribution, sheath potential 3 kT
ne=12

kT(eV)	Y	Ys	E sp	BjV	Re	Eb	range
2	1.02e-3	2.54e-4	2.49e + 0	8.79e-4	3.38e-4	3.85e+0	1.07e + 0
3	5.42e-3	1.15e-3	3.20e + 0	4.59e-3	1.55e-3	5.06e+0	1.52e+0
5	2.92e-2	4.85e-3	4.15e + 0	1.65e-2	4.73e-3	7.17e + 0	2.32e + 0
10	1.55e-l	1.73e-2	5.58e4-0	4.20e-2	9.64e-3	1.15e + l	3.71e4-0
20	4.47e-l	3.28e-2	7.33e + 0	5.95e-2	1.07e-2	1.81e + l	5.66e+0
50	1.16e-0	4.56e-2	9.83e+0	6.31e-2	8.67e-3	3.43eRl	9.32e + 0
100	1.93e-0	4.85e-2	1.26e + l	5.89e-2	7.14e-3	6.05e+l	1.33e-H
200	2.90e-0	4.77e-2	1.64e-f-l	5.09e-2	5.54e-3	1.09e-|-2	1.90e+l
500	4.27e-0	4.08e-2	2.39e + l	4.20e-2	4.18e-3	2.49e + 2	3.18e + l
1000	5.30e-0	3.63e-2	3.39e + l	3.73e-2	4.22e-3	5.62e + 2	4.59e + l
2000	6.07e-0	2.94e-2	4.78e-|-l	2.49e-2	1.99e-3	7.88e + 2	7.28e + l
5000	7.78e-0	2.10e-2	6.77e + l	2.88e-2	2.78e-3	2.42e+3	1.36e + 2

Ga on Ga, Maxwellian velocity distribution, sheath potential 9 kT
ne=ll

kT(eV)	Y	Ye	E sp	Rat	Be	Eb	range
1.4	1.25e-3	1.54e-4	1.90e + 0	4.93e-4	1.01e-4	3.15e + 0	1.75e+0
2	6.21e-3	7.25e-4	2.57e-|-0	2.50e-3	4.47e-4	3.92e + 0	2.36e-f-0
5	1.17e-l	8.51e-3	4.00e+0	1.78e-2	2.36e-3	7.27e + 0	4.25e4-0
10	3.90e-l	1.91e-2	5.38e4-0	3.15e-2	3.26e-3	1.14e + l	6.33e + 0
20	8.66e-l	2.82e-2	7.15e + 0	3.73e-2	3.13e-3	1.85eRl	9.15e + 0
50	1.79e-0	3.34e-2	1.03e + l	3.83e-2	2.58e-3	3.71e + l	1.48e+l
100	2.62e-0	3.17e-2	1.33eRl	3.36e-2	2.Ole-3	6.57e + l	2.13e + l
200	3.58e-0	2.97e-2	1.83e + l	2.90e-2	1.52e-3	1.15e+2	3.06e + l
500	4.80e-0	2.36e-2	2.71e+l	2.40e-2	1.50e-3	3.43e + 2	5.31e + l
1000	5.53e-0	1.89e-2	3.75e + l	2.05e-2	1.23e-3	6.62e+2	7.81e+l
2000	6.41e-0	1.48e-2	5.07e+l	1.75e-2	1.37e-3	1.72e-|-3	1.27e+2

Hg → Ga

Sputtering yield of Ga by Hg
zl = 80, ml = 200.59, z2=31, m2= 69.72, sbe=2.97 eV, rho=5.91 g/cm**3
ef=2.10, esb=2.60, ca=1.00, kk0=kk0r=2, kdeel=kdee2 = 3, ipot=ipotr= 1 (KrG)
program: newtrim (Laszlo), TPP 9/82
only low fluence! ne= 4, na= 1

E_0 (eV)	0°
100	7.97e-2
200	3.20e-l
300	5.62e-l
400	7.90e-l

Sputtered energy of Ga by Hg
zl = 80. ml=;200.59, z2=31, m2= 69.72, sbe=2.97 eV, rho=5.91 g/cm**3
ef=2.10, esb=2.60, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrG)
program: newtrim (Laszlo)
only low fluence! ne= 4, na= 1

Bo(eV)	0°
100	2.17e-3
200	6.60e-3
300	9.58e-3
400	1.17e-2

Average depth (mean range) in Ä of Hg implanted in Ga
only low fluence! ne= 4, na= 1

Ro(eV)	0°
100	1.02e+l
200	1.42e+l
300	1.70e+l
400	1.94e4-l

Mg –> Ge

Particle reflection coefficient of Mg backscattered from Ge
zl = 12, ml= 24.00, z2=32, m2= 72.59, rho= 5.32 g/cm**3
ef=1.00 eV. esb = 1.00 eV. ca=1.00. kk0=2, kdeel = 3, ipot = l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

E_0 (eV)	0°
100000	3.55e-2
200000	1.94e-2

Energy reflection coefficient of Mg backscattered from Ge
only low fluence!
ne= 2, na= 1

E_0 (eV)	0°
100000	6.72e-3
200000	3.44e-3

Average depth (mean range) in Ä of Mg implanted in Ge
only low fluence!
ne= 2, na= 1

Bo (eV)	0°
100000	1.21e+3
200000	2.30e+3

Al Ge

Particle reflection coefficient of Al backscattered from Ge
zl = 13, ml = 27.00, z2=32, m2= 72.59, rho= 5.32 g/cm**3
ef=1.00 eV, esb = 1.00 eV, ca=1.00, kk0 = 2, kdeel=3, ipot = l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

E_o (eV)	0°
100000	3.24e-2
200000	1.85e-2

Energy reflection coefficient of Al backscattered from Ge
only low fluence!
ne= 2, na= 1

B_0 (eV)	0°
100000	5.60e-3
200000	3.02e-3

Average depth (mean range) in Ä of Al implanted in Ge
only low fluence!
ne= 2, na= 1

E_0 (eV)	0°
100000	1.12e + 3
200000	2.14e + 3

Si Ge

Particle reflection, coefficient of Si backscattered from Ge
zl = 14, ml = 29.00) z2 = 32, m2= 72.59. rho= 5.32 g/cm**3
ef=1.00 eV. esb = 1.00 eV, ca=1.00. kk0=2, kdeel=3, ipot = l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

B 0 (eV)	0°
100000	3.02e-2
200000	1.74e-2

Energy reflection coefficient of Si backscattered from Ge
only low fluence!
ne= 2, na= 1

E 0 (eV)	0°
100000	5.02e-3
200000	2.70e-3

Average depth (mean range) in Ä of Si implanted in Ge
only low fluence!
ne= 2. na= 1

E 0 (eV)	0°
100000	1.04e+3
200000	1.99e+3

P Ge

Particle reflection coefficient of P backscattered from Ge
zl = 15, ml= 31.00, z2=32, m2= 72.59, rho= 5.32 g/cm**3
ef=1.00 eV, esb = 1.00 eV, ca=1.00, kk0=2, kdeel=3, ipot = l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

E 0 (eV)	0°
100000	2.81e-2
200000	1.67e-2

Energy reflection coefficient of P backscattered from Ge
only low fluence!
ne= 2, na= 1

B 0 (eV)	0°
100000	4.32e-3
200000	2.46e-3

Average depth (mean range) in Ä of P implanted in Ge
only low fluence!
ne= 2, na= 1

Bo(eV)	0°
100000	9.73e+2
200000	1.86e+3

Ar → Ge

Sputtering yield of Ge by Ar
21= 18, ml = 39.95. z2=29, m2= 63.54. sbe=3.88 eV. rho= 5.32 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: TPP 9/82
ne=12, na= 1

B_0 (eV)	0°
50	4.42e-2
100	2.06e-l
200	4.88e-l
500	1.01e-0
1000	1.43e-0
2000	1.83e-0
5000	2.29e-0
10000	2.49e-0
20000	2.54e-0
50000	2.32e-0
100000	1.97e-0
200000	1.59e-0

Sputtered energy of Ge by Ar
ne=12, na= 1

B_0 (eV)	0°
50	3.10e-3
100	1.04e-2
200	1.71e-2
500	2.17e-2
1000	2.08e-2
2000	1.81e-2
5000	1.37e-2
10000	1.04e-2
20000	7.61e-3
50000	4.16e-3
100000	2.36e-3
200000	1.23e-3

Ar —> Ge

Particle reflection coefficient of Ar backscattered from Ge
zl = 18, ml = 39.95. z2=29, m2 = 63.54. sbe=3.88 eV. rho = 5.32 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00, kk0=kk0r=2. kdeel=kdee2=3, ipot=ipotr=l (KrC)
program:
ne=12., na= 1

E 0 (eV)	0°
50	2.44e-l
100	1.93e-l
200-	1.58e-l
500	1.23e-l
1000	1.02e-l
2000	8.56e-2
5000	7.11e-2
10000	5.83e-2
20000	4.29e-2
50000	2.92e-2
100000	1.91e-2
200000	1.17e-2

Energy reflection coefficient of Ar backscattered from Ge
ne=12, na= 1

Eo(eV)	0°
50	2.72e-2
100	2.22e-2
200	1.80e-2
500	1.38e-2
1000	1.10e-2
2000	9.52e-3
5000	7.99e-3
10000	6.38e-3
20000	4.86e-3
50000	3.42e-3
100000	2.09e-3
200000	1.29e-3

Average depth (mean range) in Å of Ar implanted in Ge
ne=12., na= 1

E 0 (eV)	0°
50	8.14e + 0
100	1.05e+l
200	1.37e4-l
500	2.06e + l
1000	2.93e+l
2000	4.32e+l
5000	7.56e + l
10000	1.21e+2
20000	2.03e+2
50000	4.29e+2
100000	8.00e+2
200000	1.53e+3

Bi -> Ge

Average depth (mean range) in Å of Bi implanted in Ge
zl=83, ml=209.00, z2=32, m2= 72.59, rho= 5.32 g/cm**3
ef=1.00 eV, esb = 1.00 eV, ca=1.00, kk0=2, kdeel=3, ipot=l (KrC)
program: trrange3
only low fluence!
ne= 2, na= 1

E 0 (eV)	0°
200000	5.24e+2
400000	8.74e + 2

Xe → Zr

Sputtering yield of Zr by Xe
zl = 54, 1111= 131.30, z2=40, m2 = 91.22. sbe = 6.33 eV. rho = 6.49 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program : IPP 9/82
ne= 8, na= 1

E_0 (eV)	0°
50	9.70e-5
50	1.47e-4
50	1.27e-4
50	1.27e-4
100	1.13e-2
200	1.01e-l
500	4.33e-l
1000	8.46e-l

Sputtered energy of Zr by Xe
ne= 8, na= 1

E_0 (eV)	0°
50	4.10e-6
50	6.54e-6
50	5.75e-6
50	5.71e-6
100	4.32e-4
200	3.11e-3
500	9.16e-3
1000	1.29e-2

Particle reflection coefficient of Xe backscattered from Zr
zl=54, ml = 131.30, z2=40, m2= 91.22, sbe=6.33 eV, rho=6.49 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program :
ne= 8, na= 1

E_0 (eV)	0°
50	7.60e-3
50	7.58e-3
50	6.70e-3
50	5.91e-3
100	5.25e-3
200	5.14e-3
500	4.49e-3
1000	4.27e-3

Energy reflection coefficient of Xe backscattered from Zr
ne= 8, na= 1

E_0 (eV)	o'
50	1.33e-4
50	1.32e-4
50	1.28e-4
50	1.30e-4
100	9.67e-5
200	7.31e-5
500	6.90e-5
1000	6.18e-5

Average depth (mean range) in Å of Xe implanted in Zr
ne= 7, na= 1

E_0 (eV)	0°
50	5.43e+0
50	8.65e4-0
50	8.66e + 0
50	8.68e + 0
100	1.06e+l
200	1.34e-J-l
1000	2.50e + l

D → Nb

Sputtering yield of Nb by D
zl = 1, ml = 2.01, z2=41, m2= 92.91, sbe=7.59 eV. rho = 8.60 g/cm**3
ef=0.95 eV, esb=1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx, TPP 9/82
ne= 7, na= 1

Bp(eV)	Ö⁰
140	2.77e-4
200	1.69e-3
300	4.53e-3
500	8.70e-3
1000	1.34e-2
2000	1.44e-2
5000	1.23e-2

Sputtered energy of Zr by Xe
program: testvmcx
ne= 7, na= 1

Eq(eV)	Ö³
140	2.65e-6
200	2.60e-5
300	7.56e-5
500	1.40e-4
1000	1.69e-4
2000	1.26e-4
5000	5.82e-5

Particle reflection coefficient of D backscattered from Nb
zl= 1, ml= 2.01, z2=41, m2= 92.91, sbe=7.59 eV, rho= 8.60 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 7, na= 1

E_0 (eV)	0°
140	5.54e-l
200	5.34e-l
300	5.09e-l
500	4.75e-l
1000	4.20e-l
2000	3.56e-l
5000	2.54e-l

Energy reflection coefficient of D backscattered from Nb
ne= 7, na= 1

E_0 (eV)	0°
140	3.36e-l
200	3.18e-l
300	2.96e-l
500	2.68e-l
1000	2.25e-l
2000	1.78e-l
5000	l.lle-1

Average depth (mean range) in Ä of D implanted in Nb
ne= 7, na= 1

E_0 (eV)	0°
140	5.55e4-l
200	6.87e-pl
300	8.82e + l
500	1.23e+2
1000	1.95e+2
2000	3.23e+2
5000	6.55e+2

H -4- Mo

Sputtering yield of Mo by H
zl= 1. ml= 1.01, z2=42, m2 = 95.94. sbe=6.83 eV. rho = 10.21 g/cm**3
ef=0.95, 0.98 eV. esb=1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = 3, 4, kdee2=3, ipot=ipotr=l (KrC)
program: TESTVMCX, TPP 9/82
ne= 2, na=14

E 0 (eV)	0°	15°	25°	30°	45°	50°	60°	70°	75°	80°	85°	87°
2000	5.99e-3	5.89e-3		7.06e-3	1.05e-2		1.75e-2	2.84e-2	3.87e-2	5.30e-2	5.16e-2	1.90e-2
50000	1.36e-3		1.94e-3			4.95e-3			1.91e-2	3.Ole-2	6.63e-2	9.43e-2

E 0 (eV)	88°	89°
50000	1.09e-l	6.30e-2

Sputtered energy of Mo by H
program: TESTVMCX
ne= 2, na=12

E 0 (eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°	88°	89°
2000	3.25e-5	3.23e-5	3.74e-5	6.02e-5	9.92e-5	1.67e-4	2.46e-4	3.54e-4	4.16e-4	1.77e-4		
50000								2.99e-5	6.27e-5	8.93e-5	1.08e-4	7.12e-5

Particle reflection coefficient of H backscattered from Mo
zl= 1, ml= 1.01, z2= 42, m2= 95.94, sbe = 6.83 eV, rho = 10.21 g/cm**3
ef=0.95. 0.98 eV, esb=1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = 3, 4, kdee2 = 3, ipot=ipotr= 1 (KrC)
program: TESTVMCX
ne= 2, na=12

E 0 (eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°	88°	89°
2000	3.37e-l	3.49e-l	3.84e-l	4.45e-l	5.37e-l	6.19e-l	6.69e-l	7.35e-l	8.63e-l	9.66e-l		
50000								4.15e-l	5.65e-l	6.59e-l	7.29e-l	8.91e-l

Energy reflection coefficient of H backscattered from Mo
ne= 2, na=12

E 0 (eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°	88°	89°
2000	1.59e-l	1.66e-l	1.92e-l	2.38e-l	3.21e-l	4.06e-l	4.68e-l	5.58e-l	7.53e-l	9.21e-l		
50000								1.54e-l	2.88e-l	4.02e-l	5.06e-l	7.84e-l

Average depth (mean range) in Å of H implanted in Mo
ne= 2, na=12

E 0 (eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°	88°	89°
2000	2.51e + 2	2.49e+2	2.42e + 2	2.34e + 2	2.24e-f-2	2.19e + 2	2.17e + 2	2.14e + 2	2.14e + 2	2.14e + 2		
50000								8.18e + 2	7.73e + 2	7.66e + 2	7.62e + 2	7.73e + 2

D -> Mo

Sputtering yield of Mo by D
z1 = 1. m1 = 2.01, z2=42, m2= 95.94, sbe=6.83 eV, rho = 10.21 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdee1=3, 4, kdee2=3, ipot=ipotr=1 (KrC)
program: testvmcx, trspvlcs, newtrim (Laszlo), TPP 9/82
ne=12, na=10

Eo(eV)	0°	25°	50°	65°	75°	80°	85°	87°	88°	89°
120	1.50e-4			1.34e-4						
130	3.35e-4			3.00e-4						
140	5.81e-4			5.63e-4						
150	8.72e-4			8.62e-4						
170	1.52e-3			1.62e-3						
200	2.86e-3			3.26e-3						
500	1.14e-2			2.42e-2						
1000	1.67e-2			4.59e-2						
2000	1.69e-2			6.51e-2						
5000	1.46e-2			6.30e-2						
50000	3.50e-3	4.70e-3	1.01e-2		4.38e-2	6.84e-2	1.34e-1	1.82e-1	1.98e-1	1.16e-1
100000	2.50e-3	2.62e-3	4.80e-3		2.60e-2	4.59e-2	9.15e-2	1.41e-1	1.58e-1	1.60e-1

Sputtered energy of Mo by D
program: testvmcx, trspvlcs, newtrim (Laszlo)
ne=12, na= 7

E_0 (eV)	0°	65°	80°	85°	87°	88°	89°
120	1.14e-6	1.21e-6					
130	3.16e-6	2.93e-6					
140	6.01e-6	6.39e-6					
150	1.00e-5	1.06e-5					
170	2.05e-5	2.38e-5					
200	4.35e-5	5.18e-5					
500	1.75e-4	3.80e-4					
1000	2.02e-4	5.58e-4					
2000	1.37e-4	5.87e-4					
5000	6.46e-5	3.15e-4					
50000			7.17e-5	1.61e-4	2.43e-4	2.53e-4	1.74e-4
100000			3.26e-5	7.83e-5	1.19e-4	1.24e-4	1.28e-4

D —> Mo

Particle reflection coefficient of D backscattered from Mo
zl = 1, ml = 2.01, z2=42, m2= 95.94. sbe=6.83 eV. rho = 10.21 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = 3, 4, kdee2=3, ipot=ipotr= 1 (KrC)
program: testvmcx, trspvlcs, newtrim (Laszlo)
ne=13, na= 7

E 0 (eV)	0 °	65°	80°	85°	87 °	88 °	89°
20	6.71e-l						
120	5.68e-l	7.76e-l					
130	5.65e-l	7.70e-l					
140	5.59e-l	7.65e-l					
150	5.56e-l	7.61e-l					
170	5.48e-l	7.52e-l					
200	5.41e-l	7.43e-l					
500	4.84e-l	6.83e-l					
1000	4.26e-l	6.39e-l					
2000	3.63e-l	5.89e-l					
5000	2.60e-l	5.19e-l					
50000			4.46e-l	5.96e-l	6.81e-l	7.44e-l	8.95e-l
100000			3.67e-l	5.34e-l	6.35e-l	6.92e-l	8.21e-l

Energy reflection coefficient of D backscattered from Mo
ne=13, na= 7

E 0 (eV)	0°	65°	80°	85°	87°	88°	89°
20	4.45e-l						
120	3.50e-l	6.05e-l					
130	3.46e-l	5.97e-l					
140	3.42e-l	5.90e-l					
150	3.38e-l	5.84e-l					
170	3.32e-l	5.73e-l					
200	3.24e-l	5.60e-l					
500	2.75e-l	4.90e-l					
1000	2.29e-l	4.38e-l					
2000	1.83e-l	3.85e-l					
5000	1.14e-l	3.10e-l					
50000			1.86e-l	3.26e-l	4.38e-l	5.38e-l	7.99e-l
100000			1.16e-l	2.46e-l	3.58e-l	4.49e-l	6.52e-l

Average depth (mean range) in of D implanted in Mo
ne=13, na= 7

Bo(eV)	0°	65°	80°	85°	87°	88°	89°
20	1.59e + l						
120	4.40e+l	4.19e+l					
130	4.62e + l	4.39e+l					
140	4.82e-H	4.58e+l					
150	5.03e + l	4.76e+l					
170	5.41e + l	5.14e+l					
200	5.99e+l	5.66e-|-l					
500	1.06e+2	9.88e4-l					
1000	1.70e+2	1.55e4-2					
2000	2.80e+2	2.50e+2					
5000	5.67e+2	4.81e+2					
50000			1.10e+3	1.05e+3	1.04e4-3	1.05e+3	1.06e+3
100000			1.55e+3	1.43e+3	1.42e+3	1.41e+3	1.41e4-3

D —> Mo

D on Mo, Maxwellian velocity distribution, sheath potential 0 kT
zl = 1, ml = 2.01, z2=42, m2= 95.94, sbe=6.89 eV, rho = 10.20 g/cm**3
ef=0.90 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: newtrim (Laszlo)
ne= 8

kT(eV)	Y	Y_E	E_{sp}	R_N	Re	Bfe	range
40	3.27e-4	1.52e-5	3.71e + 0	7.26e-l	5.09e-l	5.60e + l	3.45e+l
50	7.49e-4	3.12e-5	4.16ed-0	7.14e-l	4.93e-l	6.92e+l	3.91e+l
100	4.57e-3	1.42e-4	6.23e + 0	6.71e-l	4.46e-l	1.33e+2	5.86e4-l
200	1.21e-2	2.83e-4	9.40e+0	6.31e-l	4.00e-l	2.54e+2	9.03e + l
500	2.77e-2	3.80e-4	1.37e-f-l	5.66e-l	3.36e-l	5.95e+2	1.66e + 2
1000	3.57e-2	2.77e-4	1.56e+l	5.18e-l	2.87e-l	1.12e+3	2.73e + 2
2000	3.81e-2	2.09e-4	2.19e+l	4.53e-l	2.27e-l	2.00e4-3	4.49e-J-2
5000	3.73e-2	1.05e-4	2.82e+l	3.61e-l	1.55e-l	4.29e-f-3	9.09e+2

D on Mo, Maxw'ellian velocity distribution, sheath potential 3 kT
ne= 9

kT(eV)	Y	Ye	Bsp	R_N	Re	Eb	range
20	1.86e-4	4.06e-6	2.19e+0	6.09e-l	3.93e-l	6.45e+l	3.90e+l
30	9.74e-4	2.07e-5	3.19e + 0	5.87e-l	3.70e-l	9.46e + l	4.95e+l
50	4.51e-3	8.39e-5	4.65e+0	5.57e-l	3.40e-l	1.53e+2	6.72e + l
100	1.23e-2	1.97e-4	8.00ed-0	5.14e-l	3.02e-l	2.94e+2	1.04e+2
200	1.77e-2	2.15e-4	1.22e+l	4.59e-l	2.57e-l	5.61e+2	1.66e+2
500	2.15e-2	1.49e-4	1.72e + l	3.79e-l	1.92e-l	1.26e4-3	3.21e+2
1000	1.99e-2	8.92e-5	2.24e + l	3.06e-l	1.40e-l	2.29e+3	5.44e+2
2000	1.54e-2	3.93e-5	2.55e4-l	2.16e-l	8.58e-2	3.97e4-3	9.46e+2
4000	1.05e-2	1.43e-5	2.73e+l	1.35e-l	4.52e-2	6.69eR3	1.66e+3

T -> Mo

Sputtering yield of Mo by T
zl = 1, ml = 3.02. z2=42, m2 = 95.94. sbe = 6.89 eV, rho = 10.20 g/cm**3
ef=0.90 eV. esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: newtrim, TPP 9/82
ne= 7, na= 2

E_0 (eV)	0°	65°
100	9.32e-4	7.36e-4
170	6.67e-3	8.00e-3
300	1.59e-2	2.93e-2
500	2.20e-2	5.84e-2
1000	2.73e-2	9.33e-2
2000	2.90e-2	1.01e-l
5000	2.58e-2	9.56e-2

Sputtered energy of Mo by T
program: newtrim
ne= 7, na= 2

E_0 (eV)	0°	65°
100	1.45e-5	1.28e-5
170	1.57e-4	2.00e-4
300	3.37e-4	7.16e-4
500	4.43e-4	1.18e-3
1000	4.31e-4	1.44e-3
2000	2.78e-4	1.09e-3
5000	1.32e-4	5.25e-4

Particle reflection coefficient of T backscattered from Mo
zl= 1, ml = 3.02, z2 = 42, m2= 95.94, sbe=6.89 eV, rho = 10.20 g/cm**3
ef=0.90 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: newtrim
ne= 7, na= 2

E_0 (eV)	0°	65°
100	5.58e-l	7.77e-l
170	5.33e-l	7.40e-l
300	4.98e-l	7.08e-l
500	4.68e-l	6.83e-l
1000	4.20e-l	6.37e-l
2000	3.61e-l	5.94e-l
5000	2.68e-l	5.21e-l

Energy reflection coefficient of T backscattered from Mo
ne= 7, na= 2

E_0 (eV)	0°	65°
100	3.39e-l	6.07e-l
170	3.16e-l	5.58e-l
300	2.88e-l	5.20e-l
500	2.63e-l	4.89e-l
1000	2.27e-l	4.34e-l
2000	1.83e-l	3.99e-l
5000	1.21e-l	3.20e-l

Average depth (mean range) in of T implanted in Mo
ne = 7, na= 2

E_0 (eV)	0°	65°
100	3.78e + l	3.58e+l
170	5.21e + l	4.89e+l
300	7.49e + l	6.96e+l
500	1.05e + 2	9.68e+l
1000	1.70e+2	1.55e + 2
2000	2.88e + 2	2.56e+2
5000	5.95e+2	5.08e-f-2

T -> Mo

T on Mo. Maxwellian velocity distribution, sheath potential 0 kT
zl = 1. ml= 2.01. z2=42. m2= 95.94. sbe=6.89 eV. rho=10.20 g/cm**3
ef=0.90 eV. esb = 1.00 eV. cas=1.00, kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: newtrim (Laszlo)
ne=10

kT(eV)	Y	Y_E	Rsp	R_N	Rfi	Bb	range
30	5.42e-4	3.62e-5	4.02e-}-0	7.28e-l	5.12e-l	4.22e + l	2.76e + l
40	1.49e-3	8.85e-5	4.77e+0	7.11e-l	4.92e-l	5.53e + l	3.26e + l
70	6.27e-3	2.88e-4	6.46e-f-0	6.81e-l	4.56e-l	9.42e + l	4.57e + l
100	1.10e-2	4.18e-4	7.60e+0	6.58e-l	4.33e-l	1.32e+2	5.66e + l
170	2.23e-2	6.64e-4	1.01e + l	6.29e-l	4.01e-l	2.15e+2	7.87e + l
300	3.81e-2	8.09e-4	1.28e-(-l	5.92e-l	3.64e-l	3.70e+2	1.15e+2
500	4.99e-2	8.12e-4	1.64e + l	5.62e-l	3.38e-l	6.03e+2	1.67e-(-2
1000	5.75e-2	6.24e-4	2.17e-f-l	5.06e-l	2.83e-l	1.12e+3	2.82e-f-2
2000	6.42e-2	4.20e-4	2.60e-}-l	4.51e-l	2.31e-l	2.03e+3	4.73e+2
5000	5.52e-2	2.Ole-4	3.63e+l	3.69e-l	1.68e-l	4.54e+3	9.86e+2

T on Mo. Maxwellian velocity distribution, sheath potential 3 kT
ne= 10

kT(eV)	Y	Ye	E_{sp}	R_N	Re	Rb	range
20	7.85e-4	2.65e-5	3.37e + 0	5.90e-l	3.73e-l	6.32e + l	3.71e+l
40	7.49e-3	2.18e-4	5.81e+0	5.55e-l	3.39e-l	1.22e-}-2	5.64e + l
70	1.79e-2	4.42e-4	8.61e-t-0	5.21e-l	3.09e-l	2.08e+2	8.06e+l
100	2.48e-2	5.30e-4	1.07e-f-l	5.00e-l	2.94e-l	2.95e+2	1.02e+2
170	3.13e-2	5.00e-4	1.35e+l	4.65e-l	2.62e-l	4.78e+2	1.48e+2
300	3.40e-2	4.07e-4	1.80e+l	4.22e-l	2.30e-l	8.18e+2	2.24e4-2
500	3.44e-2	2.92e-4	2.12e-J-l	3.78e-l	1.96e-l	1.30e+3	3.31e-|-2
1000	3.23e-2	1.66e-4	2.57e + l	3.11e-l	1.47e-l	2.37e+3	5.75e+2
2000	2.51e-2	8.08e-5	3.21e-|-l	2.27e-l	9.50e-2	4.18e-J-3	1.02e-)-3
5000	1.36e-2	2.Ole-5	3.71e + l	1.25e-l	4.19e-l	8.39e+3	2.22e+3

He –> Mo

Sputtering yield of Mo by He
z1 = 2. m1 = 4.00. z2 = 42. m2 = 95.94. sbe = 6.83 eV. rho = 10.21 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r=2. kdeel = 5, kdee2 = 3. ipot=ipotr=1 (KrC)
program: testvmcx. TPP 9/82
ne= 2. na= 9

E_0 (eV)	0°	25°	50°	75°	80°	85°	87°	88°	89°
50000	2.64e-2	3.50e-2	6.95e-2	2.45e-1	3.75e-1	6.17e-1	6.56e-1	5.91e-1	9.49e-2
100000	1.67e-2	2.27e-2	3.97e-2	1.64e-1	2.40e-1	4.47e-1	6.04e-1	6.10e-1	3.65e-1

Sputtered energy of Mo by He
program: testvmcx
ne= 2. na= 5

E_0 (eV)	80°	85°	87°	88°	89°
50000	5.93e-4	1.12e-3	1.31e-3	1.27e-3	2.04e-4
100000	2.70e-4	5.08e-4	6.78e-4	7.90e-4	5.06e-4

Particle reflection coefficient of He backscattered from Mo
z1 = 2. m1 = 4.00. z2 = 42. m2 = 95.94. sbe = 6.83 eV, rho = 10.21 g/cm**3
ef=0.50 eV. esb = 0.00 eV, ca=1.00. kk0 = kk0r=2. kdeel = 5. kdee2 = 3. ipot=ipotr=1 (KrC)
program: testvmcx
ne= 2, na= 5

E_0 (eV)	80°	85°	87°	88°	89°
50000	4.85e-1	6.14e-1	6.98e-1	7.93e-1	9.73e-1
100000	4.15e-1	5.77e-1	6.61e-1	7.42e-1	8.88e-1

Energy reflection coefficient of He backscattered from Mo
ne= 2. na= 5

E_0 (eV)	80°	85°	87°	88°	89°
50000	2.41e-1	3.77e-1	4.94e-1	6.30e-1	9.47e-1
100000	1.70e-1	3.15e-1	4.23e-1	5.29e-1	7.88e-1

Average depth (mean range) in of He implanted in Mo
ne= 2, na= 5

Eo(eV)	80°	85°	87°	88°	89°
50000	6.57e + 2	6.23e + 2	6.43e + 2	6.50e + 2	6.73e + 2
100000	9.82e + 2	9.31e + 2	9.08e + 2	9.18e + 2	9.29e + 2

He -> Mo

Sputtering yield of Mo (7 isotopes) by He
zl = 2. ml = 4.00, z2=42. sbe = 6.83 eV. rho = 10.21 g/cm**3
ef=0.20 eV, esb=0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
m2= 91.91, 93.91, 94.91, 95.90, 96.91, 97.91, 99.91
c2=0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
a]pha=0.00
program: trvmc95
ne=12, na= 1, n(m2) = 7

Eo(eV)	m2=91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
70	1.466e-4	7.796e-5	1.226e-4	1.176e-4	6.176e-5	1.432e-4	4.763e-5	850000000
70	1.470e-4	7.734e-5	1.224e-4	1.180e-4	6.169e-5	1.422e-4	4.737e-5	850000000
70	1.465e-4	7.712e-5	1.228e-4	1.176e-4	6.205e-5	1.419e-4	4.791e-5	600000000
100	9.730e-4	5.651e-4	9.390e-4	9.465e-4	5.251e-4	1.274e-3	4.730e-4	600000000
100	9.730e-4	5.660e-4	9.387e-4	9.466e-4	5.239e-4	1.274e-3	4.736e-4	190000000
100	9.699e-4	5.665e-4	9.394e-4	9.493e-4	5.219e-4	1.276e-3	4.721e-4	160000000
200	4.490e-3	2.711e-3	4.586e-3	4.722e-3	2.664e-3	6.620e-3	2.560e-3	350000000
500	1.018e-2	6.231e-3	1.064e-2	1.106e-2	6.279e-3	1.571e-2	6.168e-3	250000000
1000	1.347e-2	8.282e-3	1.415e-2	1.472e-2	8.379e-3	2.101e-2	8.275e-3	150000000
2000	1.535e-2	9.469e-3	1.619e-2	1.687e-2	9.610e-3	2.413e-2	9.514e-3	90000000
5000	1.519e-2	9.366e-3	1.604e-2	1.670e-2	9.542e-3	2.393e-2	9.451e-3	50000000
5000	1.518e-2	9.369e-3	1.603e-2	1.676e-2	9.546e-3	2.403e-2	9.493e-3	15000064

Sputtered energy of Mo (7 isotopes) by He
ne=12, na= 1, n(m2)= 7

Eo(eV)	m2=91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
70	2.713e-6	1.348e-6	2.050e-6	1.897e-6	9.614e-7	2.156e-6	6.657e-7	850000000
70	2.714e-6	1.337e-6	2.046e-6	1.910e-6	9.611e-7	2.144e-6	6.634e-7	850000000
70	2.709e-6	1.333e-6	2.049e-6	1.902e-6	9.649e-7	2.133e-6	6.744e-7	600000000
100	2.767e-5	1.555e-5	2.538e-5	2.518e-5	1.375e-5	3.283e-5	1.181e-5	600000000
100	2.766e-5	1.559e-5	2.550e-5	2.515e-5	1.373e-5	3.285e-5	1.178e-5	190000000
100	2.746e-5	1.553e-5	2.541e-5	2.527e-5	1.369e-5	3.289e-5	1.177e-5	160000000
200	1.431e-4	8.493e-5	1.422e-4	1.449e-4	8.128e-5	2.000e-4	7.604e-5	350000000
500	2.500e-4	1.511e-4	2.560e-4	2.641e-4	1.491e-4	3.707e-4	1.436e-4	250000000
1000	2.389e-4	1.447e-4	2.459e-4	2.548e-4	1.439e-4	3.591e-4	1.399e-4	150000000
2000	1.825e-4	1.112e-4	1.887e-4	1.955e-4	1.107e-4	2.769e-4	1.083e-4	90000000
5000	9.999e-5	6.063e-5	1.035e-4	1.072e-4	6.139e-5	1.520e-4	5.911e-5	50000000
5000	9.963e-5	6.116e-5	1.035e-4	1.075e-4	6.100e-5	1.523e-4	5.950e-5	15000064

He -4- Mo

Particle reflection coefficient of He backscattered from Mo (7 isotopes)
zl= 2, ml = 4.00, z2 = 42, sbe = 6.83 eV, rho = 10.21 g/cm**3
ef=0.20 eV, esb = 0.00 eV. ca=1.00. kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
m2 = 91.91. 93.91, 94.91, 95.90. 96.91, 97.91, 99.91
c2=0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00
program: trvmc95
ne=12, na= 1

E_0 (eV)	0°	nh
70	5.9232e-l	850000000
70	5.9231e-l	850000000
70	5.9231e-l	600000000
100	5.7147e-l	600000000
100	5.7148e-l	190000000
100	5.7146e-l	160000000
200	5.3703e-l	350000000
500	4.9565e-l	250000000
1000	4.6152e-l	150000000
2000	4.2144e-l	90000000
5000	3.5541e-l	50000000
5000	3.5512e-l	15000064

Energy reflection coefficient of He backscattered from Mo (7 isotopes)
ne=12, na= 1

E_0 (eV)	0°	nh
70	3.6532e-l	850000000
70	3.6532e-l	850000000
70	3.6533e-l	600000000
100	3.4733e-l	600000000
100	3.4735e-l	190000000
100	3.4733e-l	160000000
200	3.1877e-l	350000000
500	2.8680e-l	250000000
1000	2.6180e-l	150000000
2000	2.3298e-l	90000000
5000	1.8597e-l	50000000
5000	1.8583e-l	15000064

Average depth (mean range) in Ä of He implanted in Mo (7 isotopes)
ne=12, na= 1

E_0 (eV)	0°	nh
70	2.0181e+l	850000000
70	2.0180e4-l	850000000
70	2.0179e + l	600000000
100	2.4804e + l	600000000
100	2.4804e + l	190000000
100	2.4805e + l	160000000
200	3.7600e-f-l	350000000
500	6.7532e + l	250000000
1000	1.0880e + 2	150000000
2000	1.8160e + 2	90000000
5000	3.7809e + 2	50000000
5000	3.7819e + 2	15000064

C -4- Mo

C on Mo, Maxwellian velocity distribution, sheath potential 9 kT
zl = 6. ml = 12.01. z2=42. m2= 95.94. sbe=6.83 eV. rho = 10.21 g/cm**3
ef=0.98 eV. esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3. ipot=ipotr=l (KrC)
program: trvmc
only low fluence!
ne= 4

kT(eV)	Y	Y_E	Egp	Rtv	R_E	Eb	range
5	1.19e-2	8.05e-4	3.71e+0	5.53e-l	2.65e-l	2.64e + l	7.44e+0
10	7.12e-2	4.66e-3	7.21e + 0	4.85e-l	2.22e-l	5.03e + l	1.07e + l
20	1.80e-l	9.44e-3	1.15e-j-l	4.29e-l	1.88e-l	9.65e + l	1.55e + l
40	3.22e-l	1.18e-2	1.61e + l	3.90e-l	1.64e-l	1.85e+2	2.31e+l

O Mo

Sputtering yield of Mo by O)
zl= 8, ml = 16.00, z2=42, m2= 95.94, sbe=6.83 eV, rho = 10.20 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TPP 9/82
only low fluence!
ne= 9, na= 1

E_0 (eV)	0°
20	2.80e-4
30	3.60e-3
40	1.22e-2
50	2.15e-2
70	5.48e-2
100	1.07e-l
200	2.28e-l
500	4.51e-l
1000	6.42e-l

Ne —> Mo

Sputtering yield of Mo (7 isotopes) by Ne
zl = 10, ml = 20.18. z2 = 42, sbe = 6.83 eV. rho = 10.21 g/cm**3
ef=0.20 eV. esb = 0.00 eV. ca=1.00, kkO= kkOr= 2, kdeel = kdee2 = 3. ipot=ipotr = l (KrC)
m2= 91.91, 93.91. 94.91, 95.90, 96.91, 97.91, 99.91
c2 = 0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00
program: trvmc95
ne= 2, na= 1, n(m2)= 7

E_0 (eV)	m2=91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
100	1.499e-2	9.102e-3	1.546e-2	1.597e-2	9.033e-2	2.252e-2	8.754e-3	350000000
100	1.494e-2	9.083e-3	1.541e-2	1.592e-2	9.004e-3	2.245e-2	8.730e-3	350000000

Sputtered energy of Mo (7 isotopes) by Ne
ne= 2, na= 1, n(m2)= 7

Eq (eV)	m2 = 91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
100	1.162e-3	6.982e-4	1.178e-3	1.210e-3	6.809e-4	1.688e-3	6.487e-4	350000000
100	1.157e-3	6.951e-4	1.173e-3	1.205e-3	6.770e-4	1.680e-3	6.455e-4	350000000

Particle reflection coefficient of Ne backscattered from Mo (7 isotopes)
zl = 10, ml= 20.18, z2 = 42, sbe=6.83 eV, rho=10.21 g/cm**3
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kkO= kkOr=2, kdeel = kdee2 = 3, ipot=ipotr= 1 (KrC)
m2= 91.91, 93.91, 94.91, 95.90, 96.91, 97.91, 99.91
c2=0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00
program: trvmc95
ne= 2, na= 1

E_0 (eV)	0°......	nh
100	4.3782e-l	350000000
100	4.3782e-l	350000000

Energy reflection coefficient of Ne backscattered from Mo (7 isotopes)
ne= 2, na= 1

E_0 (eV)	0°	nh
100	1.5043e-l	350000000
100	1.5043e-l	350000000

Average depth (mean range) in Ä of Ne implanted in Mo (7 isotopes)
ne= 2, na= 1

Eq (eV)	0°...........	nh
100	7.6080e + 0	350000000
100	7.6258e+0	350000000

Ar –> Mo

Sputtering yield of Mo (2 isotopes) by Ar
zl = 18, ml = 39.95. z2=42, m2= 92.00. 100.00. sbe=6.83 eV. rho=10.21 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
alpha=0.00
program: testvmcx, trvmc
ne= 8, na= 1, n(m2) = 2

E_0 (eV)	m2 = 92.00	100.00	92	100	nh
5000	1.096e-0	1.065e-0	0.5000	0.5000	2000000
5000	1.096e-0	1.066e-0	0.5000	0.5000	2000000
5000	1.094e-0	1.065e-0	0.5000	0.5000	1500000
5000	1.078e-0	1.079e-0	0.4930	0.5070	2000000
5000	1.079e-0	1.082e-0	0.4920	0.5080	2000000
5000	1.072e-0	1.086e-0	0.4900	0.5100	2000000
10000	1.243e-0	1.211e-0	0.5000	0.5000	1600000
10000	1.225e-0	1.225e-0	0.4935	0.5065	1700000

Sputtered energy of Mo (2 isotopes) by Ar
ne= 8, na= 1, n(m2)= 2

E_0 (eV)	m2 = 92.00	100.00	92	100	nh
5000	9.773e-3	9.226e-3	0.5000	0.5000	2000000
5000	9.786e-3	9.239e-3	0.5000	0.5000	2000000
5000	9.753e-3	9.253e-3	0.5000	0.5000	1500000
5000	9.638e-3	9.362e-3	0.4930	0.5070	2000000
5000	9.643e-3	9.395e-3	0.4920	0.5080	2000000
5000	9.576e-3	9.431e-3	0.4900	0.5100	2000000
10000	7.501e-3	7.061e-3	0.5000	0.5000	1600000
10000	7.366e-3	7.134e-3	0.4935	0.5065	1700000

Particle reflection coefficient of Ar backscattered from Mo (2 isotopes)
zl = 18, ml= 39.95, z2=42, m2= 92.00, 100.00, sbe=6.83 eV, rho = 10.21 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00
program: testvmcx, trvmc
ne= 8, na= 1

E_0 (eV)	0°	92	100	nh
5000	1.2234e-l	0.5000	0.5000	2000000
5000	1.2257e-l	0.5000	0.5000	2000000
5000	1.2208e-l	0.5000	0.5000	1500000
5000	1.2281e-l	0.4930	0.5070	2000000
5000	1.2308e-l	0.4920	0.5080	2000000
5000	1.2240e-l	0.4900	0.5100	2000000
10000	1.0202e-l	0.5000	0.5000	1600000
10000	1.0170e-l	0.4935	0.5065	1700000

Energy reflection coefficient of Ar backscattered from Mo (2 isotopes)
ne= 8, na= 1

E_0 (eV)	0°	92	100	nh
5000	1.9446e-2	0.5000	0.5000	2000000
5000	1.9386e-2	0.5000	0.5000	2000000
5000	1.9323e-2	0.5000	0.5000	1500000
5000	1.9436e-2	0.4930	0.5070	2000000
5000	1.9469e-2	0.4920	0.5080	2000000
5000	1.9393e-2	0.4900	0.5100	2000000
10000	1.6201e-2	0.5000	0,5000	1600000
10000	1.6227e-2	0.4935	0.5065	1700000

Average depth (mean range) in of Ar implanted in Mo (2 isotopes)
ne= 8, na= 1

E_0 (eV)	0^b	92	100	nh
5000	4.7541e4-l	0.5000	0.5000	2000000
5000	4.7528e + l	0.5000	0.5000	2000000
5000	4.7615e + l	0.5000	0.5000	1500000
5000	4.7580e + l	0.4930	0.5070	2000000
5000	4.7609e + l	0.4920	0.5080	2000000
5000	4.7609e + l	0.4900	0.5100	2000000
10000	7.5684e + l	0.5000	0.5000	1600000
10000	7.5765e + l	0.4935	0.5065	1700000

Ar —> Mo

Sputtering yield of Mo (7 isotopes) by Ar
z1 = 18. m1= 39.95. z2=42. sbe = 6.83 eV. rho=10.21 g/cm**3
ef=0.20 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r = 2. kdeel = kdee2 = 3. ipot = ipotr = 1 (KrC)
m2= 91.91. 93.91. 94.91. 95.90, 96.91, 97.91, 99.91
c2 = 0.1483. 0.0925, 0.1592. 0.1668. 0.0956. 0.2413. 0.0963
alpha=0.00, rd=50.00
program: trvmc95
ne = 20, na= 4. n(m2)= 7

E_0 (eV)	m2 = 91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh	comment
50	1.113e-3	6.586e-4	1.105e-3	1.130e-3	6.305e-4	1.551e-3	5.871e-4	500000000	
70	4.954e-3	2.987e-3	5.056e-3	5.205e-3	2.934e-3	7.276e-3	2.803e-3	300000000	
70	4.961e-3	2.988e-3	5.055e-3	5.211e-3	2.936e-3	7.278e-3	2.802e-3	500000000	
100	1.363e-2	8 311e-3	1.415e-2	1.465e-2	8.297e-3	2.068e-2	8.064e-3	200000000	
100	1.363e-2	8.308e-3	1.413e-2	1.463e-2	8.296e-3	2.068e-2	8.065e-3	350000000	
200	4.522e-2	2.780e-2	4.748e-2	4.938e-2	2.808e-2	7.047e-2	2.770e-2	100000000	
200	4.522e-2	2.781e-2	4.751e-2	4.942e-2	2.811e-2	7.042e-2	2.771e-2	210000000	
500	1.127e-1	6.958e-2	1.191e-1	1.241e-1	7.074e-2	1.776e-1	7.013e-2	80000000	
1000	1.772e-1	1.096e-1	1.877e-1	1.958e-1	1.117e-1	2.806e-1	1.110e-1	50000000	
2000	2.479e-1	1.534e-1	2.630e-1	2.744e-1	1.568e-1	3.942e-1	1.560e-1	25000064	
5000	3.358e-1	2.083e-1	3.570e-1	3.725e-1	2.129e-1	5.358e-1	2.122e-1	10000000	
5000	3.362e-1	2.083e-1	3.572e-1	3.729e-1	2.131e-1	5.360e-1	2.126e-1	15000064	
10000	3.836e-1	2.377e-1	4.070e-1	4.259e-1	2.431e-1	6.119e-1	2.427e-1	8000000	
20000	3.985e~1	2.470e-1	4.241e-1	4.427e-1	2.528e-1	6.368e-1	2.525e-1	9000064	
20000	4.005e-1	2.483e-1	4.262e-1	4.454e-1	2.544e-1	6.401e-1	2.536e-1	9000064	rd=60.00 Å
100	1.571e-2	9.564e-3	1.625e-2	1.684e-2	9.542e-3	2.378e-2	9.264e-3	350000000	alpha= 15°
100	2.173e-2	1.321e-2	2.246e-2	2.322e-2	1.315e-2	3.276e-2	1.275e-2	350000000	alpha=30°
100	3.005e-2	1.832e-2	3.114e-2	3.224e-2	1.826e-2	4.556e-2	1.775e-2	400000000	alpha=60°
100	1.477e-2	9.007e-3	1.535e-2	1.588e-2	9.011e-3	2.248e-2	8.774e-.3	240000000	zbl
5000	-3.743e-1	2.321e-1	3.980e-1	4.155e-1	2.378e-1	5.979e-1	2.370e-1	10000000	zbl

Sputtered energy of Mo (7 isotopes) by Ar
ne=20. na= 4. n(m2) = 7

Eo(eV)	m2=91 .91	93.91	94.91	95.90	96.91	97.91	99.91	nh	comment
50	9.598e-5	5.629e-5	9.446e-5	9.605e-5	5.344e-5	1.310e-4	4.917e-5	500000000	
70	4.123e-4	2.469e-4	4.163e-4	4.272e-4	2.400e-4	5.940e-4	2.273e-4	300000000	
70	4.125e-4	2.470e-4	4.165e-4	4.279e-4	2.403e-4	5.936e-4	2.273e-4	500000000	
100	1.027e-3	6.234e-4	1.058e-3	1.091e-3	6.166e-4	1.531e-3	5.940e-4	200000000	
100	1.028e-3	6.226e-4	1.056e-3	1.091e-3	6.161e-4	1.531e-3	5.938e-4	350000000	
200	2.500e-3	1.529e-3	2.606e-3	2.702e-3	1.533e-3	3.834e-3	1.500e-3	100000000	
200	2.500e-3	1.529e-3	2.605e-3	2.704e-3	1.533e-3	3.835e-3	1.500e-3	210000000	
500	3.737e-3	2.294e-3	3.912e-3	4.068e-3	2.314e-3	5.794e-3	2.278e-3	80000000	
1000	3.956e-3	2.434e-3	4.152e-3	4.320e-3	2.456e-3	6.157e-3	2.423e-3	50000000	
2000	3.710e-3	2.283e-3	3.896e-3	4.049e-3	2.310e-3	5.781e-3	2.275e-3	25000064	
5000	2.985e-3	1.835e-3	3.131e-3	3.260e-3	1.853e-3	4.649e-3	1.831e-3	10000000	
5000	2.986e-3	1.834e-3	3.135e-3	3.265e-3	1.857e-3	4.644e-3	1.830e-3	15000064	
10000	2.322e-3	1.421e-3	2.427e-3	2.530e-3	1.435e-3	3.604e-3	1.417e-3	8000000	
20000	1.651e-3	1.013e-3	1.734e-3	1.800e-3	1.019e-3	2.562e-3	9.997e-4	9000064	
20000	1.660e-3	1.018e-3	1.739e-3	1.808e-3	1.031e-3	2.569e-3	1.009e-3	9000064	rd=60.00 Å
100	1.294e-3	7.833e-4	1.327e-3	1.373e-3	7.754e-4	1.927e-3	7.467e-4	350000000	alpha= 15°
100	2.166e-3	1.310e-3	2.223e-3	2.292e-3	1.295e-3	3.219e-3	1.248e-3	350000000	alpha=30°
100	4.992e-3	3.028e-3	5.132e-3	5.298e-3	2.993e-3	7.447e-3	2.887e-3	400000000	alpha=60°
100	1.148e-3	6.959e-4	1.183e-3	1.219e-3	6.905e-4	1.718e-3	6.666e-4	240000000	zbl
5000	3.501e-3	1.876e-3	3.189e-3	3.319e-3	1.891e-3	4.746e-3	1.868e-3	10000000	zbl

Ar Mo

Particle reflection coefficient of Ar backscattered from. Mo (7 isotopes)
zl = 18, ml= 39.95, z2=42, sbe=6.83 eV. rho = 10.21 g/cm**3
ef=0.20 eV. esb=0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
m2= 91.91. 93.91, 94.91, 95.90, 96.91, 97.91, 99.91
c2 = 0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00. rd=50.00
program: trvmc95
ne=20. na= 4, n(m2)= 7

Eo(eV)	0°	nh	comment
50	4.082e-l	500000000	
70	3.711e-l	300000000	
70	3.711e-l	500000000	
100	3.337e-l	200000000	
100	3.338e-l	350000000	
200	2.725e-l	100000000	
200	2.727e-l	210000000	
500	2.140e-l	80000000	
1000	1.819e-l	50000000	
2000	1.565e-l	25000064	
5000	1.284e-l	10000000	
5000	1.283e-l	15000064	
10000	1.088e-l	8000000	
20000	8.981e-2	9000064	
20000	8.988e-2	9000064	rd = 60.00 Ä
100	3.584e-l	350000000	alpha=15°
100	4.326e-l	350000000	alpha=30°
100	7.666e-l	400000000	alpha=60°
100	3.834e-l	240000000	zbl
5000	1.232e-l	10000000	zbl

Energy reflection coefficient of Ar backscattered from Mo (7 isotopes)
ne=20, na= 4, n(m2)= 7

Bo(eV)	0°	nh	comment
50	7.077e-2	500000000	
70	6.549e-2	300000000	
70	6.550e-2	500000000	
100	5.937e-2	200000000	
100	5.938e-2	350000000	
200	4.806e-2	100000000	
200	4.810e-2	210000000	
500	3.660e-2	80000000	
1000	3.055e-2	50000000	
2000	2.612e-2	25000064	
5000	2.163e-2	10000000	
5000	2.163e-2	15000064	
10000	1.871e-2	8000000	
20000	1.581e-2	9000064	
20000	1.585e-2	9000064	rd = 60.00 Ä
100	7.092e-2	350000000	alpha=15°
100	1.112e-l	350000000	a]pha=30°
100	4.006e-l	400000000	alpha=60°
100	7.006e-2	240000000	zbl
5000	2.169e-2	10000000	zbl

Average depth (mean range) in Ä of Ar implanted in Mo (7 isotopes)
ne=20, na= 4, n(m2)= 7

E_o(eV)	0°	nh	comment
50	3.963e+0	500000000	
70	4.675e4-0	300000000	
70	4.675e4-0	500000000	
100	5.569e+0	200000000	
100	5.569e4-0	350000000	
200	7.874e+0	100000000	
200	7.873e + 0	210000000	
500	1.268e+l	80000000	
1000	1.853e + l	50000000	
2000	2.766e + l	25000064	
5000	4.901e+l	10000000	
5000	4.899e + l	15000064	
10000	7.877e + l	8000000	
20000	1.323e+2	9000064	
20000	1.324e+2	9000064	rd=60.00 Ä
100	5.501e + 0	350000000	alpha=15°
100	5.322e4-0	350000000	alpha=30°
100	4.654e+0	400000000	alpha=60°
100	4.243e+0	240000000	zbl
5000	4.397e + l	10000000	zbl

Kr —y Mo

Sputtering yield of Mo by Kr
zl = 36, ml = 83.80, z2 = 42, m2 = 95.94. sbe = 6.89 eV, rho=10.20 g/cm**3
ef=0.30 eV. esb = 0.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: trspvmc, trvmc
ne= 6, na= 2

Eo(eV)	0°	45°
50	9.15e-4	
53		3.40e-2
100	3.20e-2	
500	6.36e-l	
1000	1.19e-0	
5000	2.69e-0	

Sputtered energy of Mo by Kr
ne= 6, na= 2

Bo(eV)	0°	45°
50	5.54e-5	
53		4.86e-3
100	1.67e-3	
500	1.63e-2	
1000	2.08e-2	
5000	1.95e-2	

Particle reflection coefficient of Kr backscattered from Mo
zl=36. ml= 83.80. z2 = 42. m2= 95.94, sbe = 6.89 eV. rho=10.20 g/cm**3
ef=0.30 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmc, trvmc
ne= 6, na= 2

E_0 (eV)	0°	45°
50	1.44e-l	
53		4.52e-l
100	1.23e-l	
500	8.89e-2	
1000	6.92e-2	
5000	4.19e-2	

Energy reflection coefficient of Kr backscattered from Mo
ne= 6, na= 2

E_0 (eV)	0°	45°
50	6.90e-3	
53		1.05e-l
100	5.89e-3	
500	3.97e-3	
1000	3.26e-3	
5000	2.37e-3	

Average depth (mean range) in Ä of Kr implanted in Mo
ne= 6, na= 2

E_0 (eV)	0°	45°
50	3.33e+0	
53		2.65e + 0
100	4.85e+0	
500	1.08e4-l	
1000	1.52e + l	
5000	3.61e + l	

Mo -> Mo

Sputtering yield of Mo by Mo
zl = 42, ml = 95.94. z2=42, m2 = 95.94, sbe=6.89, 6.83 eV. rho = 10.21 g/cm**3
ef=6.39, 6.78 eV. esb = 6.89, 6.83 eV. ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), testvmcx, TPP 9/82
ne=28, na=14

Bq(eV)	0°	10°	20°	30°	40°	45°	50°	55°	57.5°	60°	62.5°	65°
15												2.04e-4
17												3.88e-4
18												5.49e-4
20												6.49e-4
25	6.90e-6											4.04e-3
30	2.61e-5											1.15e-2
35	7.30e-5											
40	7.56e-5											
42	1.27e-4											
45	2.45e-4											
48	4.44e-4											
50	6.36e-4											
65	3.87e-3											
80	1.04e-2											
100	2.59e-2											
200	1.51e-l											
250	2.46e-l											
300	3.15e-l	3.61e-l	4.84e-l	6.50e-l	8.68e-l		1.04e-0	1.07e-0	1.07e-0	1.07e-0	1.04e-0	9.92e-l
350	3.90e-l	4.51e-l	5.71e-l	7.83e-l	9.94e-l	1.10e-0	1.19e-0	1.23e-0	1.23e-0	1.23e-0	1.19e-0	1.16e-0
500	6.14e-l											1.53e-0
1000	1.12e-0	1.20e-0	1.44e-0	1.77e-0	2.17e-0	2.41e-0	2.60e-0	2.73e-0	2.81e-0	2.82e-0	2.80e-0	2.71e-0
2000	1.76e-0	1.87e-0	2.21e-0	2.53e-0	3.28e-0		3.88e-0	4.22e-0	4.26e-0	4.42e-0	4.36e-0	4.38e-0
5000	2.88e-0											
10000	3.42e-0											
20000	3.96e-0											
45000	4.87e-0											
50000	4.88e-0											
100000	4.11e-0											

Eq(eV)	70°	80°
300	8.53e-l	3.99e-l
350	9.84e-l	4.55e-l
1000		1.18e-0
2000	4.11e-0	2.21e-0

Sputtered energy of Mo by Mo
program: newtrim (Laszlo), testvmcx
ne=27, na=14

E_0 (eV)	0°	10°	20°	30°	40°	45°	50°	55°	57.5°	60°	62.5°	65°
15												3.40e-5
17												6.70e-5
18												9.49e-5
20												1.26e-4
25	3.37e-7											8.11e-4
30	1.32e-6											2.45e-3
35	3.78e-6											
40	4.75e-6											
42	7.68e-6											
45	1.55e-5											
48	2.76e-5											
50	3.89e-5											
65	2.25e-4											
80	5.51e-4											
100	1.27e-3											
200	5.76e-3											
250	8.21e-3											
300	9.82e-3	1.23e-2	2.15e-2	3.66e-2	6.36e-2		9.80e-2	1.12e-l	1.20e-l	1.25e-l	1.26e-l	1.29e-l
350	1.10e-2	1.45e-2	2.30e-2	4.03e-2	6.77e-2	8.51e-2	1.02e-l	1.19e-l	1.26e-l	1.33e-l	1.37e-l	1.38e-l
500	1.47e-2											1.51e-l
1000	1.89e-2	2.17e-2	3.18e-2	4.94e-2	7.78e-2	9.88e-2	1.17e-l	1.36e-l	1.52e-l	1.56e-l	1.67e-l	1.75e-l
2000	1.99e-2	2.41e-2	3.17e-2	4.56e-2	7.59e-2		1.13e-l	1.39e-l	1.49e-l	1.57e-l	1.67e-l	1.79e-l
5000	2.04e-2											
10000	1.60e-2											
20000	1.39e-2											
50000	1.07e-2											
100000	5.69e-3											

E_0 (eV)	70°	80°
300	1.20e-l	6.03e-2
350	1.29e-l	6.45e-l
1000		9.86e-2
2000	1.94e-l	1.32e-l

Mo —> Mo

Particle reflection coefficient of Mo backscattered from Mo
zl=42, ml= 95.94, z2= 42. m2= 95.94, sbe=6.89, 6.83 eV, rho=10.21 g/cm**3
ef=6.39. 6.78 eV, esb=6.89. 6.83 eV. ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr = l (KrC)
program: newtrim (Laszlo), testvmcx
ne = 28, na=14

Eq(eV)	0°	10°	20°	30°	40°	45°	50°	55°	57.5°	60°	62.5°	65°
15												6.12e-5
17												3.62e-4
18												7.06e-4
20												1.88e-3
25												1.14e-2
30												3.33e-2
35	3.04e-7											
40	8.33e-6											
42	1.15e-5											
45	2.28e-5											
48	4.46e-5											
50	6.97e-5											
50	2.87e-4											1.67e-l
65	3.12e-4											
80	9.97e-4											3.62e-l
100	2.12e-3											4.46e-l
200	1.07e-2											5.41e-l
265	1.04e-2											
300	1.24e-2	1.98e-2	3.37e-2	7.45e-2	1.40e-l		2.47e-l	3.33e-l	3.77e-l	4.29e-l	4.67e-l	5.38e-l
350	1.36e-2	1.96e-2	3.70e-2	7.22e-2	1.40e-l	1.86e-l	2.51e-l	3.24e-l	3.67e-l	4.16e-l	4.70e-l	5.29e-l
500	2.02e-2											5.13e-l
1000	2.40e-2	2.60e-2	4.06e-2	6.85e-2	1.13e-l	1.51e-l	2.05e-l	2.68e-l	2.89e-l	3.416-1	3.91e-l	4.34e-l
2000	2.85e-2	3.05e-2	3.63e-2	6.35e-2	1.07e-l		1.93e-l	2.15e-l	2.51e-l	2.95e-l	3.25e-l	3.79e-l
5000	2.04e-2											3.12e-l
10000	2.20e-2											2.78e-l
20000	1.67e-2											2.38e-l
50000	8.80e-3											2.26e-l
100000												2.20e-l

E_0 (eV)	70°	80°
300	6.63e-l	9.07e-l
350	6.59e-l	9.07e-l
1000		8.72e-l
2000	4.88e-l	8.20e-l

Energy reflection coefficient of Mo backscattered from Mo
ne=29, na=14

E_0 (eV)	0°	10 u	20°	30 u	40°	45 u	50°	55°	57.5°	60°	62.5°	65°
15												1.35e-5
17												8.03e-5
18												1.57e-4
20												4.31e-4
25												2.78e-3
30	3.00e-9											8.83e-3
35	1.85e-8											
40	5.66e-7											
42	6.67e-7											
45	1.51e-6											
48	2.97e-6											
50	5.05e-6											
50	2.36e-5											5.40e-2
65	2.15e-5											
80	6.66e-5											1.29e-l
100	1.21e-4											1.68e-l
200	6.24e-4											2.25e-l
265	5.67e-4											
300	6.36e-4	1.22e-3	2.87e-3	9.32e-3	2.42e-2		6.30e-2	1.01e-l	1.22e-l	1.52e-l	1.89e-l	2.26e-l
350	6.85e-4	1.16e-3	3.05e-3	8.25e-3	2.49e-2	3.79e-2	6.15e-2	9.63e-2	1.20e-l	1.46e-l	1.81e-l	2.21e-l
500	9.14e-4											2.13e-l
500	l.lle-3											
1000	9.35e-4	1.64e-3	2.81e-3	7.20e-3	1.61e-2	2.65e-2	4.45e-2	6.70e-2	8.12e-2	1.04e-l	1.33e-l	1.67e-l
2000	1.07e-3	1.14e-3	2.05e-3	5.24e-3	1.41e-2		3.77e-2	4.81e-2	6.45e-2	7.94e-2	1.02e-l	1.33e-l
5000	8.24e-4											9.42e-2
10000	8.85e-4											8.24e-2
20000	5.31e-4											6.47e-2
50000	4.91e-4											6.17e-2
100000												6.09e-2

Eq(eV)	70°	80°
300	3.31e-l	6.05e-l
350	3.27e-l	6.16e-l
1000		6.15e-l
2000	2.06e-l	5.64e-l

Mo —> Mo

Average depth (mean range) in A of Mo implanted in Mo
zl=42, ml = 95.94. z2=42. m2 = 95.94. sbe=6.89, 6.83 eV. rho = 10.21 g/cm**3
ef=6.39. 6.78 eV, esb=6.89. 6.83 eV. ca=1.00. kk0 = kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), testvmcx
ne=28. na=14

E_0 (eV)	0°	10°	20°	30°	40°	45°	50°	55°	57.5°	60°	62.5°	65°
15												3.09e-l
17												3.33e-l
18												3.45e-l
20												3.60e-l
25	1.67e+0											4.22e-l
30	1.92e4-0											5.05e-l
35	2.13e+0											
40	1.92e + 0											
42	2.00e+0											
45	2.11e + 0											
48	2.22e+0											
50	2.33e+0											
50	2.88e + 0											8.00e-l
65	3.16e+0											
80	3.67e+0											1.38e+0
100	4.19e+0											1.82e+0
200	6.14e + 0											3.40e+0
265	6.92e-f-0											
300	7.60e+0	7.50e+0	7.22e+0	6.81e+0	6.26e+0		5.58e4-0	5.32e+0	5.10e+0	4.89e+0	4.77e4-0	4.48e4-0
350	8.32e + 0	8.20e+0	7.99e + 0	7.37e4-0	6.84e+0	6.45e+0	6.15e4-0	5.75e + 0	5.69e4-0	5.36e+0	5.17e4-0	5.01e+0
500	9.97e + 0											6.08e4-0
1000	1.45e + l	1.39e+l	1.36e+l	1.27e + l	1.17e+l	1.14e+l	1.06e + l	1.03e + l	9.71e+0	9.60e+0	9.34e+0	8.95e+0
2000	2.07e + l	1.99e+l	1.96e4-l	1.85e + l	1.67e + l		1.53e4-l	1.41e + l	1.41e4-l	1.35e+l	1.30e+l	1.25e + l
5000	3.41e+l											2.05e-H
10000	4.99e+l											3.00e+l
20000	7.53e+l											4.58e+l
50000	1.40e+2											8.29e + l
100000	2.40e4-2											1.35e+2

Eq (eV)	7Ö[75]	8Ö[73]
300	4.09e+0	2.86e+0
350	4.62e+0	3.26e+0
1000		6.88e+0
2000	l,16e + l	9.99e+0

Mo —> Mo

Mo on Mo, Maxwellian velocity distribution, sheath potential 0 kT
zl=42, ml= 95.94, z2=42, m2= 95.94. sbe=6.89, 6.83 eV, rho = 10.20 g/cm**3
ef=6.39, 6.78 eV. esb=6.89, 6.83 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), testvmcx
ne=12

kT(eV)	Y	Y_S	E *sp*	^{B} *N*	R_E	R_h	range
5	4.52e-4	2.70e-4	5.96e-}-0	9.49e-4	9.60e-4	1.01e+l	3.11e-l
7	1.68e-3	9.30e-4	7.78e + 0	3.94e-3	3.48e-3	1.24e + l	4.75e-l
10	5.73e-3	2.77e-3	9.69e-|-0	1.31e-2	1.06e-2	1.63e+l	6.82e-l
20	3.89e-2	1.29e-2	1.33e + l	6.02e-2	3.94e-2	2.63e+l	1.26e-f-0
50	2.01e-l	4.17e-2	2.08e-f-l	1.64e-l	8.67e-2	5.27e+l	2.57e-f-0
100	4.90e-l	6.56e-2	2.67e + l	2.27e-l	1.04e-l	9.16e + l	4.24e+0
200	9.48e-l	7.58e-2	3.14e + l	2.62e-l	1.lle-1	1.66e + 2	6.60e + 0
500	1.87e-0	9.43e-2	5.13e-|-l	2.63e-l	8.87e-2	3.44e-}-2	1.16e+l
1000	3.00e-0	9.74e-2	6.47e4-l	2.16e-l	8.32e-2	7.67e+2	1.55e + l
2000	4.23e-0	1.18e-l	1.13e+2	2.29e-l	7.18e-2	1.26e + 3	2.40e+l
5000	6.15e-0	8.80e-2	1.35e + 2	2.06e-l	8.81e-2	4.05e+3	3.76e + l
10000	8.54e-0	7.72e-2	1.76e + 2	1.55e-l	4.41e-2	5.54e+3	5.63e-)-l

Mo on Mo, Maxwellian velocity distribution, sheath potential 3 kT
ne= 13

kT(eV)	Y	^{Y} £?	Esp	R_N	R_E	Bfe	range
4	5.91e-4	1.47e-4	4.96e-|-0	4.64e-4	1.87e-4	8.06e+0	l.lle+0
5	1.60e-3	3.75e-4	5.86e + 0	1.34e-3	4.95e-4	9.27e+0	1.35e+0
7	5.67e-3	1.21e-3	7.49e+0	4.46e-3	1.49e-3	1.17e+l	1.76e-f-0
10	1.97e-2	3.50e-3	8.88e + 0	1.16e-2	3.48e-3	1.50e + l	2.27e4-0
20	1.14e-l	1.37e-2	1.21e4-l	3.34e-2	7.91e-3	2.36e + l	3.61e+0
50	4.69e-l	3.17e-2	1.69e+l	5.56e-2	9.56e-3	4.30e + l	6.23e+0
100	9.48e-l	4.10e-2	2.16e-|-l	5.94e-2	8.20e-3	6.90e + l	9.05e4-0
200	1.57e-0	4.61e-2	2.95e + l	5.54e-2	5.29e-3	9.58e4-l	1.31e + l
500	2.60e-0	3.68e-2	3.52e4-l	4.50e-2	3.80e-3	2.11e + 2	2.04e + l
1000	3.69e-0	3.63e-2	4.93e + l	4.73e-2	4.84e-3	5.13e-}-2	3.08e-f-l
2000	4.40e-0	3.44e-2	7.81e + l	4.29e-2	3.83e-3	8.96e+2	4.72e-H
5000	5.65e-0	2.47e-2	1.08e+2	2.26e-2	1.28e-3	1.41e+3	7.97e+l
10000	6.23e-0	1.85e-2	1.47e+2	2.33e-2	2.98e-3	6.34e+3	1.26e+2

Mo on Mo, Maxwellian velocity distribution, sheath potential 9 kT
ne= 15

kT(eV)	Y	Y *e*	Esp	Ry	Rig	E&	range
2.4	3.27e-4	4.18e-5	3.38e+0	9.20e-5	1.95e-5	5.59e4-0	1.57e + 0
3	9.41e-4	1.16e-4	4.07e + 0	3.37e-4	7.17e-5	7.03e4-0	1.87e+0
4	3.47e-3	4.12e-4	5.22e-f-0	1.43e-3	2.61e-4	8.03e+0	2.30e+0
5	8.61e-3	9.54e-4	6.10e+0	3.02e-3	5.21e-4	9.50e-}-0	2.68e+0
7	3.01e-2	2.86e-3	7.32e+0	7.37e-3	1.lle-3	1.16e-f-l	3.32e-{-0
10	8.06e-2	6.23e-3	8.51e+0	1.44e-2	1.90e-3	1.45e+l	4.13e+0
20	2.93e-l	1.52e-2	1.14e + l	2.56e-2	2.77e-3	2.38e + l	6.16e-f-0
30	5.00e-l	2.06e-2	1.36e4-l	3.19e-2	2.96e-3	3.06e4-l	7.66e-|-0
50	8.46e-l	2.60e-2	1.69e + l	3.50e-2	2.77e-3	4.35e-|-l	9.97e+0
100	1.47e-0	2.98e-2	2.23e+l	3.70e-2	2.44e-3	7.27e + l	1.43e+l
200	2.21e-0	3.00e-2	2.99e + l	3.32e-2	2.25e-3	1.49e+2	2.05e+l
500	3.28e-0	2.66e-2	4.45e + l	2.85e-2	1.72e-3	3.32e+2	3.38e-|-l
1000	4.11e-0	2.31e-2	6.17e-J-l	2.50e-2	1.49e-3	6.56e + 2	5.06e + l
2000	4.80e-0	1.80e-2	8.23e+l	1.63e-2	4.95e-4	6.66e4-2	7.61e+l
5000	5.41e-0	1.37e-2	1.38e4-2	9.06e-3	8.90e-4	5.36e+3	1.48e+2

Xe —> Mo

Sputtering yield of Mo (2 isotopes) by Xe
zl=54, ml = 131.30, z2=42, m2= 92.00. 100.00, sbe=6.83 eV, rho = 10.21 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kkO=kkOr=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
alpha=0.00
program: trvmc
ne= 4, na= 1, n(m2)= 2

E_0 (eV)	m2 = 92.00	100.00	c2(92)	c2(100)
5000	1.457e-0	1.419e-0	0.5000	0.5000
5000	1.437e-0	1.438e-0	0.4935	0:5065
10000	1.917e-0	1.871e-0	0.5000	0.5000
10000	1.894e-0	1.896e-0	0.4940	0.5060

Sputtered energy of Mo (2 isotopes) by Xe
ne= 4, na= 1. n(m2)= 2

E_0 (eV)	m2 = 92.00	100.00	c2(92)	c2(100)
5000	9.875e-3	9.406e-3	0.5000	0.5000
5000	9.759e-3	9.563e-3	0.4935	0.5065
10000	8.936e-3	8.500e-3	0.5000	0.5000
10000	8.847e-3	8.628e-3	0.4940	0.5060

Particle reflection coefficient of Xe backscattered from Mo (2 isotopes)
zl=54, ml = 131.30, z2=42, m2 = 92.00, 100.00, sbe=6.83 eV, rho = 10.21 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00
program: trvmc
ne= 4, na= 1

E_0 (eV)	0°	c2(92)	c2(100)
5000	6.6469e-3	0.5000	0.5000
5000	6.5269e-3	0.4935	0.5065
10000	5.4627e-3	0.5000	0.5000
10000	5.4736e-3	0.4940	0.5060

Energy reflection coefficient of Xe backscattered from Mo (2 isotopes)
ne= 4, na= 1

E_0 (eV)	0°	c2(92)	c2(100)
5000	1.0724e-4	0.5000	0.5000
5000	1.1108e-4	0.4935	0.5065
10000	9.6071e-5	0.5000	0.5000
10000	9.7227e-5	0.4940	0.5060

Average depth (mean range) in Ä of Xe implanted in Mo (2 isotopes)
ne= 4, na= 1

E_0 (eV)	0°	c2(92)	c2(100)
5000	3.3742e + l	0.5000	0.5000
5000	3.3737e + l	0.4935	0.5065
10000	4.8992e4-l	0.5000	0.5000
10000	4.8991e + l	0.4940	0.5060

Xe –> Mo

Sputtering yield of Mo (7 isotopes) by Xe
zl = 54, ml = 131.30. z2=42, sbe=6.83 eV, rho = 10.21 g/cm**3
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
m2= 91.91, 93.91, 94.91, 95.90, 96.91, 97.91, 99.91
c2 = 0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00
program: trvmc95
ne= 2, na= 1, n(m2) = 7

E_0 (eV)	m2=91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
100	1.838e-3	1.120e-3	1.901e-3	1.969e-3	1.114e-3	2.777e-3	1.082e-3	1500000000
100	1.837e-3	1.118e-3	1.894e-3	1.968e-3	1.113e-3	2.781e-3	1.083e-3	400000000

Sputtered energy of Mo (7 isotopes) by Xe
ne= 2, na= 1, n(m2)= 7

E_0 (eV)	m2=91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
100	7.508e-5	4.579e-5	7.770e-5	8.056e-5	4.556e-5	1.137e-5	4.432e-5	1500000000
100	7.511e-5	4.570e-5	7.748e-5	8.057e-5	4.562e-5	1.138e-5	4.443e-5	400000000

Particle reflection coefficient of Xe backscattered from Mo (7 isotopes)
zl=54, ml = 131.30, z2=42, sbe = 6.83 eV, rho = 10.21 g/cm**3
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
m2= 91.91, 93.91, 94.91, 95.90, 96.91, 97.91, 99.91
c2=0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00
program: trvmc95
ne= 2, na= 1

E_0 (eV)	0°	nh
100	9.5655e-3	1500000000
100	9.5666e-3	400000000

Energy reflection coefficient of Xe backscattered from Mo (7 isotopes)
ne= 2, na= 1

E_0 (eV)	0°	nh
100	1.6728e-4	1500000000
100	1.6738e-4	400000000

Average depth (mean range) in Å of Xe implanted in Mo (7 isotopes)
ne= 2, na= 1

Eq(eV)	0°	nh
100	4.8206e+0	1500000000
100	4.8206e+0	400000000

Hg –> Mo

Sputtering yield of Mo by Hg
zl=80, ml = 200.59, z2=42, m2= 95.94, sbe=6.83 eV, rho=:10.20 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: IPP 9/82
only low fluence!
ne=12, na= 1

Ep(eV)	0°
50	3.70e-5
100	5.30e-3
200	7.52e-2
500	4.13e-l
1000	9.39e-l
2000	1.62e-0
5000	2.73e-0
10000	3.74e-0
20000	4.72e-0
50000	5.89e-0
100000	6.74e-0
200000	7.09e-0

Rn –> Mo

Sputtering yield of Mo (7 isotopes) by Rn
zl = 86, ml = 222.00, z2=42, sbe = 6.83 eV. rho = 10.21 g/cm**3
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
m2= 91.91, 93.91, 94.91, 95.90, 96.91, 97.91, 99.91
c2=0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00
program: trvmc95
ne= 4, na= 1, n(m2) = 7

E_0 (eV)	m2=91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
100	6.991e-4	4.259e-4	7.237e-4	7.484e-4	4.244e-4	1.057e-4	4.118e-4	1500000000
100	7.002e-4	4.270e-4	7.238e-4	7.496e-4	4.242e-4	1.056e-4	4.107e-4	900000000
100	6.983e-4	4.256e-4	7.244e-4	7.509e-4	4.239e-4	1.054e-4	4.137e-4	350000000
5000	4.320e-l	2.679e-l	4.588e-l	4.795e-l	2.742e-l	6.890e-l	2.733e-l	10000000

Sputtered energy of Mo (7 isotopes) by Rn
ne= 4, na= 1. n(m2)= 7

E_0 (eV)	m2=91.91	93.91	94.91	95.90	96.91	97.91	99.91	nh
100	2.515e-5	1.533e-5	2.610e-5	2.698e-5	1.533e-5	3.817e-5	1.488e-5	1500000000
100	2.518e-5	1.540e-5	2.608e-5	2.704e-5	1.528e-5	3.814e-5	1.483e-5	900000000
100	2.510e-5	1.529e-5	2.603e-5	2.706e-5	1.532e-5	3.802e-5	1.494e-5	350000000
5000	2.692e-3	1.662e-3	2.843e-3	2.960e-3	1.684e-3	4.231e-3	1.672e-3	10000000

Particle reflection coefficient of Rn backscattered from Mo (7 isotopes)
zl = 86, ml=222.00, z2=42, sbe = 6.83 eV, rho = 10.21 g/cm**3
ef=0.20 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
m2= 91.91, 93.91, 94.91, 95.90, 96.91, 97.91, 99.91
c2=0.1483, 0.0925, 0.1592, 0.1668, 0.0956, 0.2413, 0.0963
alpha=0.00
program: trvmc95
ne= 4, na= 1

E_0 (eV)	0°	nh
100	2.9659e-5	1500000000
100	2.9227e-5	900000000
100	2.9600e-5	350000000
5000	2.1510e-4	10000000

Energy reflection coefficient of Rn backscattered from Mo (7 isotopes)
ne= 4, na= 1

E_0 (eV)	0°	nh
100	2.0536e-7	1500000000
100	2.0395e-7	900000000
100	2.0724e-7	350000000
5000	9.4885e-7	10000000

Average depth (mean range) in Å of Rn implanted in Mo (7 isotopes)
ne= 4, na= 1

E_0 (eV)	0°	nh
100	6.5227e + 0	1500000000
100	6.5227e+0	900000000
100	6.5225e+0	350000000
5000	3.8657e + l	10000000

He -> Pd

Sputtering yield of Pd by He
z1 = 2, m1 = 4.00. z2 = 46, m2 = 106.40, sbe=3.91 eV, rho = 11.96 g/cm**3
ef=0.50 eV. esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=1 (KrC)
program : trspvmcx
ne= 3, na= 1

E_0 (eV)	30°
500	1.42e-1
1000	1.81e-1
1500	2.00e-1

Sputtered energy of Pd by He
ne= 3, na= 1

E_0(eV)	30°
500	2.44e-3
1000	2.11e-3
1500	1.73e-3

Particle reflection coefficient He backscattered from Pd
z1= 2, m1= 4.00. z2=46, m2=106.40, sbe=3.91 eV, rho=11.96 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=1 (KrC)
program : trspvmcx
ne= 3, na= 1

E_0 (eV)	30°
500	5.22e-1
1000	4.83e-1
1500	4.52e-1

Energy reflection coefficient He backscattered from Pd
ne= 3, na= 1

E_0 (eV)	30°
500	2.99e-1
1000	2.68e-1
1500	2.46e-1

Average depth (mean range) in Å of He implanted in Pd
ne= 3, na= 1

E_0(eV)	30°
500	5.63e+1
1000	8.68e+1
1500	1.13e+2

Xe -4- Pel

Sputtering yield of Pd by Xe
zl=54. ml = 131.30, z2=46, 1X12= 106.40, sbe=3.91 eV, rho = 11.96 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : trspvmcx
ne= 3, na= 1

E_0 (eV)	30°
500	1.95e-0
1000	3.24e-0
1500	4.08e-0

Sputtered energy of Pd by Xe
ne= 3, na= 1

E_0 (eV)	30°
500	6.04e-2
1000	6.43e-2
1500	6.22e-2

Particle reflection coefficient Xe backscattered from Pd
zl=54, ml = 131.30, z2=46, m2 = 106.40, sbe=3.91 eV, rho = 11.96 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : trspvmcx
ne= 3, na= 1

Eq (eV)	30°
500	7.42e-2
1000	6.84e-2
1500	5.34e-2

Energy reflection coefficient Xe backscattered from Pd
ne= 3, na= 1

E_0 (eV)	30°
500	5.33e-3
1000	4.32e-3
1500	3.43e-3

Average depth (mean range) in Å of Xe implanted in Pd
ne= 3, na= 1

E_0 (eV)	30°
500	8.74e+0
1000	1.20e+1
1500	1.48e+1

D → Ag

Sputtering yield of Ag by D
zl = 1. ml= 2.01. z2= 47. m2 = 107.87, rho = 10.47 g/cm**3
ef=0.95 eV, esb = 1.00 eV. ca=1.00, kk0 = kk0r=2. kdeel = kdee2 = 3. ipot=ipotr=l (KrC)
program: testvmcx
ne= 6. na= 3. n(sbe)= 5

sbe	2.66 eV	2.76 eV	2.87 eV	2.91 eV	2.95 eV	2.76 eV	2.95 eV	2.76 eV	2.87 eV	2.95 eV
E_0 (eV)	0°	0°	0°	0°	0°	50°	50°	70°	70°	70°
50	2.51e-4	1.45e-4	1.02e-4	5.11e-5	3.81e-5					
55	6.54e-4	4.46e-4	2.99e-4	2.43e-4	2.06e-4					
60	1.25e-3	9.58e-4	6.69e-4	5.92e-4	5.24e-4	9.07e-4	4.78e-4	3.75e-4	2.59e-4	1.99e-4
70	2.91e-3	2.33e-3	1.89e-3	1.67e-3	1.54e-3					
80	4.92e-3	4.13e-3	3.45e-3	3.23e-3	2.99e-3					
100	9.39e-3	8.28e-3	7.25e-3	6.79e-3	6.59e-3					

Sputtered energy of Ag by D
ne= 6, na= 3. n(sbe) = 5

sbe	2.66 eV	2.76 eV	2.87 eV	2.91 eV	2.95 eV	2.76 eV	2.95 eV	2.76 eV	2.87 eV	2.95 eV
E_0 (eV)	0°	0°	0°	0°	0°	50°	50°	70°	70°	70°
50	1.60e-6	7.87e-7	4.59e-7	2.10e-7	1.45e-7					
55	5.46e-6	3.35e-6	2.02e-6	1.59e-6	1.25e-6					
60	1.26e-5	8.69e-6	5.66e-6	4.87e-6	4.20e-6	8.73e-6	4.04e-6	3.54e-6	2.24e-6	1.57e-6
70	3.42e-5	2.66e-5	2.07e-5	1.80e-5	1.72e-5					
80	6.47e-5	5.29e-5	4.26e-5	3.95e-5	3.67e-5					
100	1.35e-4	1.17e-4	1.03e-4	9.44e-5	9.09e-5					

Particle reflection coefficient of D backscattered from Ag
zl= 1, ml = 2.01, z2=47. m2=107.87, rho = 10.47 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
ne= 6. na= 3, n(sbe)= 5

sbe	2.66 eV	2.76 eV	2.87 eV	2.91 eV	2.95 eV	2.76 eV	2.95 eV	2.76 eV	2.87 eV	2.95 eV
E_0 (eV)	0°	0°	0°	0°	0°	50°	50°	70°	70°	70°
50	6.26e-l	6.26e-l	6.37e-l	6.26e-l	6.26e-l					
55	6.22e-l	6.21e-l	6.21e-l	6.21e-l	6.21e-l					
60	6.17e-l	6.17e-l	6.17e-l	6.17e-l	6.17e-l	7.29e-l	7.29e-l	8.68e-l	8.68e-l	8.68e-l
70	6.09e-l	6.09e-l	6.10e-l	6.09e-l	6.09e-l					
80	6.02e-l	6.02e-l	6.02e-l	6.03e-l	6.02e-l					
100	5.91e-l	5.91e-l	5.91e-l	5.90e-l	5.91e-l					

Energy reflection coefficient of D backscattered from Ag
ne= 6. na= 3, n(sbe)= 5

sbe	2.66 eV	2.76 eV	2.87 eV	2.91 eV	2.95 eV	2.76 eV	2.95 eV	2.76 eV	2.87 eV	2.95 eV
Eo(eV)	0°	0°	0°	0°	0°	50°	50°	70°	70°	70°
50	4.08e-l	4.08e-l	4.14e-l	4.08e-l	4.08e-l					
55	4.03e-l	4.03e-l	4.03e-l	4.03e-l	4.03e-l					
60	3.99e-l	3.98e-l	3.99e-l	3.99e-l	3.99e-l	5.35e-l	5.35e-l	7.41e-l	7.41e-l	7.41e-l
70	3.90e-l	3.90e-l	3.91e-l	3.90e-l	3.90e-l					
80	3.83e-l	3.83e-l	3.83e-l	3.84e-l	3.83e-l					
100	3.72e-l	3.72e-l	3.72e-l	3.71e-l	3.72e-l					

Average depth (mean range) in Ä of D implanted in Ag
ne= 6, na= 3, n(sbe)= 5

sbe	2.66 eV	2.76 eV	2.87 eV	2.91 eV	2.95 eV	2.76 eV	2.95 eV	2.76 eV	2.87 eV	2.95 eV
Eo(eV)	0°	0°	0°	0°	0°	50°	50°	70°	70°	70°
50	3.00e+l	3.00e+l	2.23e+l	3.00e4-l	3.00e4-l					
55	3.16e+l	3.16e4-l	3.16e + l	3.16e4-l	3.16e + l					
60	3.32e4-l	3.31e+l	3.31e + l	3.31e-|-l	3.31e+l	3.23e+l	3.23e + l	3.18e + l	3.17e + l	3.17e+l
70	3.62e + l	3.61e+l	3.61e+l	3.61e + l	3.61e-H					
80	3.89e + l	3.89e-f-l	3.89e+l	3.89e+l	3.89e+l					
100	4.41e + l	4.41e+l	4.41e+l	4.41e+l	4.41e+l					

He —> Ag

Sputtering yield of Ag by He
zl = 2, ml= 4.00, z2=47, m2 = 107.87, sbe=2.97 eV, rho=10.47 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0 = kk0r=l, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program:
ne= 8, na= 2

E 0 (eV)	0°	75°
50	8.62e-3	
100	4.43e-2	
300	1.20e-l	
500	1.51e-l	
1000	1.82e-l	
2000	1.70e-l	4.64e-l
4000	2.00e-l	
10000	1.52e-l	

Sputtered energy of Ag by He
ne= 6, na= 1

Bo(eV)	0^{73}
50	2.05e-4
100	1.17e-3
300	2.27e-3
500	2.21e-3
1000	1.71e-3
4000	7.58e-4

Particle reflection coefficient of He backscattered from Ag
zl= 2, ml= 4.00, z2=47, m2 = 107.87, sbe=2.97 eV, rho = 10.47 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kkO=kkOr=l, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program:
ne= 6, na= 1

Ep(eV)	0^{3}
50	6.10e-l
100	5.68e-l
300	5.07e-l
500	4.79e-l
1000	4.33e-l
4000	3.32e-l

Energy reflection coefficient of He backscattered from Ag
ne= 6, na= 1

E 0 (eV)	cI^{0}
50	3.75e-l
100	3.36e-l
300	2.82e-l
500	2.62e-l
1000	2.28e-l
4000	1.57e-l

Average depth (mean range) in Å of He implanted in Ag
ne= 6, na= 1

Bo(eV)	0°
50	1.80e + l
100	2.61e + l
300	4.88e+l
500	6.58e + l
1000	1.03e+2
4000	2.72e+2

Na → Ag

Sputtering yield of Ag by Na
zl = ll, ml = 22.99. z2 = 47, m2 = 107.87, sbe = 2.97 eV. rho = 10.47 g/cm**3
ef= eV, esb = eV. ca=1.00, kk0 = kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: TPP 9/82
only low fluence!
ne= 1, na= 7

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°
30000	2.34e-0	2.74e-0	3.33e-0	4.11e-0	5.22e-0	7.08e-0	9.42e-0

Sputtered energy of Ag by Na
program:
only low fluence!
ne= 1, na= 7

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°
30000	4.15e-3	4.92e-3	6.85e-3	9.60e-3	1.41e-2	2.14e-2	3.24e-2

Particle reflection coefficient of Na backscattered from Ag
zl = ll, ml= 22.99, z2=47, m2 = 107.87, sbe=2.97 eV, rho = 10.47 g/cm**3
ef= eV, esb= eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program:
only low fluence!
ne= 1, na= 7

B_0 (eV)	0°	15°	30°	40°	50°	60°	70°
30000	1.21e-l	1.35e-l	1.64e-l	2.05e-l	2.57e-l	3.40e-I	4.41e-l

Energy reflection coefficient of Na backscattered from Ag
ne= 1, na= 7

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°
30000	3.25e-2	3.69e-2	4.91e-2	6.97e-2	9.70e-2	1.49e-l	2.26e-l

Average depth (mean range) in Ä of Na implanted in Ag
ne= 1, na= 7

B_0 (eV)	0°	15°	30°	40°	50°	60°	70°
30000	2.80e+2	2.72e+2	2.56e+2	2.40e+2	2.28e+2	2.10e+2	1.93e+2

Ar –> Ag

Sputtering yield of Ag by Ar
zl = 18, ml = 39.95. z2=47, m2 = 107.87, sbe = 2.97 eV, rho = 10.47 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kkO=kkOr=l, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, trspvlcs
ne = 7, na= 1

E_0 (eV)	0°
50	1.27e-l
100	4.37e-l
300	1.28e-0
500	1.83e-0
1000	2.64e-0
2500	4.03e-0
4000	4.22e-0

Sputtered energy of Ag by Ar
ne= 7, na= 1

E_0 (eV)	0°
50	9.64e-3
100	2.39e-2
300	3.68e-2
500	3.82e-2
1000	3.49e-2
2500	3.19e-2
4000	2.38e-2

Particle reflection coefficient of Ar backscattered from Ag
zl = 18, ml= 39.95, z2=47, m2 = 107.87, sbe=2.97 eV, rho = 10.47 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kkO=kkOr=l, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trspvmcx, trspvlcs
ne= 7, na= 1

Bo(eV)	0°
50	4.19e-l
100	3.48e-l
300	2.61e-l
500	2.35e-l
1000	2.00e-l
2500	1.83e-l
4000	1.44e-l

Energy reflection coefficient of Ar backscattered from Ag
ne= 7, na= 1

E_0 (eV)	0°
50	8.62e-2
100	7.08e-2
300	5.07e-2
500	4.41e-2
1000	3.68e-2
2500	3.53e-2
4000	2.48e-2

Average depth (mean range) in Å of Ar implanted in Ag
ne= 7, na= 1

Bo(eV)	0°
50	4.46e+0
100	6.23e+0
300	1.07e+ l
500	1.38ed-l
1000	2.00e+ l
2500	3.42e+l
4000	4.41e+l

K → Ag

Sputtering yield of Ag by K
zl = 19. ml= 39.10. z2=47. m2 = 107.87. sbe=2.97 eV. rho = 10.47 g/cm**3
ef= eV. esb= eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2 = 3. ipot=ipotr=l (KrC)
program: TPP 9/82
only low fluence!
ne= 1, na= 8

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	4.76e-0	4.99e-0	6.52e-0	8.05e-0	1.03e+1	1.34e + 1	1.68e+1	1.79e + 1

Sputtered energy of Ag by K
program:
only low fluence!
ne= 1, na= 8

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	8.42e-3	9.33e-3	1.55e-2	2.27e-2	3.44e-2	5.00e-2	7.27e-2	9.49e-2

Particle reflection coefficient of K backscattered from Ag
zl = 19, ml= 39.10, z2=47, m2=107.87. sbe=2.97 eV. rho = 10.47 g/cm**3
ef= eV. esb= eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr= 1 (KrC)
program:
only low fluence!
ne= 1, na= 8

Ro(eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	8.21e-2	8.83e-2	1.20e-l	1.52e-l	2.12e-l	2.90e-l	3.95e-l	5.66e-l

Energy reflection coefficient of K backscattered from Ag
ne= 1, na= 7

B_0 (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	1.43e-2	1.63e-2	2.74e-2	3.83e-2	6.59e-2	1.06e-l	1.80e-l	3.41e-l

Average depth (mean range) in Ä of K implanted in Ag
ne= 1, na= 8

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	1.72e+2	1.69e+2	1.58e+2	1.49e+2	1.35e + 2	1.25e + 2	1.13e + 2	1.05e+2

Xe –> Ag

Sputtering yield of Ag by Xe
zl=54, 1111= 131.30, z2=47, m2 = 107.87, sbe=2.97 eV. rho = 10.47 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00, kk0=kk0r=l, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, trspvlcs
ne= 6, na= 1

Eq(eV)	0°
50	2.75e-2
100	2.06e-l
300	1.05e-0
500	1.71e-0
1000	2.85e-0
4000	5.79e-0

Sputtered energy of Ag by Xe
ne= 6, na= 1

Bo(eV)	0°
50	1.15e-3
100	6.95e-3
300	2.11e-2
500	2.63e-2
1000	2.91e-2
4000	2.59e-2

Particle reflection coefficient of Xe backscattered from Ag
zl=54, ml = 131.30, z2=47, m2=107.87, sbe=2.97 eV, rho = 10.47 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kkO=kkOr=l. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, trspvlcs
ne= 6, na= 1

E_0(eV)	0°
50	4.29e-2
100	2.83e-2
300	1.97e-2
500	1.95e-2
1000	1.60e-2
4000	1.30e-2

Energy reflection coefficient of Xe backscattered from Ag
ne= 6, na= 1

E_0(eV)	0°
50	5.51e-4
100	5.07e-4
300	3.45e-4
500	3.88e-4
1000	2.89e-4
4000	2.37e-4

Average depth (mean range) in Ä of Xe implanted in Ag
ne= 6, na= 1

Eo(eV)	0°
50	3.63e+0
100	5.26e+0
300	8.99e4-0
500	1.14e+1
1000	1.57e+1
4000	3.08e+1

H -> In

Sputtering yield of Tn by TT
zl = 1. ml = 1.01. z2 = 49. m2 = 114.82, sbe=2.49 eV. rho = 7.31 g/cm**3
ef=0.95 eV, esb = 1.00 eV. ca=1.00. kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: TESTVMCX, TPP 9/82 '
ne= 1, na=10

Eo(eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°
2000	1.65e-2	1.79e-2	2.24e-2	2.94e-2	5.41e-2	7.68e-2	1.04e-l	1.33e-l	1.42e-l	9.06e-2

Sputtered energy of Tn by H
program: testvmcx
ne= 1, na=10

E_0 (eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°
2000	5.16e-5	5.90e-5	6.64e-5	9.36e-5	1.82e-4	2.67e-4	3.59e-4	5.18e-4	6.52e-4	4.71e-4

Particle reflection coefficient of H backscattered from Tn
zl= 1, ml= 1.01. z2=49. m2 = 114.82. sbe=2.49 eV. rho=7.31 g/cm**3
ef=0.95 eV, esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: testvmcx
ne= 1, na=10

Eo(eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°
2000	3.60e-l	3.71e-l	4.07e-l	4.69e-l	5.55e-l	6.28e-l	6.74e-l	7.35e-l	8.28e-l	9.16e-l

Energy reflection coefficient of H backscattered from Tn
ne= 1. na=10

E_0 (eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°
2000	1.74e-l	1.83e-l	2.08e-l	2.56e-l	3.33e-l	4.15e-l	4.74e-l	5.58e-l	6.99e-l	8.42e-l

Average depth (mean range) in Ä of H implanted in In
ne= 1. na=10

E_0 (eV)	0°	15°	30°	45°	60°	70°	75°	80°	85°	87°
2000	4.02e + 2	3.97e + 2	3.89e + 2	3.75e+2	3.67e + 2	3.56e4-2	3.47e + 2	3.49e + 2	3.47e+2	3.49e+2

D —> In

Sputtering yield of Tn by D
zl = 1, ml= 2.01. z2=49, m2 = 114.82, sbe=2.52 eV. rho=7.31 g/cm**3
ef=0.90 eV. esb = 1.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), TPP 9/82
ne= 7, na= 2

E_0 (eV)	0°	65°
100	6.98e-3	7.79e-3
200	2.10e-2	3.60e-2
500	3.71e-2	9.42e-2
1000	4.29e-2	1.27e-l
2000	4.20e-2	1.38e-l
5000	3.67e-2	1.36e-l
10000	2.81e-2	1.10e-l

Sputtered energy of Tn by D
program: newtrim (Laszlo)
ne= 7. na= 2

E_0 (eV)	0°	65°
100	9.77e-5	1.17e-4
200	2.89e-4	5.01e-4
500	3.89e-4	9.72e-4
1000	2.93e-4	9.44e-4
2000	1.93e-4	7.11e-4
5000	8.29e-5	3.64e-4
10000	3.45e-5	1.92e-4

Particle reflection coefficient of D backscattered from Tn
zl= 1; ml= 2.01, z2=49, m2 = 114.82, sbe=2.52 eV. rho=7.31 g/cm**3
ef=0.90 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo)
ne= 7, na= 2

E_0 (eV)	0°	65 ^{6}
100	5.90e-l	7.68e-l
200	5.57e-l	7.40e-l
500	5.01e-l	6.96e-l
1000	4.53e-l	6.55e-l
2000	3.89e-l	6.09e-l
5000	2.89e-l	5.31e-l
10000	2.05e-l	4.67e-l

Energy reflection coefficient of D backscattered from Tn
ne= 7, na= 2

E_0 (eV)	0°	65°
100	3.69e-l	5.91e-l
200	3.38e-l	5.52e-l
500	2.89e-l	4.98e-l
1000	2.49e-l	4.53e-l
2000	2.01e-l	4.04e-l
5000	1.33e-l	3.24e-l
10000	8.25e-2	2.61e-l

Average depth (mean range) in Ä of D implanted in Tn
ne= 7, na= 2

E_0 (eV)	0 ^{0}	65°
100	6.90e + l	6.56e-}-l
200	1.02e-|-2	9.65e+l
500	1.76e+2	1.65e+2
1000	2.78e-f-2	2.57e+2
2000	4.51e + 2	4.06e+2
5000	8.92e+2	7.64e+2
10000	1.55e+3	1.27e+3

D → In

D on Tn, Maxwellian velocity distribution, sheath potential 0 kT
zl = 1, ml= 2.01, z2= 49, m2 = 114.82, sbe=2.52 eV, rho= 7.31 g/cm**3
ef=0.90 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: testvmcx, newtrim (Laszlo)
ne=8

kT(eV)	Y	Y_E	E_{sp}	R_{Ar}	R_E	E_b	range
20	9.93e-4	3.60e-5	1.45e-f-0	7.41e-l	5.34e-l	2.88e+l	4.05e + l
50	9.15e-3	2.37e-4	2.59e + 0	7.04e-l	4.85e-l	6.90e+l	6.68e+l
100	2.44e-2	4.52e-4	3.70e+0	6.77e-l	4.48e-l	1.32e+2	1.00e + 2
200	4.62e-2	6.19e-4	5.37e+0	6.37e-l	4.04e-l	2.55e+2	1.51e+2
500	7.50e-2	5.35e-4	7.11e-f-0	5.82e-l	3.48e-l	5.96e4-2	2.69e+2
1000	8.71e-2	4.04e-4	9.21e + 0	5.31e-l	3.00e-l	1.12e + 3	4.34e+2
2000	9.03e-2	2.69e-4	1.19e + l	4.74e-l	2.44e-l	2.06e + 3	7.22e + 2
5000	8.23e-2	1.25e-4	1.52e + l	3.83e-l	1.70e-l	4.45e+3	1.43e+3

D on In, Maxwellian velocity distribution, sheath potential 3 kT
ne=9

kT(eV)	Y	Ye	E_{sp}	Bjv	Re	Eb	range
10	6.86e-4	1.25e-5	9.14e-l	6.48e-l	4.32e-l	3.34e+l	4.65e + l
20	7.38e-3	1.25e-4	1.70e+0	6.18e-l	4.00e-l	6.46e + l	6.78e+l
50	2.63e-2	3.59e-4	3.42e-f-0	5.76e-l	3.57e-l	1.55e+2	1.14e-t-2
100	3.91e-2	4.02e-4	5.15e-}-0	5.35e-l	3.20e-l	2.99e + 2	1.75e + 2
200	5.15e-2	3.65e-4	7.06e-j-0	4.88e-l	2.79e-l	5.69e + 2	2.75e + 2
500	5.31e-2	2.Ole-4	9.44e-|-0	4.04e-l	2.11e-l	1.31e+3	5.17e + 2
1000	4.91e-2	1.13e-4	1.15e+l	3.28e-l	1.55e-l	2.36e + 3	8.63e4-2
2000	3.48e-2	5.12e-5	1.48e+l	2.45e-l	1.03e-l	4.20e+3	1.47e+3
5000	2.40e-2	1.44e-5	1.50e-f-l	1.33e-l	4.39e-2	8.24e + 3	3.09e + 3

T -> In

Sputtering yield of In by T
zl = 1, ml = 3.01, z2=49, m2 = 114.82, sbe=2.52 eV, rho=7.31 g/cm**3
ef=0.90 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), TPP 9/82
ne= 8, na= 2

E_0 (eV)	0°	65°
50	3.48e-3	
100	1.74e-2	2.38e-2
200	3.91e-2	7.84e-2
500	6.03e-2	1.63e-l
1000	6.99e-2	2.06e-l
2000	7.12e-2	2.27e-l
5000	6.33e-2	2.12e-l
10000	4.95e-2	

Sputtered energy of In by T
program: newtrim (Laszlo)
ne= 8, na= 2

Eq(eV)	0°	65°
50	6.17e-5	
100	3.70e-4	5.30e-4
200	7.14e-4	1.51e-3
500	7.48e-4	2.05e-3
1000	5.94e-4	1.83e-3
2000	3.80e-4	1.33e-3
5000	1.76e-4	6.87e-4
10000	7.57e-5	

Particle reflection coefficient of T backscattered from In
zl= 1, ml= 3.01, z2=49, m2 = 114.82, sbe=2.52 eV, rho=7.31 g/cm**3
ef=0.90 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo)
ne= 8, na= 2

Eq(eV)	0°	65°
50	6.02e-l	
100	5.72e-l	7.61e-l
200	5.45e-l	7.29e-l
500	4.97e-l	6.88e-l
1000	4.49e-l	6.52e-l
2000	3.92e-l	6.08e-l
5000	2.99e-l	5.39e-l
10000	2.18e-l	

Energy reflection coefficient of T backscattered from In
ne= 8, na= 2

E_0 (eV)	0°	65°
50	3.80e-l	
100	3.52e-l	5.80e-l
200	3.26e-l	5.40e-l
500	2.86e-l	4.94e-l
1000	2.49e-l	4.55e-l
2000	2.06e-l	4.09e-l
5000	1.41e-l	3.40e-l
10000	9.21e-2	

Average depth (mean range) in Ä of T implanted in In
ne= 8, na= 2

E_0 (eV)	0°	65°
50	4.51e4-l	
100	6.62e+l	6.30e4-l
200	9.93e+l	9.39e+l
500	1.76e4-2	1.64e+2
1000	2.81e+2	2.59e+2
2000	4.60e+2	4.23e+2
5000	9.38e+2	8.18e+2
10000	1.67e+3	

T -> In

T on In, Maxwellian velocity distribution, sheath potential 0 kT
zl = 1. ml= 3.01. z2 = 49, m2 = 114.82, sbe=2.52 eV. rho = 7.31 g/cm**3
ef=0.90 eV. esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: newtrim (Laszlo)
ne=8

kT(eV)	Y	Y_E	Esp	$R_{A}r$	R_b	Eb	range
20	3.70e-3	1.73e-4	1.87e + 0	7.27e-l	5.18e-l	2.85e + l	3.84e+l
50	2.18e-2	7.17e-4	3.30e + 0	6.92e-l	4.73e-l	6.85e+l	6.42e + l
100	4.98e-2	1.09e-3	4.39e4-0	6.65e-l	4.38e-l	1.32e4-2	9.73e + l
200	8.17e-2	1.26e-3	6.19e4-0	6.32e-l	4.04e-l	2.57e + 2	1.48e+2
500	1.24e-l	1.05e-3	8.49e-f-0	5.81e-l	3.56e-l	6.13e+2	2.71e4-2
1000	1.42e-l	7.89e-4	l.lle+1	5.33e-l	3.05e-l	1.14e+3	4.52e+2
2000	1.48e-l	5.22e-4	1.40e+l	4.78e-l	2.59e-l	2.14e+3	7.55e+2
5000	1.21e-l	2.20e-4	1.81e + l	3.95e-l	1.79e-l	4.53e + 3	1.57e+3

T on In, Maxwellian velocity distribution, sheath potential 3 kT
ne=8

kT(eV)	Y	Y_E	$E_{s}p$	R?7	Rfi?	B_b	range
20	1.97e-2	4.62e-4	2.35e + 0	6.03e-l	3.86e-l	6.40e + l	6.52e + l
50	5.10e-2	8.68e-4	4.26e + 0	5.67e-l	3.49e-l	1.54e+2	l.lle+2
100	7.03e-2	8.96e-4	6.37e + 0	5.30e-l	3.16e-l	2.98e+2	1.73e+2
200	8.40e-2	6.75e-4	8.04e + 0	4.84e-l	2.81e-l	5.81e+2	2.74e+2
500	8.35e-2	3.70e-4	l.lle + 1	4.10e-l	2.19e-l	1.33e+3	5.33e+2
1000	7.61e-2	2.06e-4	1.35e + l	3.42e-l	1.68e-l	2.15e+3	9.13e4-2
2000	5.98e-2	1.07e-4	1.78e+l	2.58e-l	1.14e-l	4.40e+3	1.59e+3
5000	3.51e-2	3.09e-5	2.20e + l	1.46e-l	5.13e-2	8.79e + 3	3.41e + 3

T on In, Maxwellian velocity distribution, sheath potential 9 kT
ne=6

kT(eV)	Y	Ye	Esp	R_N	R_E	E&	range
10	2.13e-2	4.69e-4	2.42e + 0	■5.84e-l	3.64e-l	6.84e + l	6.93e + l
20	4.30e-2	7.90e-4	4.04e + 0	5.50e-l	3.34e-l	1.33e+2	1.04e + 2
50	6.74e-2	7.99e-4	6.51e + 0	5.05e-l	2.93e-l	3.19e4-2	1.85e+2
100	7.55e-2	5.85e-4	8.51e4-0	4.55e-l	2.59e-l	6.26e + 2	2.97e + 2
200	7.60e-2	3.75e-4	1.09e + l	3.95e-l	2.10e-l	1.17e4-3	4.89e + 2
500	7.10e-2	1.92e-4	1.48e+l	3.19e-l	1.53e-l	2.63e4-3	9.99e + 2

In → In

Sputtering yield of Tn by Tn
zl=49. ml = 114.82, z2=49, m2 = 114.82, sbe=2.52 eV, rho=7.31 g/cm**3
ef=2.02 eV, esb=2.52 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo), TPP 9/82
ne= 9, na= 8

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	1.31e-3				7.76e-2			
50	6.65e-2				4.49e-l			
100	2.97e-l	6.00e-l	8.66e-l	9.76e-l	9.64e-l		7.96e-l	4.29e-l
200	7.49e-l	1.22e-0	1.63e-0	1.79e-0	1.79e-0	1.70e-0	1.50e-0	7.54e-l
500	1.76e-0				3.57e-0			
1000	2.76e-0	3.78e-0	4.85e-0	5.48e-0	5.63e-0	5.61e-0	5.29e-0	3.04e-0
2000	4.00e-0				8.44e-0			
5000	5.89e-0				1.34e+l			
10000	7.18e-0				1.78e+l			

Sputtering yield of Tn by Tn
program: newtrim (Laszlo)
ne= 9, na= 8

B_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	7.21e-5				1.55e-2			
50	2.87e-3				7.44e-2			
100	9.76e-3	3.68e-2	7.77e-2	1.09e-l	1.20e-l		1.19e-l	6.89e-2
200	1.79e-2	5.07e-2	9.82e-2	1.36e-l	1.52e-l	1.61e-l	1.57e-l	8.70e-2
500	2.58e-2				1.73e-l			
1000	2.76e-2	5.99e-2	1.07e-l	1.51e-l	1.75e-l	1.96e-l	2.08e-l	1.49e-l
2000	2.75e-2				1.69e-l			
5000	2.43e-2				1.57e-l			
10000	2.06e-2				1.41e-l			

Particle reflection coefficient of Tn backscattered from In
zl=49, ml = 114.82, z2=49, m2 = 114.82, sbe = 2.52 eV, rho=7.31 g/cm**3
ef=2.02 eV, esb=2.52 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr= 1 (KrC)
program: newtrim (Laszlo)
ne= 9, na= 8

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	5.76e-5				1.24e-l			
50	3.90e-3				3.69e-l			
100	1.32e-2	7.25e-2	1.86e-l	3.25e-l	4.21e-l		6.47e-l	8.79e-l
200	2.11e-2	8.03e-2	1.86e-2	3.09e-l	3.94e-l	4.96e-l	6.18e-l	8.88e-l
500	3.02e-2				3.39e-l			
1000	2.98e-2	7.39e-2	1.43e-l	2.39e-l	2.92e-l	3.83e-l	4.84e-l	7.99e-l
2000	2.75e-2				2.65e-l			
5000	2.57e-2				2.31e-l			
10000	1.87e-2				2.01e-l			

Energy reflection coefficient of In backscattered from In
ne= 9, na= 8

E_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	4.85e-6				3.55e-2			
50	2.12e-4				1.22e-l			
100	6.56e-4	8.85e-3	3.81e-2	9.35e-2	1.43e-l		3.02e-l	5.48e-l
200	9.20e-4	8.54e-3	3.53e-2	8.40e-2	1.28e-l	1.96e-l	2.91e-l	5.92e-l
500	l.lle-3				9.98e-2			
1000	1.13e-3	6.08e-3	2.05e-2	5.26e-2	8.01e-2	1.27e-l	1.99e-l	5.23e-l
2000	9.73e-4				6.74e-2			
5000	6.69e-4				5.16e-2			
10000	5.60e-4				4.94e-2			

Average depth (mean range) in Å of Tn implanted in In
ne= 9, na= 8

B_0 (eV)	0°	30°	45°	55°	60°	65°	70°	80°
20	3.58e+0				1.44e-|-0			
50	5.83e+0				3.27e-}-0			
100	8.19e-}-0	7.28e+0	6.37e+0	5.69e+0	5.31e+0		4.46e+0	3.24e+0
200	1.14e4-l	1.02e+l	9.04e+0	8.22e+0	7.72e4-0	7.22e+0	6.68e-J-0	5.21e-|-0
500	1.73e+l				1.19e+l			
1000	2.39e-f-l	2.16e+l	1.89e-H	1.70e+l	1.63e+l	1.51e+l	1.45e+l	1.24e+l
2000	3.29e+l				2.27e+l			
5000	5.19e+l				3.51e+l			
10000	7.67e+l				5.11e+l			

In –> In

In on In. Maxwellian velocity distribution, sheath potential 0 kT
zl=49, ml = 114.82, z2=49, m2 = 114.82. sbe=2.52 eV, rho= 7.31 g/cm**3
ef=2.02 eV. esb=2.52 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: testvmcx, newtrim (Laszlo)
ne= 12

kT(eV)	Y	Ye	Esp	R_N	Re	E_b	range
2	5.91e-4	3.45e-4	2.34e+0	9.82e-4	9.47e-4	3.86e+0	5.14e-l
3	2.68e-3	1.38e-3	3.08e+0	5.09e-3	4.26e-3	5.01e+0	7.73e-l
5	1.34e-2	5.75e-3	4.28e+0	2.13e-2	1.56e-2	7.30e+0	1.28e+0
10	6.98e-2	2.05e-2	5.87e+0	7.75e-2	4.67e-2	1.21e4-l	2.06e-f-0
20	2.26e-l	4.44e-2	7.87e+0	1.58e-l	8.11e-2	2.05e4-l	3.31e4-0
50	6.75e-l	7.61e-2	1.13e+l	2.35e-l	1.02e-l	4.35e+l	5.87e-)-0
100	1.28e-0	9.52e-2	1.49e+1	2.52e-l	1.01e-l	7.98e+l	8.59e+0
200	2.22e-0	1.04e-l	1.89e+l	2.52e-l	9.11e-2	1.45e+2	1.22e+l
500	4.04e-0	1.10e-l	2.75e+1	2.29e-l	8.04e-2	3.55e-|-2	1.86e-f-l
1000	6.07e-0	1.06e-l	3.50e+1	2.19e-l	6.88e-2	6.35e+2	2.59e+1
2000	8.48e-0	1.02e-l	4.68e+l	1.89e-l	5.89e-2	1.21e+3	3.44e+1
5000	1.25e+1	9.19e-2	7.39e-J-l	1.59e-l	4.31e-2	2.73e+3	5.86e+l

In on In, Maxwellian velocity distribution, sheath potential 3 kT
ne=12

kT(eV)	Y	Ye	Esp	R;v	Re	E_b	range
- 1.4	4.41e-4	1.02e-4	1.62e-|-0	2.15e-4	8.75e-5	2.85e-}-0	1.39e+0
2	2.02e-3	4.47e-4	2.21e+0	1.16e-3	4.23e-4	3.64e+0	1.84e+0
3	9.22e-3	1.85e-3	3.01e+0	5.11e-3	1.58e-3	4.64e4-0	2.45e-|-0
5	4.25e-2	6.48e-3	3.81e+0	1.64e-2	4.27e-3	6.50e+0	3.48e+0
10	1.91e-l	1.93e-2	5.05e+0	3.96e-2	8.25e-3	1.04e+1	5.19e+0
20	5.23e-l	3.43e-2	6.56e+0	5.71e-2	9.38e-3	1.64e+l	7.44e+0
50	1.33e-0	4.87e-2	9.20e-}-0	6.66e-2	8.18e-3	3.08e+l	1.15e+l
100	2.24e-0	5.3'6e-2	1.19e4-l	6.63e-2	7.16e-3	5.39e-|-l	1.58e+1
200	3.42e-0	5.32e-2	1.55e+1	6.41e-2	5.97e-3	9.30e+l	2.18e+l
500	5.58e-0	5.04e-2	2.26e+1	5.12e-2	4.54e-3	2.22e+2	3.41e+1
1000	7.62e-0	4.55e-2	3.02e+1	4.89e-2	4.96e-3	5.14e-)-2	4.80e+1
2000	9.22e-0	3.76e-2	4.05e+1	4.07e-2	3.23e-3	7.88e+2	6.81e-}-l

In on In, Maxwellian velocity distribution, sheath potential 9 kT
ne= 12

kT(eV)	Y	Y E	E sp	Rtv	Re	E_b	range
1.1	8.29e-4	9.79e-5	1.43e+0	2.Ole-4	4.00e-5	2.41e4-0	2.34e+0
1.4	2.44e-3	2.94e-4	1.85e+0	7.26e-4	1.39e-4	2.94e+0	2.75e+0
2	1.12e-2	1.20e-3	2.36e-|-0	2.63e-3	4.15e-4	3.48e+0	3.53e+0
5	1.49e-l	9.77e-3	3.61e+0	1.77e-2	2.06e-3	6.40e+0	5.82e-{-0
10	4.60e-l	2.07e-2	4.94e+0	3.21e-2	2.90e-3	9.96e+0	8.24e+0
20	9.99e-l	3.00e-2	6.59e-}-0	4.05e-2	3.13e-3	1.70e-|-l	1.13e-|-l
50	2.11e-0	3.64e-2	9.48e+0	4.53e-2	2.88e-3	3.49e-f-l	1.74e+l
100	3.28e-0	3.88e-2	1.30e4-l	4.09e-2	2.32e-3	6.25e4-l	2.39e+1
200	4.73e-0	3.73e-2	1.74e+l	4.09e-2	2.44e-3	1.32e+2	3.32e+1
500	6.92e-0	3.28e-2	2.60e+l	3.69e-2	1.55e-3	2.31e+2	5.20e-)-l
1000	8.48e-0	2.50e-2	3.23e+1	2.39e-2	1.54e-3	7.08e+2	7.80e+1
2000	1.01e+1	2.07e-2	4.47e+1	4.38e-2	2.24e-3	1.12e-J-3	1.17e+2

Cs -4 Cs

Sputtering yield of Cs by Cs
zl=55, ml = 132.91, z2=55, m2=132.91, sbe = 0.82 eV, rho = 1.899 g/cm**3
ef=0.77 eV, esb=0.82 eV, iwc=2, inel=3. ipot=l (KrC)
program: tridyn (idrel=l)
ne = 9, na= 6

E_0 (eV)	0°	10°	20°	30°	40°	50°
100	7.68e-l					
500	3.05e-0					
1000	4.74e-0					
2000	6.94e-0					
4000	2.14e+l	2.19e+l	2.30e+l	2.48e + l	2.67e + l	2.81e+l
8000	2.82e + l					
20000	1.62e+l					
40000	1.91e + l					
80000	1.99e+l					

Sputtered energy of Cs by Cs
ne= 9, na= 6

Bo(eV)	0°	10°	20 u	30°	40°	50 u
100	1.69e-2					
500	2.93e-2					
1000	3.10e-2					
2000	3.07e-2					
4000	4.69e-2	5.00e-2	6.13e-2	8.21e-2	1.14e-l	1.56e-l
8000	3.70e-2					
20000	1.88e-2					
40000	1.68e-2					
80000	1.13e-2					

Particle reflection coefficient of Cs backscattered from Cs
zl=55, ml = 132.91, z2=55, m2 = 132.91, sbe=0.82 eV, rho = 1.899 g/cm**3
ef=0.77 eV, esb=0.82 eV, iwc=2, inel=3, ipot=l (KrC)
program: tridyn (idrel = l)
ne— 9, na= 6

B_0 (eV)	0°	10°	20°	30°	40°	50°
100	2.17e-2					
500	3.24e-2					
1000	3.25e-2					
2000	3.10e-2					
4000	2.99e-2	3.39e-2	4.52e-2	7.21e-2	1.14e-l	1.85e-l
8000	2.56e-2					
20000	1.83e-2					
40000	1.60e-2					
80000	1.40e-2					

Energy reflection coefficient of Cs backscattered from Cs
ne= 9, na= 6

B_0 (eV)	0°	10°	20°	30°	40°	50 u
100	9.25e-4					
500	1.15e-3					
1000	1.13e-3					
2000	1.05e-3					
4000	9.28e-4	1.18e-3	2.44e-3	5.58e-3	1.36e-2	3.25e-2
8000	7.95e-4					
20000	6.67e-4					
40000	6.06e-4					
80000	4.60e-4					

Average depth (mean range) in Ä of Cs implanted in Cs
ne= 9, na= 6

B_0 (eV)	0°	10°	20°	30°	40°	50°
100	4.51e+l					
500	8.30e + l					
1000	1.10e + 2					
2000	1.47e+2					
4000	1.88e+2	1.86e+2	1.79e4-2	1.69e+2	1.56e+2	1.42e+2
8000	2.72e+2					
20000	4.83e+2					
40000	7.15e+2					
80000	1.13e+3					

Cs -> Cs

Sputtering yield of Cs by Cs
zl=55. ml = 132.91. z2=55. m2=132.91. sbe = 0.82 eV, rho = 1.899 g/cm**3
ef=0.77 eV. esb = 0.82 eV. iwc = 2. inel=3. ipot = 3 (ZBL)
program: tridyn (idrel= l)
ne= 5. na= 1

E_0 (eV)	0°
4000	8.25e + 0
5000	8.76e + 0
20000	1.37e + 1
40000	1.52e+l
80000	1.61e + 1

Sputtered energy of Cs by Cs
ne= 5. na= 1

E_0 (eV)	0°
4000	2.46e-2
5000	2.30e-2
20000	1.79e-2
40000	1.37e-2
80000	1.00e-3

Kr —>Sm

Sputtering yield of Sm by Kr
zl = 36, ml = 83.80. z2 = 62. m2 = 150.35. sbe=2.16 eV. rho = 7.54 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2=3 , ipot=ipotr=l (KrC)
program : IPP 9/82
ne=16. na= 1

Ro(eV)	0°	comment
50	1.62e-l	
100	4.82e-l	
200	1.01e-0	
200	9.97e-l	
200	1.01e-0	
200	1.35e-0	kdeel = kdee2=2 (OR)
200	7.73e-l	kdeel = kdee2 = l (LS)
500	1.98e-0	
1000	2.80e-0	
2000	4.15e-0	
5000	5.47e-0	
10000	7.08e-0	
20000	7.99e-0	
50000	8.65e-0	
100000	8.55e-0	
200000	7.92e-0	

Sputtered energy of Sm by Kr
program :
ne=16, na= 1

R_0 (eV)	0°	comment
50	9.24e-3	
100	1.98e-2	
200	2.85e-2	
200	2.81e-2	
200	2.85e-2	
200	3.85e-2	kdeel=kdee2=2 (OR)
200	2.19e-2	kdeel = kdee2 = l (LS)
500	3.13e-2	
1000	3.42e-2	
2000	3.18e-2	
5000	2.67e-2	
10000	2.23e-2	
20000	1.70e-2	
50000	1.16e-2	
100000	7.82e-3	
200000	4.97e-3	

Kr –>Sm

Particle reflection coefficient of Kr backscattered from Sm
zl=36, ml = 83.80. z2 = 62. m2=150.35. sbe=2.16 eV. rho=7.54 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2 = 3. ipot=ipotr = l (KrC)
program : TPP 9/82
ne=16., na= 1

E_0 (eV)	0°	comment
50	2.38e-l	
100	2.01e-l	
200	1.81e-l	
200	1.74e-l	
200	1.74e-l	
200	1.97e-l	kdeel = kdee2 = 2 (OR)
200	1.62e-l	kdeel = kdee2 = l (LS)
500	1.46e-l	
1000	1.28e-l	
2000	1.19e-l	
5000	9.66e-2	
10000	8.41e-2	
20000	7.55e-2	
50000	5.72e-2	
100000	4.02e-2	
200000	3.09e-2	

Energy reflection coefficient of Kr backscattered from
ne=16, na= 1

E_0 (eV)	0°	comment
50	2.53e-2	
100	2.13e-2	
200	1.92e-2	
200	1.80e-2	
200	1.76e-2	
200	2.14e-2	kdeel =kdee2=2 (OR)
200	1.64e-2	kdeel = kdee2 = l (LS)
500	1.46e-2	
10-00	1.29e-2	
2000	1.16e-2	
5000	9.70e-3	
10000	8.62e-3	
20000	7.86e-3	
50000	6.06e-3	
100000	4.64e-3	
200000	3.30e-3	

Average depth (mean range) in Å of Kr implanted in
ne=15., na= 1

Eo(eV)	0°	comment
50	1.07e-f-l	
100	1.33e + l	
200	1.68e + l	
200	1.70e + l	
200	1.68e4-l	
200	1.76e + l	kdeel = kdee2 = 2 (OR)
200	1.63e+l	kdeel = kdee2 = l (LS)
500	2.39e-}-l	
1000	2.83e + l	
2000	4.36e + l	
5000	6.55e + l	
10000	1.00e + 2	
20000	1.53e + 2	
50000	2.81e+2	
100000	4.70e + 2	

H → Ta

Sputtering yield of Ta by H
zl = 1, ml = 1.01, z2=73, m2=180.95, sbe=8.10 eV, rho=16.60 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2. kdeel = 4, kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx, TPP 9/82
ne= 1, na= 8

E_0 (eV)	0°	30°	50°	70°	80°	85°	87°	88°
25000	1.95e-3	3.63e-3	7.48e-3	1.93e-2	3.68e-2	6.69e-2	8.30e-2	7.81e-l

Sputtered energy of Ta by H
program: testvmcx
ne= 1, na= 4

Eo(eV)	80°	85°	87°	88°
25000	4.55e-5	9.12e-5	1.30e-4	1.23e-4

Particle reflection coefficient of Pl backscattered from Ta
zl= 1, ml= 1.01, z2=73, m2 = 180.95, sbe=8.10 eV, rho=16,60 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel=4, kdee2 =3, ipqt=ipotr=l (KrC)
program: testvmcx
ne= 1, na= 4

Eo(eV)	80°	85°	87°	88°
25000	5,70e-.l	6.86e-l	[illegible]	8v21e-l

Energy reflection coefficient of H backscattered from Ta
ne= 1, na= 4

E_0 (eV)	80°	85°	87°	88°
25000	3.35e-l	4.80e-l	5.86e-l	6.86e-l

Average depth (mean range) in Å of H implanted in Ta
ne= 1, na= 4

E_0 (eV)	80°	85°	87°	88°
25000	8.61e+2	8.53e+2	8.50e+2	8.45e+2

$H \rightarrow W$

Sputtering yield of W by H
zl = 1, ml= 1.01. z2 = 74. m2=183.65, esb = 8.68 eV. rho=19.29 g/cm**3
ef=0.95 eV. esb = 1.00 eV. ca=1.00, kk0=kk0r=2; kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx. trvmc
ne=ll. na=12

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	70°	75°	80°	85°	87°
500	1.18e-5	1.43e-5	1.23e-5	1.65e-5	1.88e-5		2.03e-5		1.17e-5	6.44e-6	8.94e-7	
550	4.25e-5	4.28e-5	5.43e-5	5.53e-5	6.10e-5		5.80e-5		4.15e-5	2.39e-5	3.99e-6	
600	8.88e-5	9.04e-5	9.68e-5	1.21e-4	1.34e-4		1.31e-4		9.76e-5	5.70e-5	1.20e-5	
700	2.42e-4	2.55e-4	2.85e-4	3.04e-4	3.43e-4		3.39e-4		2.82e-4	1.87e-4	3.85e-5	
800	4.18e-4	4.62e-4	5.22e-4	5.70e-4	6.28e-4		6.86e-4		5.85e-4	3.86e-4	1.02e-4	
900	6.72e-4	6.70e-4	7.36e-4	8.36e-4	9.57e-4		1.02e-3		9.32e-4	6.94e-4	2.12e-4	
1000	8.64e-4	9.04e-4	9.91e-4	1.09e-3	1.24e-3		1.49e-3		1.44e-3	1.14e-3	3.91e-4	
2000	2.42e-3	2.41e-3	2.82e-3	3.70e-3		4.90e-3		7.16e-3	9.77e-3	1.23e-2	1.18e-2	4.48e-3
5000	3.32e-3											
10000	3.15e-3											
20000	2.50e-3											

Sputtered energy of W by H
ne=ll. na=12

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	70°	75°	80°	85°	87°
500	1.85e-8	2.14e-8	2.08e-8	2.63e-8	2.96e-8		3.46e-8		1.92e-8	9.19e-9	1.35e-9	
550	8.45e-8	9.95e-8	1.20e-7	1.26e-7	1.37e-7		1.38e-7		9.42e-8	5.16e-8	8.59e-9	
600	2.37e-7	2.42e-7	2.47e-7	3.26e-7	3.64e-7		3.70e-7		2.77e-7	1.53e-7	3.07e-8	
700	7.82e-7	8.33e-7	9.38e-7	1.03e-6	1.17e-6		1.21e-6		1.00e-6	6.37e-7	1.25e-7	
800	1.53e-6	1.67e-6	1.94e-6	2.28e-6	2.37e-6		2.67e-6		2.35e-6	1 51e-6	4.02e-7	
900	2.66e-6	2.67e-6	2.95e-6	3.46e-6	3.96e-6		4.32e-6		3.90e-6	2.95e-6	9.06e-7	
1000	3.55e-6	3.68e-6	4.08e-6	4.67e-6	5.37e-6		6.44e-6		6.22e-6	5.10e-6	1.66e-6	
2000	1.Ole-5	9.89e-6	1.17e-5	1.49e-5		2.12e-5		3.03e-5	4.31e-5	5.60e-5	6.16e-5	2.55e-5
5000	9.74e-6											
10000	5.94e-6											
20000	2.97e-6											

H -> W

Particle reflection coefficient of TJ backscattered from W
zl= 1. ml = 1.01. z2=74, m2=183.65, esb=8.68 eV. rho = 19.29 g/cm**3
ef=0.95 eV. esb = 1.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3 ; ipot=ipotr = l (KrC)
program: testvmcx. trvmc
ne=17. na=12

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	70°	75°	80°	85°	87°
10	7.58e-l	7.67e-l	7.93e-l	8.40e-l	8.80e-l		9.22e-l		9.59e-l	9.72e-l	9.80e-l	
20	7.17e-l	7.29e-l	7.52e-l	8.05e-l	8.51e-l		9.04e-l		9.57e-l	9.77e-l	9.88e-l	
50	6.68e-l	6.77e-l	7.05e-l	7.51e-l	7.97e-l		8.59e-l		9.37e-l	9.73e-l	9.93e-l	
100	6.32e-l	6.41e-l	6.67e-l	7.15e-l	7.56e-l		8.17e-l		9.06e-l	9.58e-l	9.93e-l	
200	5.94e-l	6.05e-l	6.29e-l	6.75e-l	7.19e-l		7.75e-l		8.61e-l	9.29e-l	9.90e-l	
300	5.71e-l	5.80e-l	6.09e-l	6.55e-l	6.97e-l		7.54e-l		8.35e-l	9.04e-l	9.85e-l	
500	5.39e-l	5.49e-l	5.77e-l	6.25e-l	6.68e-l		7.24e-l		8.03e-l	8.69e-l	9.72e-l	
550	5.32e-l	5.42e-l	5.71e-l	6.19e-l	6.62e-l		7.18e-l		7.97e-l	8.63e-l	9.69e-l	
600	5.27e-l	5.36e-l	5.64e-l	6.14e-l	6.57e-l		7.13e-l		7.92e-l	8.57e-l	9.65e-l	
700	5.15e-l	5.25e-l	5.55e-l	6.04e-l	6.48e-l		7.04e-l		7.82e-l	8.46e-l	9.58e-l	
800	5.05e-l	5.15e-l	5.45e-l	5.95e-l	6.40e-l		6.96e-l		7.74e-l	8.37e-l	9.51e-l	
900	4.95e-l	5.06e-l	5.36e-l	5.86e-l	6.32e-l		6.89e-l		7.66e-l	8.28e-l	9.45e-l	
1000	4.87e-l	4.97e-l	5.27e-l	5.78e-l	6.25e-l		6.83e-l		7.60e-l	8.21e-l	9.38e-l	
2000	4.25e-l	4.36e-l	4.68e-l	5.24e-l		6.04e-l		6.72e-l	7.18e-l	7.74e-l	8.86e-l	9.70e-l
5000	3.23e-l											
10000	2.40e-l											
20000	1.55e-l											

Energy reflection coefficient of H backscattered from W
ne=17. na=12

E_0 (eV)	0°	15°	30°	45°	55°	60°	65°	70°	75°	80°	85°	87°
10	5.64E-1	5.77E-1	6.15E-1	6.83E-1	7.45E-l		8.13 E-l		8.80E-1	9.05E-1	9.21E-1	
20	5.13E-1	5.27E-1	5.62E-1	6.34E-1	7.04E-1		' 7.90E-1		8.84E-1	9.23E-1	9.47E-1	
50	4.51E-1	4.63E-1	4.97E-1	5.59E-1	6.25E-l		7.21E-1		8.53E-1	9.20E-1	9.62E-1	
100	4.10E-1	4.19E-1	4.50E-1	5.09E-1	5.67E-1		6.56E-1		8.01E-1	8.95E-1	9.65E-1	
200	3.70E-1	3.81E-1	4.08E-1	4.62E-1	5.16E-1		5.96E-1		7.30E-1	8.45E-1	9.60E-1	
300	3.47E-1	3.55E-1	3.84E-1	4.37E-1	4.89E-1		5.64E-1		6.90E-1	8.05E-1	9.51E-1	
500	3.16E-1	3.25E-1	3.53E-1	4.04E-1	4.54E-1		5.25 E-l		6.42 E-1	7.50 E-l	9.29 E-1	
550	3.10E-1	3.19E-1	3.47E-1	3.98E-1	4.48E-1		5.19E-1		6.33E-1	7. 39 E-l	9.23E-1	
600	3.05E-1	3.14E-1	3. 41E-1	3.92E-1	4.42E-1		5.12E-1		6.25E-1	7.30E-1	9.17E-1	
700	2.95E-1	3.04E-1	3.32E-1	3.82E-1	4.32E-1		5.01E-1		6.12E-1	7.13E-1	9.05E-1	
800	2.86E-1	2.95E-1	3.23E-1	3.73E-1	4.23E-1		4.92E-1		6.01E-1	6.99E-1	8.93E-1	
900	2.78E-1	2.87E-1	3.14E-1	3.64E-1	4.14E-1		4.83E-1		5.91E-1	6.87E-1	8.82E-1	
1000	2.71E-1	2.80E-1	3.07E-1	3.57E-1	4.07E-1		4.76E-1		5.82E-1	6.76E-1	8.71E-1	
2000	2.21e-l	2.30e-l	2.56e-l	3.06e-l		3.87e-l		4.68e-l	5.27e-l	6.09e-l	7.88e-l	9.30e-l
5000	1.50e-l											
10000	9.88e-2											
20000	5.54e-2											

Average depth (mean range) in Ä of H implanted in W
ne=17. na=12

Eo(eV)	0°	15°	30°	45°	55°	60°	65°	70°	75°	80°	85°	87°
10	1.30E4-1	1.29E+1	1.29E+1	1.28E4-1	1.27E4-1		1.27E+1		1.25E+1	1.25E+1	1.25E+1	
20	1.82E+1	1.82E-J-1	1.82E+1	1.80E+1	1.79E+1		1.77E+1		1.76E+1	1.77E4-1	1.76E+1	
50	2.86E+1	2.86E+1	2.85E + 1	2.83E-I-1	2.80E+1		2.80E4-1		2.77E+1	2.76E4-1	2.75E + 1	
100	4.09E+1	4.06E-H	4.04E + 1	4.01E+1	3.97E-J-1		3.93E4-1		3.90E-H	3.90E+1	3.90E4-1	
200	5.85E+1	5.81E4-1	5.76E+1	5.70E+1	5.62E + 1		5.61E+1		5.57E4-1	5.52E+1	5.51E-J-1	
300	7.27E-f-1	7.27E+1	7.16E4-1	7.08E+1	7.01E4-1		6.94E4-1		6.85E+1	6.86E4-1	6.85E+1	
500	9.63E+1	9.59E+1	9.49E+1	9.33E+1	9.23E+1		9.12E + 1		9.04E+1	9.00E+1	9.OOE4-1	
550	1.02E4-2	1.01E+2	1.00E+2	9.84E+1	9.73E4-1		9.61E4-1		9.51E-H	9-.49E+1	9.49E + 1	
600	1.07E + 2	1.06E+2	1.05E+2	1.03E + 2	1.02E+2		1.01E + 2		9.98E+1	9.94E+1	9.93E4-1	
700	1.17E + 2	1.16E4-2	1.15E+2	1.13E4-2	l.llE-J-2		1.10E+2		1.09E-J-2	1.08E-J-2	1.08E+2	
800	1.26E+2	1.26E+2	1.24E4-2	1.22E + 2	1.20E+2		1.18E4-2		1.17E+2	1.17E+2	1.17E+2	
900	1.36E+2	1.35E+2	1.33E4-2	1.30E-J-2	1.29E4-2		1.27E+2		1.25E+2	1.25E-I-2	1.25E4-2	
1000	1.44E+2	1.44E+2	1.42E+2	1.39E4-2	1.37E-}-2		1.35E4-2		1.33E+2	1.33E+2	1.32E+2	
2000	2.22e+2	2.21e-f-2	2.17e+ 2	2.11e+2		2.05e+2		2.01e+2	2.00e+2	1.99e-f-2	1.98e+2	1.98e+2
5000	4.12e+2											
10000	6.81e+2											
20000	1.16e+3											

H -> W

H on W. Maxwellian velocity distribution, sheath potential 3 kT
zl = 1. ml= 1.01. z2=74. m2 = 183.85. sbe=8.68 eV. rho = 19.30 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kkO=kkOr=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx
ne=7

kT(eV)	Y	Y_E	E_{sp}	Bat	R_E	Rb	range
50	1.00e-6		9.63e-l	6.04e-l		1.59e+2	6.17e + l
70	1.15e-5		1.78e+0	5.84e-l		2.19e+2	7.46e4-l
100	7.50e-5		2.77e4-0	5.63e-l		3.05e + 2	9.16e + l
150	4.96e-4		3.77e + 0	5.35e-l		4.44e + 2	1.16e+2
200	1.07e-3		4.95e+0	5.15e-l		5.78e + 2	1.38e+2
300	1.90e-3		6.99e + 0	4.81e-l		8.35e+2	1.78e+2
500	2.99e-3		1.01e + l	4.34e-l		1.32e+3	2.48e+2

D -> W

Sputtering yield of W by D
zl = 1, ml= 2.01, z2=74, m2 = 183.85, esb = 8.68 eV. rho = 19.30 g/cm**3
ef=0.98 eV. esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx
ne=22., na=9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
250	2.34e-5	2.33e-5	2.50e-5	3.08e-5	3.00e-5	2.64e-5	1.43e-5	5.19e-6	2.86e-6
260	5.05e-5								
270	7.63e-5	8.21e-5	8.33e-5	1.00e-4	9.70e-5	9.17e-5	5.54e-5	2.16e-5	3.40e-6
290	1.62e-4					1.82e-4			
300	2.08e-4	2.21e-4	2.37e-4	2.82e-4	2.73e-4	2.32e-4	1.53e-4	7.83e-5	9.13e-6
300	2.33e-4					2.36e-4			
310	2.87e-4					3.11e-4			
320	3.55e-4					4.14e-4			
350	5.98e-4	6.04e-4	6.83e-4	7.34e-4	7.85e-4	7.52e-4	4.75e-4	2.60e-4	4.13e-5
350						7.49e-4			
400	1.1le-3	1.16e-3	1.18e-3	1.33e-3	1.53e-3	1.39e-3	9.83e-4	5.91e-4	9.55e-5
400	1.09e-3					1.39e-3			
500	2.20e-3	2.32e-3	2.49e-3	2.74e-3	2.93e-3	3.08e-3	2.50e-3	1.72e-3	3.56e-4
500	2.37e-3					2.94e-3			
600	3.39e-3	3.31e-3	3.42e-3	4.11e-3	4.55e-3	4.76e-3	4.73e-3	3.78e-3	1.12e-3
700	4.22e-3	4.14e-3	4.84e-3	5.23e-3	6.38e-3	7.10e-3	7.42e-3	6.92e-3	2.52e-3
700						6.80e-3			
1000	6.55e-3	7.11e-3	7.78e-3	9.22e-3	1.07e-2	1.26e-2	1.82e-2	2.04e-2	1.15e-2
1000	6.22e-3					1.33e-2			
2000	9.54e-3					2.66e-2			
5000	1.05e-2					3.85e-2			
10000						3.60e-2			

Sputtered energy of W by D
ne=22, na=9

B_0(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
250	6.43e-8	6.37e-8	6.80e-8	8.51e-8	8.95e-8	8.06e-8	3.89e-8	1.41e-8	4.10e-9
260	1.61e-7								
270	2.80e-7	3.12e-7	3.24e-7	4.06e-7	3.95e-7	3.79e-7	2.21e-7	7.90e-8	1.06e-8
290	7.66e-7					9.10e-7			
300	1.04e-6	l.1le-6	1.20e-6	1.47e-6	1.44e-6	1.27e-6	8.06e-7	3.90e-7	4.63e-8
300	1.17e-6					1.26e-6			
310	1.55e-6					1.75e-6			
320	1.99e-6					2.51e-6			
350	3.89e-6	3.98e-6	4.56e-6	5.02e-6	5.41e-6	5.12e-6	3.23e-6	1.75e-6	2.64e-7
350						5.13e-6			
400	8.04e-6	8.70e-6	8.56e-6	1.02e-5	1.21e-5	1.10e-5	7.77e-6	4.66e-6	7.04e-7
400	7.99e-6					1.12e-5			
500	1.87e-5	1.96e-5	2.18e-5	2.41e-5	2.66e-5	2.76e-5	2.25e-5	1.55e-5	3.04e-6
500	2.00e-5					2.66e-5			
600	3.03e-5	2.88e-5	3.12e-5	3.75e-5	4.14e-5	4.39e-5	4.36e-5	3.54e-5	1.03e-5
700	3.77e-5	3.78e-5	4.23e-5	4.93e-5	5.80e-5	6.48e-5	7.03e-5	6.41e-5	2.45e-5
700						6.28e-5			
1000	5.60e-5	6.18e-5	6.73e-5	8.18e-5	9.43e-l	1.14e-4	1.63e-4	1.86e-4	1.25e-4
1000	5.40e-5					1.18e-4			
2000	6.78e-5					1.85e-4			
5000	4.48e-5					1.71e-4			
10000						1.12e-4			

D >W

Particle reflection coefficient of D backscattered from W
zl= 1. ml = 2.01, z2= 74. m2 = 183.85. esb = 8.68 eV. rho = 19.30 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2 = 3. ipot=ipotr = l (KrC)
program: trspvmcx
ne = 28, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	7.61E-1	7.70E-l	7.98E-l	8.42E-1	8.82E-1	9.23E-1	9.60E-1	9.73E-1	9.80E-1
20	7.24E-l	7.33E-1	7.60E-1	8.10E-1	8.53E-1	9.06E-1	9.58E-1	9.78E-1	9.88E-1
50	6.79E-1	6.87E-1	7.14E-l	7.58E-1	8.05E-1	8.64E-1	9.39E-1	9.74E-1	9.93E-l
100	6.49E-1	6.54E-1	6.81E-1	7.27E-1	7.63E-1	8.23E-1	9.09E-l	9.60E-1	9.93E-1
200	6.12E-1	6.24E-1	6.43E-1	6.90E-1	7.31E-1	7.86E-l	8.69E-l	9.32E-1	9.90E-1
200	6.14e-l								
250	6.02E-1	6.11E-1	6.37E-1	6.80E-1	7.21E-1	7.74E-l	8.55E-l	9.20E-1	9.88E-1
260	6.01e-l								
270	5.98E-1	6.07E-1	6.33E-1	6.77E-1	7.17E-1	7.70E-1	8.50E-1	9.15E-1	9.87E-1
290	5.95e-l					7.66e-l			
300	5.92E-1	6.01E-1	6.28E-1	6.72E-1	7.12E-1	7.64E-l	8.44E-1	9.09E-1	9.86E-1
300	5.93e-l					7.65e-l			
310	5.91e-l					7.63e-l			
320	5.89e-l					7.61e-l			
350	5.84E-1	5.93E-1	6.20E-1	6.64E-1	7.04E-1	7.57E-1	8.34E-1	9.00E-1	9.83E-1
350						7.57e-l			
400	5.77E-1	5.85E-1	6.12E-1	6.57E-1	6.97E-1	7.50E-1	8.27E-1	8.91E-1	9.80E-1
400	5.78e-l					7.50e-l			
500	5.64E-1	5.73E-1	6.00E-1	6.45E-1	6.86E-l	7.38 E-l	8.14E-1	8.77E-1	9.74E-1
500	5.58e-l					7.39e-l			
600	5.53E-1	5.61 E-l	5.88 E-l	6.36E-1	6.78E-l	7.29E-1	8.03E-1	8.65E-1	9.67E-1
700	5.43E-1	5.50E-1	5.79E-1	6.25E-1	6.68E-1	7.22E-1	7.94 E-l	8.55E-1	9.61E-1
700						7.23e-l			
1000	5.17E-1	5.28E-1	5.57E-1	6.05E-1	6.46E-l	7.03E-l	7.74E-1	8.33E-1	9.42E-1
1000	5.12e-l					7.01e-l			
2000	4.57e-l					6.61e-l			
5000	3.64e-l					5.94e-l			
10000	2.71e-l					5.37e-l			

Energy reflection coefficient of D backscattered from W
ne = 28, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	5.71E-1	5.85E-1	6.24E-1	6.90E-1	7.52E-1	8.20E-1	8.85E-1	9.11E-1	9.25E-1
20	5.25E-1	5.36E-1	5.74E-1	6.44E-l	7.12E-1	7.98E-l	8.90E-1	9.28E-1	9.51E-1
50	4.69E-1	4.79E-1	5.12E-1	5.73E-1	6.40E-1	7.33 E-l	8.61E-1	9.26E-1	9.67E-1
100	4.33E-1	4.42E-1	4.71E-1	5.30E-1	5.83E-1	6.72E-1	8.12E-1	9.04E-1	9.70E-l
200	3.94E-1	4.06E-1	4.31E-1	4.85E-1	5.39E-l	6.16E-1	7.47E-1	8.56E-1	9.66E-1
200	3.95e-l								
250	3.84E-1	3.93E-1	4.21E-1	4.73E-1	5.25E-1	6.00E-1	7.26E-l	8.37E-1	9.62E-1
260	3.82e-l								
270	3.79E-1	3.89E-1	4.17E-1	4.69E-1	5.20E-1	5.94E-1	7.19E-1	8.29E-1	9.60E-1
290	3.76e-l					5.89e-l			
300	3.74E-1	3.83E-1	4.12E-1	4.63E-1	5.14E-1	5.87E-1	7.09E-1	8.19E-1	9.57E-1
300	3.74e-l					5.87e-l			
310	3.72e-l					5.84e-l			
320	3.71e-l					5.82e-l			
350	3.66E-1	3.75E-1	4.03E-l	4.54E-1	5.04E-1	5.76E-1	6.95E-1	8.04E-1	9.52E-1
350						5.76e-l			
400	3.59E-1	3.67E-1	3.96E-1	4.47E-1	4.96E-1	5.67E-1	6.84E-1	7.90E-1	9.47E-1
400	3.59e-l					5.68e-l			
500	3.46E-1	3.56E-1	3.83E-1	4.33E-1	4.84E-1	5.52E-1	6.65E-1	7.67E-1	9.37E-1
500	3.45e-l					5.53e-l			
600	3.36E-1	3.44E-1	3.73E-1	4.23E-1	4.73E-1	5.41E-1	6.49E-1	7.49E-1	9.25 E-l
700	3.27E-1	3.35E-1	3.64E-l	4.13E-1	4.62E-1	5.32E-1	6.37E-1	7.34E-1	9.14E-1
700						5.32e-l			
1000	3.04E-1	3.14E-1	3.42E-1	3.92E-1	4.38E-1	5.08E-1	6.09E-1	7.00E-1	8.83E-1
1000	3.03e-l					5.07e-l			
2000	2.55e-l					4.60e-l			
5000	1.83e-l					3.87e-l			
10000	1.21e-l					3.26e-l			

D -> W

Average depth (mean range) in Ä of D implanted in W
ne =28., na=9

Bo (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.33E4-1	1.33E+1	1.33E+1	1.32E4-1	1.32E+1	1.31E4-1	1.30E+1	1.30E + 1	1.29E4-1
20	1.90E+1	1.89E+1	1.89E+1	1.87E+1	1.86E+1	1.86E+1	1.84E+1	1.84E+1	1.82E+1
50	3.04E4-1	3.01E+1	3.00E+1	2.96E+1	2.94E + 1	2.95E4-1	2.94E + 1	2.89E + 1	2.91E + 1
100	4.37E+1	4.32E+1	4.31E4-1	4.23E+1	4.21E + 1	4.20E+1	4.18E+1	4.15E + 1	4.19E4-1
200	6.30E + 1	6.28E4-1	6.25E+1	6.15E+1	6.12E+1	6.03E+1	6.04E+1	5.94E + 1	5.98E + 1
200	6.28e4-l								
250	7.11E+1	7.09E4-1	7.03E+1	6.95E+1	6.89E+1	6.83E4-1	6.78E+1	6.77E + 1	6.76E + 1
260	7.27e4-l								
270	7.42e + l	7.40e+l	7.35e + l	7.25e + l	7.19e + l	7.13e+l	7.07e+l	7.05e + l	7.03e+l
290	7.73e+l					7.41e+l			
300	7.88E+1	7.85E+1	7.78E+1	7.69E+1	7.62E4-1	7.55E+1	7.49E + 1	7.48E + 1	7.45E + 1
300	7.87e + l					7.55e+l			
310	8.01e + l					7.68e+l			
320	8.16e+l					7.82e+l			
350	8.58E+1	8.56E4-1	8.49E + 1	8.38E+1	8.31E + 1	8.23E+1	8.17E+1	8.14E + 1	8.12E + 1
350						8.23e+l			
400	9.28E+1	9.25E4-1	9.16E+1	9.03E4-1	8.94E + 1	8.88E+1	8.79E+1	8.76E4-1	8.75E+1
400	9.27e + l					8.85e+l			
500	1.06E+2	1.05E4-2	1.04E+2	1.03E4-2	1.02E+2	1.01E+2	9.98E+1	9.96E4-1	9.94E+1
500	1.02e + 2					1.00e+2			
600	1.18E+2	1.17E+2	1.16E+2	1.14E+2	1.13E+2	1.12E-J-2	1.11E+2	1.11E+2	1.10E+2
700	1.29E+2	1.29E+2	1.27E4-2	1.25E+2	1.24E+2	1.22E+2	1.21E+2	1.21E4-2	1.21E+2
700						1.22e+2			
1000	1.61E+2	1.60E+2	1.58E+2	1.56E4-2	1.53E+2	1.52E+2	1.50E+2	1.50E+2	1.49E4-2
1000	1.57e+2					1.51e+2			
2000	2.48e+2					2.33e+2			
5000	4.75e+2					4.28e+2			
10000	8.02e+2					6.84eJ-2			

D on W, Maxwellian velocity distribution, sheath potential 0 kT
zl= 1, ml = 2.01, z2=74, m2 = 183.85, sbe=8.68 eV, rho = 19.30 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l(KrC)
program: testvmcx
ne= 8

kT(eV)	Y	Y_E	E_{sp}	r 7V	R_E	Eb	range
70	8.28e-5	2.18e-6	3.68e+0	7.44e-l	5.32e-l	1.00e+2	5.09e + l
100	3.54e-4	7.92e-6	4.48e+0	7.26e-l	5.10e-l	1.40e+2	6.16e4-l
140	9.57e-4	1.92e-5	5.61e4-0	7.09e-l	4.89e-l	1.93e+2	7.42e+l
200	2.13e-3	3.78e-5	7.09e4-0	6.91e-l	4.67e-l	2.70e+2	9.06e + l
300	4.42e-3	6.50e-5	8.83e4-0	6.69e-l	4.40e-l	3.96e+2	1.15e4-2
500	8.58e-3	9.84e-5	1.15e + l	6.39e-l	4.07e-l	6.36e+2	1.57e+2
1000	1.56e-2	1.22e-4	1.57e4-l	5.91e-l	3.55e-l	1.20e + 3	2.46e + 2
2000	2.15e-2	l.lle-4	2.07e+l	5.36e-l	2.98e-l	2.22e + 3	3.95e+2

D on W, Maxwellian velocity distribution, sheath potential 3 kT
ne=13

kT(eV)	Y	Y_E	E_{sp}	R_N	R_E	E_b	range
36	2.67e-5	3.02e-7	2.04e+0	6.46e-l	4.31e-l	1.21e+2	5.84e + l
40	5.35e-5		2.54e+0	6.33e-l		1.36e+2	5.87e+l
45	1.06e-4		2.53e+0	6.28e-l		1.49e + 2	6.28e+l
50	2.41e-4		2.82e+0	6.21e-l		1.65e-f-2	6.68e + l
60	4.78e-4		3.52e+0	6.13e-l		1.97e4-2	7.41e+l
75	1.06e-3		4.04e+0	6.02e-l		2.43e+2	8.47e+l
100	2.57e-3		5.12e+0	5.86e-l		3.19e4-2	1.00e + 2
140	4.54e-3		6.84e+0	5.66e-l		4.37e+2	1.24e+2
200	6.67e-3		9.08e+0	5.44e-l		6.11e+2	1.54e + 2
300	9.26e-3		1.19e + l	5.13e-l		8.88e + 2	2.01e + 2
500	1.15e-2		1.58e + l	4.71e-l		1.42e+3	2.83e+2
1000	1.21e-2		2.20e-H	4.03e-l		2.61e+3	4.62e + 2
2000	1.23e-2	3.47e-5	2.82e+l	3.24e-l	1.52e-l	4.68e+3	7.74e+2

T → W

Sputtering yield of W by T
z1= 1, m1= 3.02. z2=74, m2=183.85, esb = 8.68 eV, rho = 19.29 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=1 (KrC)
program: trspvmcx
ne=17, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
160	9.83E-6	7.83E-6	8.08E-6	1.26E-5	1.26E-5	9.53E-6	2.89E-6		
170	3.77E-5	4.08E-5	4.54E-5	5.05E-5	4.47E-5	3.87E-5	1.62E-5	6.08E-6	
170	3.65e-5								
180	9.81E-5	1.00E-4	1.05E-4	1.16E-4	1.14E-4	8.79E-5	4.71E-5	1.98E-5	1.93E-6
200	3.03E-4	3.07E-4	3.23E-4	3.59E-4	3.55E-4	2.99E-4	1.64E-4	7.18E-5	9.69E-6
250	1.23E-3	1.29E-3	1.28E-3	1.46E-3	1.45E-3	1.34E-3	7.91E-4	4.24E-4	5.49E-5
300	2.41E-3	2.48E-3	2.71E-3	2.85E-3	2.91E-3	2.91E-3	1.91E-3	1.07E-3	1.52E-4
300	2.35e-3					2.87e-3			
400	4.89E-3	4.91E-3	5.17E-3	5.90E-3	6.64E-3	6.73E-3	5.97E-3	3.98E-3	9.08E-4
500	7.22E-3	7.54E-3	8.13E-3	9.01E-3	1.02E-2	1.13E-2	1.17E-2	9.68E-3	2.94E-3
500	7.45e-3					1.12e-2			
700	1.11E-2	1.08E-2	1.25E-2	1.46E-2	1.69E-2	2.04E-2	2.67E-2	2.70E-2	1.25E-2
700						2.04e-2			
1000	1.49E-2	1.50E-2	1.67E-2	1.98E-2	2.41E-2	3.19E-2	4.67E-2	5.34E-2	3.08E-2
1000	1.45e-2					3.17e-2			
2000	1.85e-2					5.28e-2			
5000	2.00e-2					6.52e-2			

Sputtered energy of W by T
ne=17, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
160	2.14e-8	1.91e-8	2.14e-8	3.48e-8	3.57e-8	2.86e-8	7.69e-9		
170	1.47e-7	1.68e-7	1.80e-7	2.25e-7	2.02e-7	1.67e-7	6.90e-8	2.49e-8	
170	1.39e-7								
180	4.98e-7	5.24e-7	5.47e-7	6.38e-7	6.45e-7	5.04e-7	2.51e-7	1.02e-7	8.41e-9
200	2.18e-6	2.24e-6	2.39e-6	2.72e-6	2.72e-6	2.30e-6	1.21e-6	5.03e-7	6.64e-8
250	1.26E-5	1.34E-5	1.32E-5	1.59E-5	1.61E-5	1.46E-5	8.50E-6	4.57E-6	5.78E-7
300	2.90E-5	2.98E-5	3.31E-5	3.55E-5	3.70E-5	3.73E-5	2.45E-5	1.36E-5	1.86E-6
300	2.87e-5					3.68e-5			
400	6.61E-5	6.67E-5	6.87E-5	8.21E-5	9.16E-5	9.50E-4	8.34E-5	5.42E-5	1.25E-5
500	9.71E-4	1.03E-4	1.12E-4	1.27E-4	1.44E-4	1.62E-4	1.65E-4	1.39E-4	4.47E-5
500	9.63e-5					1.60e-4			
700	1.47E-4	1.51E-4	1.67E-4	1.97E-4	2.27E-4	2.68E-4	3.53E-4	3.91E-4	2.04E-4
700						2.70e-4			
1000	1.72E-4	1.76E-4	1.96E-4	2.32E-4	2.85E-4	3.80E-4	5.85E-4	7.24E-4	4.93E-4
1000	1.77e-4					3.75e-4			
2000	1.58e-4					4.74e-4			
5000	1.03e-4					3.46e-4			

T → W

Particle reflection coefficient of T backscattered from W
zl = 1, ml = 3.02. z2=74, m2=183.85. esb=8.68 eV. rho = 19.29 g/cm**3
ef=0.98 eV, esb = 1.00 eV. ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: trspvmcx
ne=22., na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	7.51E-1	7.60E-1	7.89E-1	8.37E-1	8.78 E-l	9.19E-1	9.58E-1	9.71E-1	9.79 E-l
20	7.15E-1	7.25E-1	7.53E-1	8.03E-1	8.48E-1	9.02E-1	9.57E-1	9.77E-1	9.88E-1
50	6.69E-1	6.79E-1	7.07E-1	7.53E-1	7.98E-1	8.60 E-l	9.37E-1	9.73E-1	9.93E-1
100	6.40E-1	6.50E-1	6.75E-1	7.18E-1	7.63E-1	8.20E-1	9.06E-1	9.59E-1	9.93E-1
140	6.25E-1	6.34E-1	6.59E-1	7.04E-1	7.46E-1	8.02E-1	8.88E-1	9.47E-1	9.92E-1
160	6.19E-1	6.28E-1	6.54E-1	6.98E-1	7.39E-1	7.95 E-l	8.80E-1	9.42E-1	9.92E-1
170	6.16E-1	6.25E-1	6.51E-1	6.95E-1	7.36E-1	7.91E-1	8.77E-1	9.39E-1	9.91E-1
170	6.16e-l								
180	6.14E-1	6.22E-1	6.48E-1	6.92E-1	7.33E-1	7.89E-1	8.73E-1	9.36E-1	9.91E-1
200	6.09E-1	6.18E-1	6.44E-1	6.88E-1	7.28E-1	7.83 E-l	8.67E-1	9.31E-1	9.90E-1
250	5.99E-1	6.07E-1	6.34E-1	6.78E-1	7.18E-1	7.72E-1	8.53 E-l	9.19E-1	9.88E-1
300	5.90E-1	5.99E-1	6.26E-1	6.69E-1	7.09E-1	7.63 E-l	8.42E-1	9.08E-1	9.85E-1
300	5.90e-l					7.63e-l			
400	5.75E-1	5.84E-1	6.11E-1	6.56E-1	6.97E-1	7.49E-1	8.26E-1	8.90E-1	9.80E-1
500	5.63E-1	5.72E-1	5.99E-1	6.45E-1	6.85E-1	7.39E-1	8.13E-1	8.76E-1	9.74E-1
500	5.63e-l					7.38e-l			
700	5.43E-1	5.53E-1	5.82E-1	6.30E-1	6.68E-1	7.22E-1	7.96E-1	8.55E-1	9.60E-1
700						7.23e-l			
1000	5.20E-1	5.30E-1	5.59E-1	6.07E-1	6.50E-1	7.03 E-l	7.76E-1	8.34E-1	9.42E-1
1000	5.18e-l					7.05e-l			
2000	4.69e-l					6.66e-l			
5000	3.86e-l					6.06e-l			

Energy reflection coefficient of T backscattered from W
ne=22, na=9

Eq(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	5.57E-1	5.70E-1	6.11 E-l	6.80E-1	7.43E-1	8.12E-1	8.81E-1	9.06E-1	9.22E-1
20	5.12E-1	5.25E-1	5.64E-1	6.35E-1	7.04 E-l	7.92E-1	8.87E-1	9.26E-1	9.50 E-l
50	4.58E-1	4.70E-1	5.05E-1	5.68E-1	6.32E-1	7.27E-1	8.58E-1	9.25E-1	9.67E-1
100	4.25E-1	4.35E-1	4.67E-1	5.21E-1	5.82E-1	6.67E-1	8.09E-1	9.03E-1	9.71 E-l
140	4.09E-1	4.18E-1	4.48E-1	5.03E-1	5.59E-1	6.41E-1	7.81E-1	8.84E-1	9.70 E-l
160	4.03E-1	4.12E-1	4.42E-1	4.96E-1	5.50E-1	6.31E-1	7.68E-1	8.74E-1	9.69E-1
170	4.00E-1	4.09E-1	4.39E-1	4.92E-1	5.47E-1	6.27E-1	7.63E-1	8.70E-1	9.69E-1
170	4.00e-l								
180	3.97E-1	4.07E-1	4.36E-1	4.89E-1	5.43E-1	6.22E-1	7.57E-1	8.66E-1	9.68E-1
200	3.92E-1	4.02E-1	4.31E-1	4.84E-1	5.37E-1	6.15E-1	7.47E-1	8.57E-1	9.67E-1
250	3.82E-1	3.91E-1	4.21E-1	4.72E-1	5.24E-1	5.99E-1	7.27E-1	8.37E-1	9.63E-1
300	3.74E-1	3.83E-1	4.12E-1	4.63E-1	5.14E-1	5.88 E-l	7.10E-1	8.20E-1	9.59E-1
300	3.74e-l					5.87e-l			
400	3.59E-1	3.69E-1	3.98E-1	4.48E-1	4.99E-1	5.69E-1	6.86E-1	7.92E-1	9.49E-1
500	3.49E-1	3.58E-1	3.86E-1	4.37E-1	4.85E-1	5.56E-1	6.67E-1	7.70E-1	9.38E-1
500	3.49e-l					5.56e-l			
700	3.31E-1	3.41E-1	3.69E-1	4.21E-1	4.67E-1	5.36E-1	6.42E-1	7.36E-1	9.16E-1
700						5.36e-l			
1000	3.11E-1	3.21E-1	3.48E-1	3.98E-1	4.48E-1	5.15E-1	6.16E-1	7.07E-1	8.87E-1
1000	3.10e-l					5.15e-l			
2000	2.67e-l					4.72e-l			
5000	2.02e-l					4.04e-l			

Average depth (mean range) in Å of T implanted in W
ne=22., na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	1.29E+1	1.28E4-1	1.28E4-1	1.28E+1	1.26E + 1	1.26E+1	1.25E+1	1.24E+1	1.24E + 1
20	1.83E+1	1.83E+1	1.82E+1	1.82E + 1	1.79E+1	1.79E+1	1.78E-J-1	1.78E+1	1.77E-J-1
50	2.95E + 1	2.95E+1	2.93E+1	2.91E+1	2.89E4-1	2.86E+1	2.86E + 1	2.84E + 1	2.82E4-1
100	4.27E4-1	4.28E+1	4.23E-H	4.20E+1	4.15E-J-1	4.12E+1	4.09E-H	4.08E + 1	4.07E4-1
140	5.13E+1	5.12E+1	5.08E+1	5.03E+1	5.00E4-1	4.96E-J-1	4.92E-J-1	4.87E+1	4.93E + 1
160	5.53E+1	5.51E+1	5.47E+1	5.41E-J-1	5.36E+1	5.33E+1	5.29E+1	5.28E4-1	5.29E + 1
170	5.71E+1	5.70E+1	5.66E+1	5.59E+1	5.55E+1	5.50E+1	5.46E+1	5.45E4-1	5.37E4-1
170	5.71e-}-l								
180	5.90E + 1	5.88E+1	5.84E+1	5.77E+1	5.73E + 1	5.67E + 1	5.64E + 1	5.62E+1	5.60E + 1
200	6.26E+1	6.24E4-1	6.19E+1	6.13E4-1	6.07E + 1	6.02E+1	5.98E + 1	5.97E+1	5.95E + 1
250	7.10B+1	7.09E+1	7.03E+1	6.95E-J-1	6.88E + 1	6.82E+1	6.76E4-1	6.75E+1	6.72E+1
300	7.89E + 1	7.86E+1	7.79E4-1	7.69E4-1	7.62E + 1	7.55E+1	7.50E4-1	7.48E + 1	7.44E + 1
300	7.89e + l					7.55e+l			
400	9.33E+1	9.31E+1	9.21E+1	9.10E+1	8.99E+1	8.92E+1	8.84E + 1	8.84E + 1	8.81E + 1
500	1.07E+2	1.06E+2	1.05E+2	1.04E+2	1.03E+2	1.02E+2	1.01E4-2	1.01E + 2	9.96E+1
500	1.07e+2					1.02e+2			
700	1.31E4-2	1.30E-J-2	1.29E4-2	1.28E+2	1.26E+2	1.24E + 2	1.23E+2	1.23E-J-2	1.24E+2
700						1.25e+2			
1000	1.64E+2	1.64E+2	1.62E+2	1.60E+2	1.57E+2	1.55E4-2	1.53E+2	1.53E+2	1.54E+2
1000	1.64e+2					1.55e+2			
2000	2.59e+2					2.44e+2			
5000	5.05e+2					4.55e-|-2			

T → W

T on W, Maxwellian velocity distribution, sheath potential 0 kT
zl = 1. ml= 3.02. z2=74. m2 = 183.85. sbe=8.68 eV. rho = 19.30 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx
ne= 10

kT(eV)	Y	Y_E	E_{sp}	R_N	R_E	E&	range
40	5.90e-5	2.31e-6	3.13e+0	7.65e-l	5.63e-l	5.89e + l	3.73e+l
50	1.64e-4	6.30e-6	3.84e+0	7.55e-l	5.50e-l	7.28e + l	4.20e+l
60	3.22e-4	1.17e-5	4.37e+0	7.47e-l	5.39e-l	8.65e + l	4.63e + l
80	8.55e-4	2.73e-5	5.11e+0	7.34e-l	5.23e-l	1.14e+2	5.41e+l
100	1.63e-3	4.96e-5	6.09e + 0	7.22e-l	5.09e-l	1.41e + 2	6.14e+l
200	6.54e-3	1.49e-4	9.10e + 0	6.89e-l	4.70e-l	2.73e + 2	9.13e + l
300	1.16e-2	2.19e-4	1.13e + l	6.68e-l	4.45e-l	4.00e + 2	1.17e+2
500	1.93e-2	2.75e-4	1.43e+l	6.41e-l	4.15e-l	6.47e+2	1.61e+2
1000	3.06e-2	2.97e-4	1.94e + l	5.96e-l	3.66e-l	1.23e+3	2.57e+2
2000	3.99e-2	2.48e-4	2.49e+l	5.47e-l	3.14e-l	2.29e + 3	4.19e+2

T on W. Maxwellian velocity distribution, sheath potential 3 kT
ne= 13

kT(eV)	Y	Yb	Esp	R A-	Rb	E_b	range
24	3.64e-5	6.56e-7	2.17e + 0	6.59e-l	4.48e-l	8.15e + l	4.64e + l
30	1.77e-4		2.56e + 0	6.41e-l		1.02e+2	4.94eRl
36	4.11e-4		2.89e4-0	6.33e-l		1.21e+2	5.48e + l
50	1.70e-3		4.24e+0	6.18e-l		1.66e+2	6.67e + l
60	2.57e-3	4.14e-5	4.83e + 0	6.16e-l	4.02e-l	1.96e + 2	7.75e-f-l
70	4.22e-3		5.55e+0	6.03e-l		2.29e+2	8.16e + l
100	7.43e-3		7.38e+0	5.85e-l		3.22e+2	1.02e+2
200	1.48e-2		1.21e + l	5.46e-l		6.21e+2	1.59e-f-2
300	1.91e-2	1.94e-4	1.52e + l	5.24e-l	3.15e-l	9.02e + 2	2.11e+2
400	2.03e-2		1.78e + l	4.98e-l		1.18e+3	2.53e + 2
600	2.26e-2	1.61e-4	2.14e + l	4.66e-l	2.65e-l	1.71e+3	3.41e+2
1000	2.33e-2	1.21e-4	2.60e + l	4.17e-l	2.25e-l	2.70e+3	4.94e+2
2000	2.04e-2	6.91e-5	3.39e + l	3.41e-l	1.67e-l	4.91e+3	8.37e+2

He -4 W

Sputtering yield of W by He
zl= 2, ml = 4.00. z2=74, m2 = 183.85, esb=8.68 eV. rho = 19.29 g/cm**3
ef=0.20 eV. esb = 0.00 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc
ne=20, na=9

Eq(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
125	8.26E-6	9.32E-6	1.12E-5	1.11E-5	9.05E-6	4.44E-6	2.00E-6		
130	3.21E-5	3.56E-5	3.51E-5	3.27E-5	2.86E-5	1.57E-5	3.40E-6		
140	1.32E-4	1.36E-4	1.43E-4	1.45E-4	1.16E-4	7.19E-5	1.94E-5	3.74E-6	
150	3.10E-4	3.22E-4	3.19E-4	3.16E-4	2.87E-4	1.95E-4	6.19E-5	1.25E-5	
170	9.50E-4	9.41E-4	1.01E-3	1.01E-3	8.69E-4	6.13E-4	2.32E-4	6.15E-5	
200	2.33E-3	2.44E-3	2.50E-3	2.63E-3	2.27E-3	1.86E-3	7.62E-4	2.31E-4	2.15E-6
250	5.42E-3	5.27E-3	5.76E-3	5.92E-3	6.10E-3	4.86E-3	2.49E-3	9.07E-4	1.58E-5
300	8.61E-3	8.63E-3	9.41E-3	1.02E-2	9.96E-3	9.35E-3	5.74E-3	2.52E-3	7.76E-5
350	1.21E-2	1.17E-2	1.28E-2	1.42E-2	1.49E-2	1.45E-2	1.02E-2	5.80E-3	2.41E-4
400	1.47E-2	1.49E-2	1.63E-2	1.87E-2	1.97E-2	2.09E-2	1.79E-2	9.86E-3	5.58E-4
500	2.03E-2	2.10E-2	2.27E-2	2.63E-2	2.90E-2	3.34E-2	3.32E-2	2.32E-2	2.01E-3
600	2.42E-2	2.57E-2	2.80E-2	3.30E-2	3.79E-2	4.67E-2	5.19E-2	4.08E-2	4.95E-3
700	2.88E-2	3.04E-2	3.31E-2	3.88E-2	4.58E-2	5.82E-2	6.78E-2	5.84E-2	9.14E-3
1000	3.78E-2	3.97E-2	4.32E-2	5.49E-2	6.78E-2	8.93E-2	1.15E-1	1.06E-1	2.63E-2
1400	4.57E-2	4.70E-2	5.31E-2	7.02E-2	8.85E-2	1.18E-1	1.59E-1	1.57E-1	5.54E-2
2000	5.15E-2	5.43E-2	6.31E-2	8.25E-2	1.07E-1	1.47E-1	2.01E-1	2.11E-1	1.01E-1
5000	5.91E-2	6.36E-2	7.64E-2	1.03E-1	1.39E-1	1.89E-1	2.84B-1	3.31E-1	2.67E-1
10000	5.63E-2	6.28E-2	7.47E-2	1.04E-1	1.36E-1	1.96E-1	3.07E-1	3.81E-1	3.93E-1
20000	4.78E-2	5.24E-2	6.44E-2	9.04E-2	1.22E-1	1.77E-1	2.90E-1	3.92E-1	4.79E-1
50000	3.23E-2	3.48E-2	4.49E-2	6.46E-2	8.69E-2	1.27E-1	2.26E-1	3.25E-1	4.94E-1

Sputtered energy of W by He
ne=20, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
125	2.08e-8	2.68e-8	3.18e-8	3.61e-8	3.06e-8	1.40e-8	6.54e-9		
130	1.27e-7	1.51e-7	1.51e-7	1.44e-7	1.30e-7	6.83e-8	1.25e-8		
140	8.49e-7	8.78e-7	9.35e-7	9.63e-7	7.76e-7	4.76e-7	1.17e-7	2.09e-8	
150	2.53e-6	2.69e-6	2.71e-6	2.69e-6	2.49e-6	1.69e-6	4.74e-7	9.04e-8	
170	1.03E-5	1.02E-5	1.10E-5	1.14E-5	9.98E-6	6.82E-6	2.45E-6	6.30E-7	
200	3.17E-5	3.35E-5	3.46E-5	3.71E-5	3.17E-5	2.65E-5	1.05E-5	3.05E-6	3.11E-8
250	8.64E-5	8.36E-5	9.33E-5	1.01E-4	9.90E-4	8.17E-5	4.18E-5	1.47E-5	2.45E-7
300	1.46E-4	1.48E-4	1.62E-4	1.81E-4	1.79E-4	1.68E-4	1.02E-4	4.41E-5	1.34E-6
350	2.10E-4	2.03E-4	2.28E-4	2.49E-4	2.68E-4	2.66E-4	1.89E-4	1.07E-4	4.68E-6
400	2.53E-4	2.60E-4	2.83E-4	3.31E-4	3.59E-4	3.80E-4	3.31E-4	1.86E-4	1.18E-5
500	3.46E-4	3.57E-4	3.96E-4	4.49E-4	5.08E-4	5.92E-4	6.19E-4	4.61E-4	4.58E-5
600	3.96E-4	4.24E-4	4.75E-4	5.52E-4	6.34E-4	7.82E-4	9.41E-4	8.11E-4	1.15E-4
700	4.56E-4	4.81E-4	5.28E-4	6.20E-4	7.35E-4	9.48E-4	1.20E-3	1.15E-3	2.15E-4
1000	5.38E-4	5.61E-4	6.15E-4	7.64E-4	9.64E-4	1.29E-3	1.86E-3	1.91E-3	5.80E-4
1400	5.63E-4	5.80E-4	6.50E-4	8.57E-4	1.09E-3	1.52E-3	2.27E-3	2.50E-3	1.10E-3
2000	5.35E-4	5.54E-4	6.44E-4	8.32E-4	1.11E-3	1.60E-3	2.42E-3	2.82E-3	1.70E-3
5000	3.57E-4	3.77E-4	4.47E-4	6.34E-4	8.76E-4	1.25E-3	2.00E-3	2.57E-3	2.55E-3
10000	2.09E-4	2.32E-4	2.88E-4	4.06E-4	5.61E-4	8.55E-4	1.45E-3	1.90E-3	2.34E-3
20Ö00	1.04E-4	1.19E-4	1.56E-4	2.26E-4	3.15E-4	4.89E-4	8.64E-4	1.23E-3	1.73E-3
50000	3.28E-5	3.71E-5	5.19E-5	8.46E-5	1.25E-4	1.86E-4	3.60E-4	5.48E-4	9.08E-4

He -> W

Particle reflection coefficient of He backscattered from W
zl = 2. ml= 4.00. z2 = 74. m2 = 183.85. esb = 8.68 eV. rho = 19.29 g/cm**3
ef=0.20 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2 = 3. ipot=ipotr = l (KrC)
program: trvmc
ne = 24. na=9

E_0 (eV)	0 °	15 °	30 °	45 °	55°	65°	75°	80°	85°
10	8.09E-1	8.21E-1	8.48E-1	8.93E-1	9.30E-1	9.70E-1	9.96E-1	1.00E + 0	1.00E+0
20	7.49E-1	7.59E-1	7.93E-1	8.47E-1	8.95E-1	9.48E-1	9.91E-1	9.99E-1	1.00E + 0
50	6.80E-1	6.88E-1	7.19E-1	7.75E-1	8.31E-1	8.99E-1	9.74E-1	9.96E-1	1.00E+0
100	6.37E-1	6.47E-1	6.76E-1	7.28E-1	7.79E-1	8.50E-1	9.46E-1	9.88E-1	1.00E+0
125	6.24E-1	6.34E-1	6.63E-1	7.14E-1	7.64E-1	8.34E-1	9.34E-1	9.84E-1	1.00E+0
130	6.22E-1	6.31E-1	6.61E-1	7.12E-1	7.62E-1	8.31E-1	9.32E-1	9.83E-1	1.00E4-0
140	6.18E-1	6.27E-1	6.57E-1	7.07E-1	7.57E-1	8.26E-1	9.28E-1	9.80E-1	1.00E+0
150	6.14E-1	6.24E-1	6.52E-1	7.04E-1	7.53E-1	8.21E-1	9.23E-1	9.78E-1	1.00E+0
170	6.07E-1	6.18E-1	6.46E-1	6.96E-1	7.45E-1	8.12E-1	9.15E-1	9.74E-1	1.00E+0
200	5.98E-1	6.07E-1	6.36E-1	6.86E-1	7.35E-1	8.01E-1	9.04E-1	9.68E-1	1.00E4-0
250	5.88E-1	5.97E-1	6.26E-1	6.76E-1	7.22E-1	7.87E-1	8.89E-1	9.58E-1	9.99E-1
300	5.78E-1	5.87E-1	6.17E-1	6.65E-1	7.13E-1	7.75E-1	8.74E-1	9.49E-1	9.99E-1
350	5.71E-1	5.82E-1	6.10E-1	6.58E-1	7.03E-1	7.65E-1	8.64E-1	9.39E-1	9.98E-1
400	5.64E-1	5.73E-1	6.01E-1	6.51E-1	6.97E-1	7.57E-1	8.52E-1	9.31E-1	9.97E-1
500	5.51E-1	5.63E-1	5.90E-1	6.38E-1	6.85E-1	7.45E-1	8.37E-1	9.15E-1	9.95E-1
600	5.43E-1	5.54E-1	5.83E-1	6.33E-1	6.75E-1	7.35E-1	8.23E-1	9.02E-1	9.93E-1
700	5.35E-1	5.43E-1	5.75E-1	6.25E-1	6.67E-1	7.25E-1	8.14E-1	8.90E-1	9.90E-1
1000	5.14E-1	5.23E-1	5.55E-1	6.02E-1	6.49E-1	7.07E-1	7.91E-1	8.62E-1	9.80E-1
1400	4.92E-1	5.02E-1	5.33E-1	5.86E-1	6.30E-1	6.89E-1	7.69E-1	8.38E-1	9.64E-1
2000	4.68E-1	4.80E-1	5.09E-1	5.61E-1	6.11E-1	6.71E-1	7.52E-1	8.14E-1	9.41E-1
5000	3.94E-1	4.06E-1	4.42E-1	4.98E-1	5.50E-1	6.18E-1	7.00E-1	7.57E-1	8.66E-1
10000	3.26E-1	3.41E-1	3.76E-1	4.37E-1	4.94E-1	5.67E-1	6.55E-1	7.17E-1	8.16E-1
20000	2.49E-1	2.63E-1	3.02E-1	3.67E-1	4.31E-1	5.08E-1	6.10E-1	6.75E-1	7.69E-1
50000	1.43E-1	1.54E-1	1.92E-1	2.59E-1	3.28E-1	4.20E-1	5.39E-1	6.12E-1	7.18E-1

Energy reflection coefficient of He backscattered from W
ne = 24. na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	5.95E-1	6.14E-1	6.58E-1	7.35E-1	8.03E-1	8.86E-1	9.62E-1	9.84E-1	9.95E-1
20	5.28E-1	5.43E-1	5.90E-1	6.74E-1	7.53E-1	8.51E-1	9.50E-1	9.81E-1	9.94E-1
50	4.52E-1	4.63E-1	5.03E-1	5.81E-1	6.63E-1	7.76E-1	9.17E-1	9.72E-1	9.93E-1
100	4.07E-1	4.19E-1	4.54E-1	5.21E-1	5.94E-1	7.02E-1	8.68E-1	9.53E-1	9.92E-1
125	3.94E-1	4.05E-1	4.39E-1	5.04E-1	5.73E-1	6.78E-1	8.47E-1	9.44E-1	9.91E-1
130	3.92E-1	4.03E-1	4.37E-1	5.01E-1	5.69E-1	6.74E-1	8.44E-1	9.42E-1	9.91E-1
140	3.88E-1	3.99E-1	4.32E-1	4.95E-1	5.63E-1	6.66E-1	8.36E-1	9.38E-1	9.90E-1
150	3.85E-1	3.95E-1	4.28 E-l	4.91E-1	5.57E-1	6.59E-1	8.29 E-l	9.34E-1	9.90E-1
170	3.78E-1	3.89E-1	4.21E-1	4.82E-1	5.47E-1	6.46E-1	8.16E-1	9.26E-1	9.90E-1
200	3.70E-1	3.80E-1	4.12E-1	4.72E-1	5.34E-1	6.31E-1	7.98E-1	9.15E-1	9.89E-1
250	3.60E-1	3.69E-1	4.00E-1	4.58E-1	5.18E-1	6.10E-1	7.73 E-l	8.97E-1	9.87E-1
300	3.51E-1	3.60E-1	3.91E-1	4.47E-1	5.06E-1	5.93E-1	7.51E-1	8.80E-1	9.85E-1
350	3.43E-1	3.54E-1	3.83 E-l	4.39E-1	4.95E-1	5.81E-1	7.35E-1	8.65E-1	9.83E-1
400	3.37E-1	3.46E-1	3.76E-1	4.30E-1	4.88E-1	5.70E-1	7.18E-1	8.51E-1	9.81E-1
500	3.27E-1	3.37E-1	3.65E-1	4.18E-1	4.74E-1	5.54 E-l	6.94E-1	8.25E-1	9.76E-1
600	3.18E-1	3.29E-1	3.57E-1	4.12E-1	4.62E-1	5.41E-1	6.74E-1	8.03E-1	9.71E-1
700	3.12E-1	3.20E-1	3.50E-1	4.04E-1	4.53E-1	5.30E-1	6.60E-1	7.85E-1	9.65E-1
1000	2.95E-1	3.03E-1	3.33E-1	3.83E-1	4.34E-1	5.07E-1	6.27E-1	7.42E-1	9.45E-1
1400	2.77E-1	2.86E-1	3.14E-1	3.66E-1	4.15E-1	4.86E-1	5.99E-1	7.05E-1	9.17E-1
2000	2.58E-1	2.68E-1	2.94E-1	3.44E-1	3.96E-1	4.66 E-l	5.74E-1	6.69E-1	8.79E-1
5000	2.02E-1	2.11E-1	2.39E-1	2.88E-1	3.37E-1	4.08E-1	5.11E-1	5.91E-1	7.63E-1
10000	1.55E-1	1.64E-1	1.88E-1	2.37E-1	2.86E-1	3.57E-1	4.59E-1	5.41E-1	6.85E-1
20000	1.07E-1	1.14E-1	1.38E-1	1.81E-1	2.29E-1	2.98E-1	4.04E-1	4.85E-1	6.19E-1
50000	5.14E-2	5.62E-2	7.27E-2	1.07E-1	1.48E-1	2.13E-1	3.19E-1	4.02E-1	5.38E-1

Average depth (mean range) in Ä of He implanted in W
ne=24. na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	9.20E + 0	9.20E+0	9.1OE4-O	9.10E + 0	9.00E4-0	9.00E + 0	8.70E-J-0	8.80E + 0	8.70E + 0
20	1.24E+1	1.24E+1	1.23E+1	1.23E+1	1.22E + 1	1.21E4-1	1.19E + 1	1.17E + 1	1.22E + 1
50	1.90E+1	1.92E+1	1.90E + 1	1.88E+1	1.86E+1	1.85E+1	1.83E-J-1	1.81E+1	1.62E + 1
100	2.69E4-1	2.69E4-1	2.67E + 1	2.65E4-1	2.61E + 1	2.61E+1	2.60E+1	2.53E+1	2.55E + 1
125	3.02E + 1	3.02E+1	2.99E + 1	2.96E-H	2.93E4-1	2.91E + 1	2.88E + 1	2.85E+1	2.72E + 1
130	3.09E4-1	3.08E+1	3.05E+1	3.02E+1	2.99E + 1	2.96E4-1	2.94E-H	2.93E + 1	3.06E + 1
140	3.21E-J-1	3.20E+1	3.17E+1	3.13E+1	3.11E + 1	3.08E+1	3.05E + 1	3.03E+1	3.25E + 1
150	3.32E + 1	3.31E+1	3.29E+1	3.24E+1	3.22E + 1	3.19E+1	3.16E + 1	3.14E + 1	3.05E+1
170	3.55E+1	3.54E+1	3.51E+1	3.46E4-1	3.43E+1	3.40E+1	3.37E + 1	3.34E4-1	3.65E-J-1
200	3.85E4-1	3.84E+1	3.81E+1	3.75E4-1	3.72E4-1	3.69E+1	3.66E + 1	3.64E + 1	3.59E+1
250	4.35E + 1	4.34E+1	4.29E + 1	4.24E+1	4.18E+1	4.15E+1	4.12E + 1	4.10E + 1	4.04E + 1
300	4.81E + 1	4.77E-J-1	4.74E4-1	4.66E4-1	4.62E-J-1	4.58E+1	4.53E + 1	4.51E+1	4.45E + 1
350	5.22E + 1	5.20E+1	5.14E+1	5.09E-H	5.00E+1	4.96E+1	4.94E+1	4.89E+1	4.79E + 1
400	5.62E + 1	5.58E+1	5.54E+1	5.46E+1	5.39E-J-1	5.32E+1	5.28E4-1	5.28E4-1	5.24E + 1
500	6.36E+1	6.34E + 1	6.26E + 1	6.20E+1	6.10E + 1	6.05E+1	5.95E + 1	5.93E-H	5.89E+1
600	7.06E + 1	7.03E+1	6.94E + 1	6.84E4-1	6.74E+1	6.71E+1	6.59E-H	6.57E + 1	6.57E+1
700	7.71E4-1	7.69E+1	7.59E-J-1	7.47E-H	7.39E + 1	7.29E+1	7.22E+1	7.19E + 1	7.17E+1
1000	9.53E+1	9.47E-J-1	9.34E+1	9.17E+1	9.07E + 1	8.93E+1	8.81E + 1	8.76E-J-1	8.84E+1
1400	1.16E+2	1.16E+2	1.15E+2	1.12E + 2	1.11E+2	1.09E + 2	1.07E+2	1.08E+2	1.07E+2
2000	1.46E-J-2	1.46E+2	1.43E+2	1.40E+2	1.37E + 2	1.35E+2	1.34E+2	1.33E+2	1.33E+2
5000	2.69E+2	2.67E-J-2	2.63E + 2	2.55E + 2	2.49E + 2	2.44E + 2	2.39E+2	2.37E+2	2.37E + 2
10000	4.44E + 2	4.40E+2	4.29E + 2	4.12E+2	4.02E+2	3.89E + 2	3.81E + 2	3.79E + 2	3.75E + 2
20000	7.54E + 2	7.45E+2	7.20E + 2	6.87E+2	6.59E+2	6.33E-J-2	6.15E4-2	6.06E+2	6.01E + 2
50000	1.58E + 3	1.55E+3	1.47E + 3	1.37E+3	1.28E+3	1.21E + 3	1.15E+3	1.12E + 3	1.11E + 3

C → W

Sputtering yield of W by C
zl = 6. ml= 12.01. z2=74, m2 = 183.85, sbe=8.68 eV. rho=19.30 g/cm**3
ef=3.95 eV. esb=4.00 eV, ca=1.00. kk0 = kk0r=2 , kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx
only low fluence!
ne=ll. , na= 1

E_0 (eV)	0°	comment
55	4.77e-5	ef=0.95., esb = 1.00 eV
60	2.68e-4	ef=0.95., esb = 1.00 eV
70	2.25e-3	
100	1.23e-2	
200	6.24e-2	
500	1.66e-l	
1000	2.67e-l	
2000	3.68E-!	
5000	4.54e-l	
10000	5.02e-l	
40000	4.06e-l	ef=1.00., esb = 1.00 eV

Sputtered energy of W by C
only low fluence!
ne=ll, na= 1

E_0 (eV)	0°	comment
55	5.49e-7	ef=0.95., esb = 1.00 eV
60	4.59e-6	ef=0.95., esb = 1.00 eV
70	6.75e-5	
100	5.02e-4	
200	2.69e-3	
500	5.36e-3	
1000	6.08e-3	
2000	5.76E-3	
5000	4.16e-3	
10000	2.78e-3	
40000	8.53e-4	ef=1.00., esb=1.00 eV

C -> W

Particle reflection coefficient of C backscattered from W
zl = 6. ml = 12.01. z2 = 74, m2 = 183.85, sbe=8.68 eV. rho=19.30 g/cm**3
ef=3.95 eV, esb = 4.00 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program : testvmcx
only low fluence!
ne=ll. , na= 1

E_0 (eV)	0°	comment
55	6.23e-l	ef=0.95., esb = 1.00 eV
60	6.16e-l	ef=0.95., esb = 1.00 eV
70	5.81e-l	
100	5.61e-l	
200	5.25e-l	
500	4.77e-l	
1000	4.52e-l	
2000	4.22E-1	
5000	3.65e-l	
10000	3.27e-l	
40000	2.16e-l	ef=1.00, esb = 1.00 eV

Energy reflection coefficient of C backscattered from W
only low fluence!
ne=ll, na= 1

E_0 (eV)	0°	comment
55	3.55e-l	ef=0.95, esb = 1.00 eV
60	3.50e-l	ef=0.95, esb = 1.00 eV
70	3.28e-l	
100	3.10e-l	
200	2.79e-l	
500	2.40e-l	
1000	2.23e-l	
2000	2.02E-1	
5000	1.68e-l	
10000	1.45e-l	
40000	8.68e-2	ef=1.00, esb = 1.00 eV

Average depth (mean range) in Ä of C implanted in W
only low fluence!
ne=ll. , na= 1

E_o (eV)	0°	comment
55	9.11e+0	ef=0.95, esb = 1.00 eV
60	9.50e + 0	ef=0.95, esb = 1.00 eV
70	1.01e+l	
100	1.21e + l	
200	1.72e+l	
500	2.82e + l	
1000	4.14e+l	
2000	6.12E+1	
5000	1.10e+2	
10000	1.73e+2	
40000	5.00e4-2	ef=1.00, esb = 1.00 eV

C on W, Maxwellian velocity distribution, sheath potential 9 kT
zl= 6, ml = 12.01, z2 = 74, m2=183.85, sbe=8.68 eV, rho=19.29 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr= 1(KrC)
program: trvmc
only low fluence!
ne= 4

kT(eV)	Y	Y_E	E_{sp}	Rat	R_E	E_b	range
5	2.45e-4	8.40e-6	1.88e+0	6.50e-l	3.83e-l	3.24e+l	9.23e+0
10	1.59e-2	7.08e-4	4.90e+0	5.92e-l	3.33e-l	6.19e + l	1.29e-H
20	7.19e-2	3.10e-3	9.49e4-0	5.45e-l	2.94e-l	1.19e+2	1.82e+l
40	1.61e-l	5.52e-3	1.51e + l	5.07e-l	2.62e-l	2.28e + 2	2.61e + l

N -> W

Sputtering yield of W by N
zl = 7. ml= 14.01. z2=74, m2 = 183.85. sbe=8.68 eV. rho = 19.29 g/cm**3
ef=0.98 eV. esb = 1.00 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2 = 3. ipot=ipotr=l (KrG)
program: trvmc
ne=22, na=9

Eo(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
47	9.30e-6	7.00e-6							
48	1.82E-5	1.60E-5	1.20E-5	5.70E-6	2.30E-6				
50	5.70E-5	5.25E-5	3.93E-5	2.11E-5	1.07E-5	2.85E-6			
52	1.35E-4	1.28E-4	9.18E-5	5.06E-5	2.86E-5	9.30E-6			
55	3.60E-4	3.30E-4	2.56E-4	1.52E-4	8.47E-5	2.75E-5	3.08E-6		
60	9.73E-4	9.57E-4	7.55E-4	4.74E-4	2.76E-4	1.08E-4	1.52E-5	2.20E-6	
70	3.26E-3	3.26E-3	2.84E-3	2.02E-3	1.31E-3	5.87E-4	1.08E-4	1.98E-5	1.50E-6
80	7.00E-3	6.70E-3	6.06E-3	4.61E-3	3.18E-3	1.61E-3	3.52E-4	7.13E-5	6.20E-6
90	1.17E-2	1.14E-2	1.06E-2	8.58E-3	6.13E-3	3.36E-3	8.56E-4	2.12E-4	1.76E-5
100	1.72E-2	1.70E-2	1.60E-2	1.30E-2	1.03E-2	6.07E-3	1.78E-3	4.90E-4	4.29E-5
120	2.77E-2	2.79E-2	2.82E-2	2.53E-2	2.17E-2	1.43E-2	5.43E-3	1.70E-3	1.23E-4
140	3.99E-2	4.07E-2	4.14E-2	4.06E-2	3.50E-2	2.65E-2	1.14E-2	3.67E-3	2.47E-4
200	7.57E-2	8.00E-2	8.32E-2	8.70E-2	9.07E-2	7.77E-2	4.11E-2	1.50E-2	8.58E-4
300	1.32E-1	1.35E-1	1.48E-1	1.71E-1	1.85E-1	1.80E-1	1.15E-1	4.56E-2	2.65E-3
500	2.13E-1	2.21E-1	2.52E-1	3.10E-1	3.51E-1	3.68E-1	2.66E-1	1.26E-1	8.67E-3
1000	3.39E-1	3.58E-1	4.22E-1	5.35E-1	6.24E-1	6.89E-1	5.80E-1	3.49E-1	4.00E-2
2000	4.69e-l								
3000	5.40e-l								
5000	6.05e-l								
10000	6.54e-l								
20000	6.18e-l								
50000	5.30e-l								

Sputtered energy of W by N
ne=22, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
47	9.95e-8	7.47e-8							
48	2.19e-7	2.10e-7	1.92e-7	8.93e-8	4.20e-8				
50	8.42e-7	8.26e-7	6.77e-7	3.68e-7	1.82e-7	4.76e-8			
52	2.44E-6	2.31E-6	1.73E-6	1.00E-6	5.63e-7	1.87E-7			
55	7.80E-6	7.08E-6	5.73E-6	3.39E-6	1.85E-6	5.84E-7	6.31E-8		
60	2.61E-5	2.56E-5	2.10E-5	1.33E-5	7.59E-6	2.81E-6	3.75E-7	5.17E-8	
70	1.16E-4	1.16E-4	1.03E-4	7.42E-5	4.59E-5	1.97E-5	3.52E-6	6.60E-7	5.65E-8
80	2.85E-4	2.74E-4	2.52E-4	1.93E-4	1.32E-4	6.64E-5	1.39E-5	2.82E-6	3.05E-7
90	5.22E-4	5.06E-4	4.88E-4	3.93E-4	2.86E-4	1.56E-4	3.69E-5	9.32E-6	8.21E-7
100	7.88E-4	7.97E-4	7.61E-4	6.10E-4	5.13E-4	3.05E-4	8.38E-5	2.38E-5	2.27E-6
120	1.35E-3	1.35E-3	1.40E-3	1.30E-3	1.13E-3	7.54E-4	2.93E-4	9.69E-5	7.37E-6
140	1.92E-3	1.98E-3	2.10E-3	2.11E-3	1.89E-3	1.47E-3	6.53E-4	2.27E-4	1.59E-5
200	3.56E-3	3.78E-3	4.01E-3	4.41E-3	4.74E-3	4.30E-3	2.61E-3	1.04E-3	6.16E-5
300	5.49E-3	5.78E-3	6.39E-3	7.63E-3	8.72E-3	9.35E-3	7.08E-3	3.12E-3	1.94E-4
500	7.36E-3	7.71E-3	8.78E-3	1.15E-2	1.38E-2	1.63E-2	1.42E-2	7.70E-3	5.65E-4
1000	8.26E-3	8.76E-3	1.04E-2	1.40E-2	1.77E-2	2.21E-2	2.24E-2	1.55E-2	2.06E-3
2000	7.47e-3								
3000	6.94e-3								
5000	5.74e-3								
10000	3.92e-3								
20000	2.42e-3								
50000	1.06e-3								

N → W

Particle reflection coefficient of N backscattered from W
z1= 7. m1= 14.01. z2= 74. m2 = 183.85. sbe = 8.68 eV. rho=19.29 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00. kk0 = kk0r=2. kdee1 = kdee2 = 3. ipot=ipotr = 1 (KrC)
program: trvmc
ne=25. na=9

Eq(eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	7.68E-1	7.83E-1	8.14E-1	8.62E-1	9.01E-1	9.43E-1	9.74E-1	9.84E-1	9.88E-1
20	7.17E-1	7.34E-1	7.73E-1	8.36E-1	8.85E-1	9.39E-1	9.80E-1	9.91E-1	9.96E-1
40	6.52E-1	6.68E-1	7.13E-1	7.87E-1	8.50E-1	9.19E-1	9.78 E-1	9.93E-1	9.99E-1
47	6.37e-1	6.53e-1							
48	6.35E-1	6.51E-1	6.95E-1	7.72E-1	8.38E-1	9.12E-1	9.76E-1	9.93E-1	9.99E-1
50	6.31E-1	6.47E-1	6.92E-1	7.68E-1	8.35E-1	9.10E-1	9.76E-1	9.93E-1	9.99E-1
52	6.28E-1	6.43E-1	6.88E-1	7.65E-1	8.32E-1	9.08E-1	9.75E-1	9.93E-1	9.99E-1
55	6.22E-1	6.38E-1	6.83E-1	7.60E-1	8.28E-1	9.05E-1	9.74E-1	9.93E-1	9.99E-1
60	6.14E-1	6.30E-1	6.75E-1	7.52E-1	8.21E-1	9.01E-1	9.73E-1	9.93E-1	9.99E-1
70	6.00E-1	6.15E-1	6.61E-1	7.39E-1	8.09E-1	8.92E-1	9.70E-1	9.92E-1	9.99E-1
80	5.90E-1	6.04E-1	6.49E-1	7.27E-1	7.98E-1	8.84E-1	9.67E-1	9.92E-1	9.99E-1
90	5.83E-1	5.96E-1	6.39E-1	7.15E-1	7.88E-1	8.76E-1	9.64E-1	9.91E-1	9.99E-1
100	5.68E-1	5.88E-1	6.31E-1	7.08E-1	7.78E-1	8.70E-1	9.61E-1	9.91E-1	9.99E-1
120	5.58E-1	5.72E-1	6.16E-1	6.89E-1	7.63E-1	8.58E-1	9.56E-1	9.89E-1	9.99E-1
140	5.45E-1	5.61E-1	6.04E-1	6.78E-1	7.48E-1	8.45E-1	9.50E-1	9.88E-1	9.99E-1
200	5.25E-1	5.35E-1	5.77E-1	6.48E-1	7.19E-1	8.15E-1	9.32E-1	9.82E-1	9.99E-1
300	4.99E-1	5.11E-1	5.52E-1	6.19E-1	6.85E-1	7.77E-1	9.09E-1	9.73E-1	9.99E-1
500	4.72E-1	4.82E-1	5.18E-1	5.84E-1	6.48E-1	7.36E-1	8.70E-1	9.54E-1	9.98E-1
1000	4.38E-1	4.51E-1	4.84E-1	5.44E-1	6.09E-1	6.82E-1	8.10E-1	9.10E-1	9.94E-1
2000	4.11e-1								
3000	3.79e-1								
5000	3.55e-1								
10000	3.18e-1								
20000	2.67e-1								
50000	2.03e-1								

Energy reflection coefficient of N backscattered from W
ne=25. na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	4.40E-1	4.60E-1	5.04E-1	5.78E-1	6.48E-1	7.32E-1	8.13E-1	8.43E-1	8.62E-1
20	4.14E-1	4.35E-1	4.86E-1	5.75E-1	6.55E-1	7.55E-1	8.58E-1	8.97E-1	9.21E-1
40	3.66E-1	3.85E-1	4.38E-1	5.35E-1	6.27E-1	7.43E-1	8.71E-1	9.22E-1	9.52E-1
47	3.55e-1	3.72e-1							
48	3.53E-1	3.71E-1	4.23E-1	5.20E-1	6.15E-1	7.35E-1	8.71E-1	9.26E-1	9.58 E-1
50	3.50E-1	3.68E-1	4.19E-1	5.17E-1	6.12E-1	7.33E-1	8.70 E-1	9.26E-1	9.59E-1
52	3.47E-1	3.65E-1	4.16E-1	5.13E-1	6.09E-1	7.31E-1	8.70E-1	9.26E-1	9.60E-1
55	3.43E-1	3.60E-1	4.12E-1	5.09E-1	6.04E-1	7.28E-1	8.69E-1	9.28E-1	9.61E-1
60	3.37E-1	3.54E-1	4.04E-1	5.01E-1	5.97E-1	7.23E-1	8.68E-1	9.28E-1	9.63E-1
70	3.26E-1	3.42E-1	3.92E-1	4.87E-1	5.84E-1	7.12E-1	8.65 E-1	9.29E-1	9.66E-1
80	3.18E-1	3.33E-1	3.81E-1	4.75E-1	5.72E-1	7.03E-1	8.61E-1	9.29E-1	9.68E-1
90	3.11E-1	3.25E-1	3.72E-1	4.63E-1	5.61E-1	6.93E-1	8.57E-1	9.29E-1	9.70E-1
100	3.03E-1	3.18E-1	3.65E-1	4.55E-1	5.49E-1	6.85E-1	8.53E-1	9.28E-1	9.72E-1
120	2.92E-1	3.07E-1	3.51E-1	4.37E-1	5.32E-1	6.69E-1	8.44E-1	9.26E-1	9.74E-1
140	2.84E-1	2.97E-1	3.41E-1	4.23E-1	5.16E-1	6.54E-1	8.36E-1	9.24E-1	9.75E-1
200	2.68E-1	2.78E-1	3.17E-1	3.95E-1	4.81E-1	6.15E-1	8.10E-1	9.15E-1	9.77E-1
300	2.49E-1	2.59E-1	2.96E-1	3.65E-1	4.43E-1	5.69E-1	7.74E-1	8.98E-1	9.77E-1
500	2.29E-1	2.38E-1	2.69E-1	3.33E-1	4.02E-1	5.17E-1	7.18E-1	8.66E-1	9.75E-1
1000	2.07E-1	2.16E-1	2.45E-1	3.00E-1	3.62E-1	4.53E-1	6.34E-1	7.95E-1	9.64E-1
2000	1.89e-1								
3000	1.72e-1								
5000	1.56e-1								
10000	1.36e-1								
20000	1.10e-1								
50000	7.70e-2								

N -» W

Average depth (mean range) in Ä of N implanted in W
zl = 7. ml= 14.01, z2=74, m2=183.85, sbe=8.68 eV, rho = 19.29 g/cm**3
ef=0.98 eV. esb = 1.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc
ne=25. na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	3.80E+0	3.80E+0	3.80E4-0	3.70E4-0	3.70E+0	3.60E+0	3.50E4-0	3.50E+0	3.40E4-0
20	5.30E4-0	5.30E+0	5.20E+0	5.20E+0	5.10E+0	5.00E+0	4.90E+0	4.80E4-0	4.70E+0
40	7.20E+0	7.20E+0	7.20E4-0	7.10E+0	7.00E4-0	6.80E4-0	6.60E4-0	6.50E4-0	6.50E+0
47	7.81e+0	7.78e+0							
48	7.90E+0	7.90E+0	7.80E+0	7.70E+0	7.60E+0	7.40E4-0	7.20E+0	7.10E+0	7.00E+0
50	8.00E4-0	8.00E4-0	7.90E+0	7.80E+0	7.70E+0	7.60E4-0	7.40E4-0	7.20E4-0	6.90E4-0
52	8.20E+0	8.20E+0	8.10E+0	8.00E4-0	7.90E+0	7.70E+0	7.40E+0	7.50E+0	7.30E4-0
55	8.40E4-0	8.40E4-0	8.30E4-0	8.20E+0	8.10E+0	7.90E+0	7.70E+0	7.60E4-0	7.30E+0
60	8.70E4-0	8.70E4-0	8.60E4-0	8.50E+0	8.40E+0	8.20E+0	8.00E+0	7.90E+0	7.50E+0
70	9.40E4-0	9.40E+0	9.30E4-0	9.10E+0	9.00E4-0	8.90E4-0	8.60E+0	8.40E+0	8.30E+0
80	1.00E+1	1.00E+1	9.90E+0	9.70E+0	9.60E4-0	9.40E4-0	9.20E+0	9.00E+0	8.80E4-0
90	1.06E+1	1.06E+1	1.04E+1	1.02E+1	1.01E+1	1.00E+1	9.70E+0	9.40E+0	9.40E+0
100	1.12E4-1	1.11E4-1	1.10E+1	1.08E+1	1.06E+1	1.04E+1	1.02E+1	1.00E+1	9.70E4-0
120	1.22E+1	1.22E4-1	1.20E+1	1.18E+1	1.16E+1	1.14E4-1	1.11E+1	1.09E+1	1.08E+1
140	1.32E+1	1.31E+1	1.30E+1	1.27E+1	1.24E+1	1.23E+1	1.19E+1	1.18E+1	1.15E4-1
200	1.57E+1	1.57E+1	1.55E+1	1.51E+1	1.48E+1	1.45E+1	1.41E+1	1.40E+1	1.37E+1
300	1.92E+1	1.91E+1	1.90E+1	1.84E+1	1.82E+1	1.77E+1	1.74E+1	1.71E+1	1.63E+1
500	2.50E+1	2.50E+1	2.47E4-1	2.41E+1	2.34E+1	2.32E+1	2.26E+1	2.24E+1	2.16E4-1
1000	3.67E+1	3.65E+1	3.57E+1	3.45E4-1	3.38E+1	3.31E4-1	3.23E+1	3.23E+1	3.18E4-1
2000	5.41e+l								
3000	6.88e+l								
5000	9.41e+l								
10000	1.53e+2								
20000	2.53e4-2								
50000	5.15e4-2								

O -> W

Sputtering yield of W by O
z1 = 8. m1= 16.00, z2 = 74, m2 = 183.85, sbe = 8.68 eV. rho=19.30 g/cm**3
ef=0.95 eV. esb = 1.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = 1 (KrC)
program: TPP 9/82
only low fluence!
ne= 9, na= 1

E_0 (eV)	0°
50	3.63e-4
100	2.17e-2
200	9.00e-2
300	1.52e-1
500	2.45e-1
1000	3.71e-1
2000	5.33e-1
5000	6.89e-1
6000	7.64e-1

Ne W

Sputtering yield of W by Ne
z1 = 10, m1= 20.18, z2 = 74, m2 = 183.85, sbe=8.68 eV. rho = 19.29 g/cm**3
ef=0.20 eV. esb=0.00 eV. ca=1.00, kk0=kk0r = 2, kdee1 = kdee2 = 3. ipot=ipotr = 1 (KrC)
program: trvmc
ne=14, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
40	9.80E-6	7.70E-6	4.40E-6	1.80E-6	2.00E-6				
45	1.64E-4	1.37E-4	1.01E-4	4.66E-5	2.21E-5	4.88E-6			
50	7.38E-4	6.43E-4	4.83E-4	2.82E-4	1.44E-4	4.22E-5	2.52E-6		
60	3.61E-3	3.30E-3	2.74E-3	1.78E-3	1.09E-3	4.35E-4	5.33E-5	5.00E-6	
70	8.44E-3	8.11E-3	7.47E-3	5.27E-3	3.45E-3	1.69E-3	2.95E-4	4.46E-5	
80	1.58E-2	1.48E-2	1.41E-2	1.05E-2	7.52E-3	4.17E-3	9.51E-4	1.79E-4	
100	3.15E-2	3.13E-2	3.07E-2	2.59E-2	2.11E-2	1.40E-2	4.70E-3	8.37E-4	5.15E-6
140	6.97E-2	6.94E-2	7.15E-2	7.05E-2	6.58E-2	5.08E-2	2.06E-2	4.65E-3	3.58E-5
200	1.23E-1	1.29E-1	1.39E-1	1.50E-1	1.53E-1	1.33E-1	6.38E-2	1.72E-2	1.93E-4
300	2.02E-1	2.14E-1	2.38E-1	2.77E-1	2.91E-1	2.75E-1	1.46E-1	5.07E-2	8.85E-4
400	2.67E-1	2.82E-1	3.22E-1	3.88E-1	4.30E-1	4.11E-1	2.39E-1	9.32E-2	2.23E-3
500	3.24E-1	3.45E-1	4.00E-1	4.88E-1	5.41E-1	5.35E-1	3.37E-1	1.39E-1	4.54E-3
700	4.25E-1	4.44E-1	5.14E-1	6.38E-1	7.16E-1	7.37E-1	5.06E-1	2.38E-1	1.23E-2
1000	5.33E-1	5.62E-1	6.66E-1	8.18E-1	9.43E-1	9.76E-1	7.53E-1	3.99E-1	2.98E-2

Sputtered energy of W by Ne
ne = 22, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
40	1.81e-7	1.58e-7	9.73e-8	4.89e-8	1.06e-7				
45	4.44e-6	3.82e-6	3.06e-6	1.41e-6	6.32e-7	1.37e-7			
50	2.59E-5	2.26E-5	1.79E-5	1.07E-5	5.34E-6	1.54E-6	1.21E-7		
60	1.63E-4	1.53E-4	1.29E-4	8.42E-5	5.03E-5	2.14E-5	2.91E-6	3.16E-7	
70	4.42E-4	4.29E-4	4.09E-4	2.92E-4	1.97E-4	9.88E-5	1.85E-5	3.05E-6	
80	8.87E-4	8.80E-4	8.36E-4	6.35E-4	4.66E-4	2.66E-4	6.30E-5	1.30E-5	
100	1.91E-3	1.92E-3	1.95E-3	1.70E-3	1.48E-3	9.78E-4	3.65E-4	7.09E-5	3.81E-7
140	4.12E-3	4.20E-3	4.44E-3	4.68E-3	4.58E-3	3.83E-3	1.77E-3	4.35E-4	2.90E-6
200	6.81E-3	7.39E-3	8.15E-3	9.36E-3	1.02E-2	9.88E-3	5.63E-3	1.64E-3	1.62E-5
300	9.82E-3	1.04E-2	1.18E-2	1.51E-2	1.72E-2	1.84E-2	1.21E-2	4.53E-3	7.32E-5
400	1.15E-2	1.20E-2	1.41E-2	1.87E-2	2.22E-2	2.49E-2	1.74E-2	7.62E-3	1.79E-4
500	1.26E-2	1.35E-2	1.57E-2	2.08E-2	2.57E-2	2.96E-2	2.29E-2	1.06E-2	3.18E-4
700	1.38E-2	1.43E-2	1.72E-2	2.33E-2	2.85E-2	3.42E-2	2.92E-2	1.58E-2	7.77E-4
1000	1.42E-2	1.52E-2	1.79E-2	2.43E-2	3.15E-2	3.70E-2	3.56E-2	2.18E-2	1.61E-3

Ne -> W

Particle reflection coefficient of Ne backscattered from W
zl = 10. ml = 20.18. z2=74. m2 = 183.85. sbe=8.68 eV. rho = 19.29 g/cm**3
ef=0.20 eV. esb=0.00 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr = l (KrC)
program: trvmc
ne=17. na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	8.10E-1	8.24E-1	8.53E-1	8.97E-1	9.36E-1	9.74E-1	9.96 E-l	l.OOE-f-O	1.00E+0
20	7.44E-1	7.61E-1	7.98E-1	8.59E-1	9.09E-1	9.62E-1	9.95E-1	9.99E-1	1.00E4-0
30	6.97E-1	7.14E-1	7.58E-1	8.28E-1	8.86E-1	9.50E-1	9.93E-1	9.99E-1	1.00E+0
40	6.62E-1	6.80E-1	7.26E-1	8.03E-1	8.67E-1	9.38E-1	9.90E-1	9.99E-1	1.00E4-0
45	6.48E-1	6.66E-1	7.13E-1	7.92E-1	8.59E-1	9.32E-1	9.89E-1	9.99 E-l	1.00E+0
50	6.36E-1	6.54E-1	7.01E-1	7.82E-1	8.50E-1	9.27E-1	9.88E-1	9.99E-1	1.00E + 0
60	6.16E-1	6.32E-1	6.80E-1	7.63E-1	8.36E-1	9.17E-1	9.85E-1	9.98E-1	1.00E+0
70	5.99E-1	6.15E-1	6.62E-1	7.48E-1	8.23E-1	9.08E-1	9.82E-1	9.98E-1	1.00E+0
80	5.85E-1	6.02E-1	6.46E-1	7.34E-1	8.10E-1	8.99E-1	9.79E-1	9.98E-1	1.00E + 0
100	5.61E-1	5.79E-1	6.25E-1	7.13E-1	7.88E-1	8.83E-1	9.74E-1	9.97E-1	l.OOE-f-O
140	5.31E-1	5.44E-1	5.93E-1	6.76E-1	7.54 E-l	8.58 E-l	9.63E-1	9.94E-1	l.OOE-f-O
200	5.02E-1	5.19E-1	5.65E-1	6.42E-1	7.17E-1	8.23 E-l	9.46E-1	9.90E-1	l.OOE-f-O
300	4.71E-1	4.87E-1	5.27E-1	6.07E-1	6.82E-1	7.86E-1	9.25E-1	9.82E-1	l.OOE-f-O
400	4.54E-1	4.66E-1	5.15E-1	5.86E-1	6.58E-1	7.57E-1	9.05E-1	9.73E-1	l.OOE-f-O
500	4.39E-1	4.56E-1	4.96E-1	5.60E-1	6.36E-1	7.38 E-l	8.80E-1	9.66 E-l	l.OOE-f-O
700	4.22E-1	4.35E-1	4.72E-1	5.40E-1	6.05E-1	7.05E-1	8.54 E-l	9.48E-1	9.99E-1
1000	4.04E-1	4.15E-1	4.52E-1	5.16E-1	5.83E-1	6.75E-1	8.16E-1	9.23E-1	9.98E-1

Energy reflection coefficient of Ne backscattered from W
ne=17. na=9

E_0 (eV)	0°	15°	30 °	45°	55 °	65°	75°	80°	85°
10	4.10E-1	4.32E-1	4.80E-1	5.68E-1	6.59E-1	7.76 E-l	8.97E-1	9.44E-1	9.77E-1
20	3.77E-1	3.98E-1	4.52E-1	5.48E-1	6.41E-1	7.64 E-l	8.97E-1	9.49E-1	9.83E-1
30	3.48E-1	3.69E-1	4.26E-1	5.26E-1	6.23E-1	7.51 E-l	8.93E-1	9.50E-1	9.85E-1
40	3.27E-1	3.47E-1	4.03E-1	5.07E-1	6.06E-1	7.37E-1	8.88E-1	9.49E-1	9.86 E-l
45	3.19E-1	3.38E-1	3.94E-1	4.97E-1	5.98E-1	7.31E-1	8.86E-1	9.49E-1	9.86E-1
50	3.11E-1	3.30E-1	3.85E-1	4.89E-1	5.90E-1	7.25E-1	8.83E-1	9.48E-1	9.86E-1
60	2.98E-1	3.16E-1	3.69E-1	4.73E-1	5.77E-1	7.13E-1	8.78E-1	9.47E-1	9.87E-1
70	2.87E-1	3.04E-1	3.55E-1	4.59E-1	5.63E-1	7.02E-1	8.73 E-l	9.45E-1	9.87E-1
80	2.79 E-l	2.95E-1	3. 43 E-l	4.46E-1	5.51E-1	6.92E-1	8.67E-1	9.43E-1	9.87E-1
100	2.63E-1	2.79E-1	3.27E-1	4.26E-1	5.28E-1	6.74E-1	8.57E-1	9.40E-1	9.87E-1
140	2.45E-1	2.57E-1	3.02E-1	3.94E-1	4.93 E-l	6.41E-1	8.39E-1	9.33E-1	9.86E-1
200	2.27E-1	2.39E-1	2.81E-1	3.62E-1	4.54E-1	6.02E-1	8.13E-1	9.22E-1	9.85E-1
300	2.08E-1	2.21E-1	2.56E-1	3.33E-1	4.19E-1	5.55E-1	7.80E-1	9.05E-1	9.84E-1
400	1.97E-1	2.08E-1	2.45E-1	3.12E-1	3.92E-1	5.25E-1	7.48E-1	8.87E-1	9.82 E-l
500	1.89E-1	1.99E-1	2.32E-1	2.96E-1	3.75E-1	4.98E-1	7ol8E-l	8.74E-1	9.80E-1
700	1.79 E-l	1.88E-1	2.18E-1	2.78E-1	3.45E-1	4.65E-1	6.80E-1	8.44E-1	9.77E-1
1000	1.67E-1	1.76E-1	2.06E-1	2.63E-1	3.26E-1	4.30E-1	6.28E-1	8.05E-1	9.71E-1

Average depth (mean range) in Å of Ne implanted in W
ne=17, na=9

E_0 (eV)	0 6	15°	30°	45°	55°	65°	75°	80 0	85°
10	3.70E+0	3.60E+0	3.60E-J-0	3.60E + 0	3.50E4-0	3.40E4-0	3.30E+0	3.20E-f-0	2.90E + 0
20	4.70E+0	4.70E + 0	4.60E + 0	4.60E+0	4.50E-J-0	4.40E + 0	4.20E+0	4.10E+0	4.00E4-0
30	5.50E4-0	5.40E+0	5.40E + 0	5.30E4-0	5.20E4-0	5.10E4-0	4.90E+0	4.80E+0	4.50E-f-0
40	6.10E4-0	6.10E+0	6.10E + 0	6.00E+0	5.90E+0	5.70E+0	5.50E+0	5.30E+0	5.10E+0
45	6.40E4-0	6.40E4-0	6.40E4-0	6.30E4-0	6.20E4-0	6.00E-J-0	5.80E4-0	5.40E4-0	5.00E4-0
50	6.70E+0	6.70E+0	6.60E4-0	6.50E+0	6.40E4-0	6.30E-J-0	6.00B+0	6.00E + 0	5.70E+0
60	7.30E + 0	7.20E+0	7.20E + 0	7.00E+0	6.90E+0	6.80E + 0	6.50E-I-0	6.30E4-0	6.20E4-0
70	7.80E + 0	7.70E4-0	7.60E + 0	7.50E4-0	7.40E+0	7.20E + 0	6.90E4-0	6.70E + 0	5.60E + 0
80	8.20E+0	8.20E4-0	8.10E4-0	8.00E-f-0	7.80E4-0	7.60E4-0	7.30E-J-0	7.10E + 0	6.70E4-0
100	9.10E+0	9.00E+0	8.90E4-0	8.80E4-0	8.60E + 0	8.40E-f-0	8.10E4-0	7.90E-J-0	7.70E+0
140	1.06E + 1	1.05E+1	1.04E+1	1.02E+1	l.OOE-f-1	9.80E4-0	9.30E+0	9.10E+0	8.30E + 0
200	1.26E + 1	1.25E+1	1.23E + 1	1.19E+1	1.16E-J-1	1.15E+1	1.12E+1	1.08E + 1	1.08E4-1
300	1.53E+1	1.51E+1	1.49E-J-1	1.44E4-1	1.40E+1	1.38E+1	1.36E+1	1.34E+1	1.22E+1
400	1.76E+1	1.74E-J-1	1.71E+1	1.68E+1	1.62E4-1	1.59E+1	1.54E-f-l	1.52E+1	1.44E + 1
500	1.97E-J-1	1.96E+1	1.92E+1	1.87E-J-1	1.82E + 1	1.77E-J-1	1.72E+1	1.70E4-1	1.63E + 1
700	2.35E + 1	2.34E+1	2.30E-J-1	2.22E+1	2.16E4-1	2.10E+1	2.07E + 1	1.99E4-1	1.90E4-1
1000	2.85E + 1	2.82E+1	2.74E4-1	2.65E + 1	2.58E-I-1	2.53E+1	2.47E + 1	2.43E-J-1	2.30E+1

Ar → W

Sputtering yield of W by Ar
zl = 18. ml = 39.95. z2 = 74. m2 = 183.85. sbe = 8.68 eV. rho = 19.29 g/cm**3
ef=0.20 eV. esb = 0.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrG)
program: trvmc
ne=18. na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
28	9.03e-7								
29	2.97e-6								
30	1.03e-5	1.54e-5	1.89e-5	1.39e-5	6.10e-6	2.00e-6			
35	1.17e-4	1.16e-4	1.13e-4	7.32e-5	3.97e-5	2.08e-5	4.80e-6		
40	4.63e-4	4.26e-4	3.63e-4	2.59e-4	1.70e-4	9.82e-5	3.55e-5	8.10e-6	
45	1.26e-3	1.21e-3	1.01e-3	7.35e-4	5.69e-4	3.79e-4	1.47e-4	3.07e-5	
50	2.85e-3	2.74e-3	2.41e-3	1.83e-3	1.48e-3	1.04e-3	4.24e-4	8.66e-5	1.20e-6
55	5.23e-3	5.12e-3	4.44e-3	3.73e-3	3.16e-3	2.39e-3	9.13e-4	1.85e-4	
60	8.40e-3	8.23e-3	7.65e-3	6.36e-3	5.86e-3	4.35e-3	1.72e-3	3.40e-4	2.40e-6
70	1.75e-2	1.75e-2	1.63e-2	1.51e-2	1.41e-2	1.12e-2	4.05e-3	7.82e-4	9.60e-6
80	2.86e-2	2.90e-2	2.93e-2	2.82e-2	2.57e-2	2.10e-2	7.61e-3	1.51e-3	1.39e-5
100	5.60e-2	5.54e-2	5.93e-2	6.20e-2	5.85e-2	4.78e-2	1.82e-2	4.00e-3	4.54e-5
140	1.16e-1	1.19e-1	1.33e-1	1.50e-1	1.49e-1	1.22e-1	5.03e-2	1.22e-2	1.68e-4
200	2.01e-1	2.13e-1	2.50e-1	2.91e-1	2.98e-1	2.50e-1	1.11e-1	3.11e-2	5.67e-4
300	3.36e-1	3.59e-1	4.23e-1	5.08e-1	5.23e-1	4.56e-1	2.27e-1	7.70e-2	2.00e-3
500	5.62e-1	5.91e-1	7.03e-1	8.40e-1	8.99e-1	8.17e-1	4.63e-1	1.82e-1	8.08e-3
700	7.25e-1	7.78e-1	9.26e-1	1.11e-0	1.19e-0	1.13e-0	6.81e-1	3.04e-1	1.84e-2
1000	9.26e-1	9.93e-1	1.19e-0	1.42e-0	1.54e-0	1.52e-0	1.02e-0	4.98e-1	3.94e-2

Sputtered energy of W by Ar
ne=18j na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
28	3.16e-8								
29	1.11e-7								
30	4.34e-7	7.73e-7	1.19e-6	9.26e-7	4.44e-7	1.57e-7			
35	5.98E-6	6.60E-6	7.76E-6	5.60E-6	3.37E-6	2.05E-6	6.27E-7		
40	2.65E-5	2.68E-5	2.58E-5	2.16E-5	1.54E-5	1.01E-5	4.13E-6	9.58E-7	
45	7.98E-5	8.21E-5	7.56E-5	6.21E-5	5.39E-5	3.91E-5	1.65E-5	3.66E-6	
50	1.94E-4	1.97E-4	1.85E-4	1.59E-4	1.46E-4	1.08E-4	4.92E-5	1.06E-5	9.36E-8
55	3.72E-4	3.80E-4	3.63E-4	3.51E-4	3.24E-4	2.64E-4	1.13E-4	2.33E-5	
60	6.12E-4	6.36E-4	6.49E-4	6.19E-4	6.17E-4	4.90E-4	2.24E-4	4.52E-5	2.79E-7
70	1.33E-3	1.40E-3	1.46E-3	1.51E-3	1.50E-3	1.34E-3	5.60E-4	1.11E-4	1.18E-6
80	2.27E-3	2.39E-3	2.64E-3	2.86E-3	2.84E-3	2.64E-3	1.10E-3	2.21E-4	1.56E-6
100	4.45E-3	4.54E-3	5.29E-3	6.30E-3	6.56E-3	6.12E-3	2.75E-3	6.06E-4	5.49E-6
140	8.70E-3	9.24E-3	1.11E-2	1.43E-2	1.61E-2	1.53E-2	7.50E-3	1.88E-3	1.98E-5
200	1.35E-2	1.47E-2	1.83E-2	2.47E-2	2.91E-2	2.91E-2	1.57E-2	4.53E-3	5.90E-5
300	1.88E-2	2.07E-2	2.59E-2	3.65E-2	4.37E-2	4.60E-2	2.79E-2	9.91E-3	1.75E-4
500	2.40E-2	2.59E-2	3.28E-2	4.68E-2	5.82E-2	6.30E-2	4.44E-2	1.92E-2	6.11E-4
700	2.55E-2	2.83E-2	3.66E-2	5.18E-2	6.44E-2	7.35E-2	5.52E-2	2.73E-2	1.21E-3
1000	2.64E-2	2.96E-2	3.80E-2	5.50E-2	6.84E-2	7.99E-2	6.70E-2	3.74E-2	2.32E-3

Ar - 4 W

Particle reflection coefficient of Ar backscattered from W
zl = 18. ml = 39.95. z2=74, m2 = 183.85. sbe=8.68 eV. rho = 19.29 g/cm**3
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc
ne=18., na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	7.40E-1	7.60E-1	7.96E-1	8.56E-1	9.09E-1	9.62E-1	9.94E-1	9.99E-1	1.00E4-0
20	6.86E-1	7.07E-1	7.54E-1	8.27E-1	8.89E-]	9.53E-1	9.93E-1	9.99E-1	l.OOE-f-O
30	6.41E-1	6.63E-1	7.15E-1	7.99E-1	8.68E-1	9.42E-1	9.92E-1	9.99E-1	1.00E4-0
35	6.22E-1	6.44E-1	6.99E-1	7.86E-1	8.59E-1	9.37E-1	9.91E-1	9.99E-1	1.00E+0
40	6.05E-1	6.27E-1	6.83E-1	7.74E-1	8.50E-1	9.31E-1	9.90E-1	9.99E-1	1.00E + 0
45	5.90E-1	6.12E-1	6.70E-1	7.64E-1	8.41E-1	9.26 E-l	9.89E-1	9.99E-1	1.00E + 0
50	5.77E-1	5.99E-1	6.58E-1	7.53E-1	8.33E-1	9.21E-1	9.87E-1	9.99E-1	1.00E+0
55	5.65E-1	5.87E-1	6.45E-1	7.44E-1	8.26E-1	9.16E-1	9.86E-1	9.99E-1	1.00E + 0
60	5.56E-1	5.78E-1	6.35E-1	7.34E-1	8.18E-1	9.12E-1	9.85E-1	9.98E-1	1.00E+0
70	5.35E-1	5.56E-1	6.17E-1	7.19E-1	8.05E-1	9.03E-1	9.82E-1	9.98E-1	1.00E4-0
80	5.21E-1	5.42E-1	6.02E-1	7.04E-1	7.92E-1	8.94E-1	9.80E-1	9.98E-1	1.00E+0
100	4.97E-1	5.16E-1	5.73E-1	6.76E-1	7.70E-1	8.78E-1	9.74E-1	9.97E-1	l.OOE-f-O
140	4.60E-1	4.80E-1	5.35E-1	6.40E-1	7.35 E-l	8.52E-1	9.65E-1	9.95E-1	l.OOE-f-O
200	4.31E-1	4.44E-1	4.97E-1	5.99E-1	6.95E-1	8.19E-1	9.51E-1	9.92E-1	1.00E+0
300	3.93E-1	4.13E-1	4.63E-1	5.57E-1	6.49E-1	7.76E-1	9.27E-1	9.85E-1	l.OOE-f-O
500	3.60E-1	3.71E-1	4.17E-1	5.08E-1	5.97E-1	7.24E-1	8.90E-1	9.71E-1	l.OOE-f-O
700	3.38E-1	3.52E-1	3.98E-1	4.77E-1	5.63E-1	6.79 E-l	8.63E-1	9.56E-1	9.99E-1
1000	3.17E-1	3.29E-1	3.81E-1	4.58E-1	5.36E-1	6.45E-1	8.23E-1	9.36E-1	9.99E-1

Energy reflection coefficient of Ar backscattered from W
ne=18, na=9

E_0 (eV)	0°	15°	30°	45°	55°	65°	75°	80°	85°
10	2.34E-1	2.57E-1	3.08E-1	4.07E-1	5.15E-1	6.62E-1	8.27E-1	9.00E-1	9.56E-1
20	2.27E-1	2.50E-1	3.05E-1	4.06E-1	5.11E-1	6.59E-1	8.34 E-l	9.11E-1	9.68E-1
30	2.15E-1	2.36E-1	2.92E-1	3.97E-1	5.02E-1	6.50E-1	8.32E-1	9.14E-1	9.72E-1
35	2.09E-1	2.30E-1	2.86E-1	3.92E-1	4.97E-1	6.46E-1	8.30 E-l	9.14E-1	9.74E-1
40	2.04E-1	2.24E-1	2.80E-1	3.86E-1	4.93E-1	6.41E-1	8.29E-1	9.15E-1	9.75E-1
45	1.99E-1	2.18E-1	2.74E-1	3.80E-1	4.88E-1	6.37E-1	8.27E-1	9.15E-1	9.75E-1
50	1.94E-1	2.13E-1	2.68E-1	3.75E-1	4.83E-1	6.32E-1	8.25E-1	9.14E-1	9.76E-1
55	1.90E-1	2.08E-1	2.62E-1	3.70E-1	4.78 E-l	6.28E-1	8.23E-1	9.14E-1	9.76E-1
60	1.86E-1	2.05E-1	2.58E-1	3.64E-1	4.74E-1	6.25E-1	8.21E-1	9.13E-1	9.77E-1
70	1.79 E-l	1.96E-1	2.49E-1	3.54E-1	4.63E-1	6.17E-1	8.16E-1	9.12E-1	9.77E-1
80	1.74E-1	1.90E-1	2.41E-1	3.45E-1	4.54E-1	6.07E-1	8.12E-1	9.11E-1	9.78E-1
100	1.64E-1	1.79E-1	2.28E-1	3.27E-1	4.39E-1	5.94E-1	8.03E-1	9.08E-1	9.78E-1
140	1.49E-1	1.64E-1	2.07E-1	3.03E-1	4.11E-l	5.68E-1	7.87E-1	9.02E-1	9.78E-1
200	1.38E-1	1.48E-1	1.88E-1	2.76E-1	3.76E-1	5.35E-1	7.67E-1	8.92E-1	9.78E-1
300	1.23E-1	1.35E-1	1.70E-1	2.46E-1	3.39E-1	4.93E-1	7.35 E-l	8.76E-1	9.76E-1
500	1.09E-1	1.18E-1	1.47E-1	2.15E-1	2.98E-1	4.41E-1	6.85E-1	8.50E-1	9.73E-1
700	1.01E-1	1.10E-1	1.38E-1	1.97E-1	2.73E-1	4.00E-1	6.50E-1	8.25E-1	9.70E-1
1000	9.39E-2	1.00E-1	1.29E-1	1.82E-1	2.52E-1	3.67E-1	6.01E-1	7.92E-1	9.64E-1

Average depth (mean range) in Å of Ar implanted in W
ne=18., na=9

E_0 (eV)	0°	15°	30 °	45°	55 °	65°	75°	80°	85°
10	2.40E+0	2.40E4-0	2.30E4-0	2.30E+0	2.20E4-0	2.10E4-0	1.90E+0	1.70E + 0	1.40E4-0
20	3.30E + 0	3.20E+0	3.20E + 0	3.10E+0	3.00E4-0	2.90E + 0	2.60E+0	2.50E4-0	1.90E + 0
30	3.90E+0	3.80E4-0	3.80E+0	3.70E+0	3.60E-J-0	3.40E + 0	3.20E+0	3.10E4-0	2.70E+0
35	4.10E4-0	4.10E-J-0	4.00E+0	3.90E4-0	3.80E4-0	3.70E + 0	3.40E+0	3.20E-J-0	2.90E+0
40	4.30E+0	4.30E+0	4.30E + 0	4.20E+0	4.00E+0	3.90E-J-0	3.60E4-0	3.40E4-0	S.lOE-f-O
45	4.60E+0	4.50E4-0	4.50E-J-0	4.40E4-0	4.20E + 0	4.10E+0	3.80E-J-0	3.60E4-0	3.20E + 0
50	4.80E-f-0	4.70E-f-0	4.70E4-0	4.50E + 0	4.40E+0	4.20E-J-0	4.00E+0	3.70E4-0	3.10E4-0
55	4.90E+0	4.90E+0	4.80E + 0	4.70E+0	4.60E+0	4.40E + 0	4.10E+0	3.90E4-0	3.60E+0
60	5.10E4-0	5.10E4-0	5.00E + 0	4.90E+0	4.80E4-0	4.60E-J-0	4.20E4-0	4.00E-J-0	3.20E+0
70	5.50E+0	5.40E+0	5.40E + 0	5.20E4-0	5.10E-J-0	4.90E + 0	4.60E4-0	4.30E+0	3.40E+0
80	5.80E+0	5.80E+0	5.70E4-0	5.50E4-0	5.40E + 0	5.20E-J-0	4.80E+0	4.50E4-0	4.10E+0
100	6.40E + 0	6.30E+0	6.30E + 0	6.10E+0	5.90E4-0	5.70E4-0	5.30E-J-0	4.90E + 0	4.40E + 0
140	7.40E-J-0	7.40E+0	7.20E-J-0	7.00E4-0	6.80E-J-0	6.50E + 0	6.20E4-0	5.80E+0	6.10E4-0
200	8.70E+0	8.60E+0	8.40E-J-0	8.20E-J-0	7.90E + 0	7.60E4-0	7.20E+0	6.80E+0	6.00E+0
300	1.05E-J-1	1.05E-J-1	1.02E+1	9.80E+0	9.50E+0	9.10E+0	8.60E4-0	8.20E+0	9.20E4-0
500	1.34E+1	1.33E-J-1	1.29E4-1	1.24E+1	1.19E-J-1	1.15E+1	1.09E4-1	1.06E4-1	9.70E+0
700	1.59E+1	1.57E-J-1	1.52E+1	1.46E+1	1.42E+1	1.35E4-1	1.29E-J-1	1.24E-H	1.14E-J-1
1000	1.89E4-1	1.88E+1	1.81E+1	1.74E+1	1.66E-J-1	1.59E-J-1	1.53E+1	1.48E+1	1.38E+1

Ar -> W

Sputtering yield of W by Ar
zl = 18. ml = 39.95. z2=74, 1112=183.85. *sbe (eV),* rho = 19.29 g/cm**3
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: trvmcOl
ne= 2, na= 1. n(sbe)= 5

E_0 (eV)	25	30
sbe (eV)		
4.34	1.Ole-3	4.21e-3
5.00	2.91e-4	1.82e-3
6.00	4.24e-5	4.37e-4
7.00	3.56e-6	9.12e-5
8.00		1.36e-5

Sputtered energy of W by Ar
ne= 2, na= 1. n(sbe) = 5

E_0 (eV)	25	30
sbe (eV)		
4.34	6.81e-5	3.19e-4
5.00	1.76e-5	1.28e-4
6.00	2.13e-6	2.62e-5
7.00	1.51e-7	4.76e-6
8.00		6.21e-7

Particle reflection coefficient of Ar backscattered from W
zl = 18, ml= 39.95, z2= 74, m2=183.85. *sbe (eV),* rho = 19.29 g/cm**3
ef=0.20 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: trvmcOl
ne= 2, na= 1, n(sbe) = 5

E_0 (eV)	25	30 ■
sbe (eV)		
4.34	6.55e-l	6.32e-l
5.00	6.55e-l	6.33e-l
6.00	6.55e-l	6.34e-l
7.00	6.55e-l	6.34e-l
8.00		6.33e-l

Energy reflection coefficient of Ar backscattered from W
ne= 2, na= 1, n(sbe)= 5

E_0 (eV)	25	30
sbe (eV)		
4.34	2.18e-l	2.12e-l
5.00	2.18e-l	2.12e-l
6.00	2.18e-l	2.12e-l
7.00	2.18e-l	2.12e-l
8.00		2.12e-l

Average depth (mean range) in Ä of Ar implanted in W
ne= 2, na= 1, n(sbe)= 5

Eq (eV)	25	30
sbe (eV)		
4.34	3.50e+0	3.78e+0
5.00	3.50e+0	3.78e+0
6.00	3.50e+0	3.78e+0
7.00	3.50e+0	3.78e-f-0
8.00		3.78e+0

Sputtering yield of W by Ar
zl = 18, ml= 39.95, z2= 74, m2 = 183.85, sbe=8.68 eV, rho = 19.29 g/cm**3
ef=0.20 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
e0= 25 eV, alpha=O deg., *Maxwellian target temperature tt (K)* program: trvmcOl
ne= 1, na= 1, n(tt)= 4

E_0 (eV)	25
tt (K)	
9000	1.50e-5
15000	1.00e-4
25000	3.80e-4
50000	1.09e-3

W -» AV

Sputtering yield of W by W
zl=s74. ml = 183.85. z2=74. m2 = 183.85, sbe=8.68 eV, rho = 19.30 g/cm**3
ef=8.60 eV. esb = 8.68 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: trvmc. trspvmcx. testvmcx
ne=58. na=16

E_0 (eV)	0°	10°	15°	20°	30°	40°	45°	50°	55°	60°	65°	70°
9									4.60e-7		1.25e-6	
10									3.11E-6		6.44E-6	
12							5.69E-6		1.73E-5		2.99E-5	
15					2.98E-6		3.44E-5		7.10E-5		1.04E-4	
17											1.49e-4	
20			2.50E-6		3.29E-5		1.69E-4		2.61E-4		3.22E-4	
20											2.80e-4	
25	6.28E-7		1.46E-5		1.36E-4		4.18E-4		6.28E-4		8.73E-4	
23											5.41e-4	
25											8.70e-4	
27	1.40e-6		1.38e-5		9.02e-5		2.96e-4		5.53e-4		1.14e-3	
28											1.79e-3	
30	5.80E-6		4.91E-5		3.11E-4		8.89E-4		1.55E-3		2.63E-3	
30	5.50e-6	1.82e-5		8.59e-5	2.69e-4	5.87e-4		1.10e-3		2.09e-3	2.79e-3	3.43e-3
35	2.13E-5		1.14E-4		6.18E-4		1.93E-3		3.71E-3		6.34E-3	
35	2.30e-6											
36	1.10e-5										7.93e-3	
37	2.83e-5											
38	5.81e-5											
40	5.60E-5		2.39E-4		1.15E-3		4.02E-3		7.70E-3		1.25E-2	
40	1.43e-4										1.29e-2	
42	2.89e-4											
45	5.69e-4											
50	1.92E-4		7.04E-4		3.64E-3		1.23E-2		2.16E-2		3.08E-2	
50	1.77e-4	3.60e-4		1.20e-3	3.51e-3	8.85e-3		1.78e-2		2.79e-2	3.22e-2	3.54e-2
55	3.13e-4											
60	5.89E-4		1.85E-3		8.48E-3		2.64E-2		4.29E-2		5.59E-2	
60	5.42e-4										5.91e-2	
65	9.32e-4											
70	1.51E-3		4.16E-3		1.70E-2		4.71E-2		7.08E-2		8.55E-2	
70	1.41e-3										8.60e-2	
80	3.15E-3		7.97E-3		2.83E-2		7.25E-2		1.02E-1		1.18E-1	
80	2.99e-3										1.22e-l	
100	9.54E-3		2.04E-2		6.03E-2		1.31E-1		1.71E-1		1.86E-1	
100	9.26e-3	1.42e-2		3. Ole-2	5.99e-2	1.06e-l		1.60e-l		1.88e-l	1.90e-l	1.80e-l
120	2.04E-2		3.92E-2		1.00E-1		1.96E-1		2.45E-1		2.54E-1	
140	3.58E-2		6.20E-2		1.43E-1		2.64E-1		3.20E-1		3.27E-1	
140	3.55e-2										3.19e-l	
150	4.26e-2											
200	9.68E-2		1.44E-1		2.80E-1		4.56E-1		5.29E-1		5.20E-1	
200	9.16e-2										5.28e-l	
250	1.53e-l											
300	2.28E-1		2.99E-1		5.01E-1		7.38E-1		8.42E-1		7.94E-1	
300	2.17e-l								8.59e-l			
350	2.92e-l	3.26e-l		4.34e-l	5.98e-l	7.93e-l		9.52e-l	9.84e-l	9.79e-l	9.23e-l	8.15e-l
400	3.59e-l			5.22e-l		8.98e-l		1.07e-0	1.12e-0	1.12e-0	1.06e-0	9.19e-l
450									1.27e-0			
500	4.97E-1		6.04E-1		8.85E-1		1.22E+0		1.36E+0		1.28E+0	
500	4.79e-l								1.37e-0		1.29e-0	
800	8.47e-l	8.97e-l		1.06e-0	1.35e-0	1.66e-0		1.90e-0	1.97e-0	1.97e-0	1.95e-0	1.72e-0
1000	1.07E-0		1.21E+0		1.62E+0		2.14E+0		2.38E+0		2.29E4-0	
1000	1.04e-0	l.lle-0		1.31e-0	1.60e-0	1.96e-0		2.29e-0		2.35e-0	2.30e-(J	2.02e-0
2000	1.81e-0				2.59e-0					3.89e-0	3.87e-0	
2500	2.10e-0	2.20e-0		2.50e-0	2.98e-0	3.56e-0		4.16e-0	4.41e-0	4.50e-0	4.49e-0	4.09e-0
5000	3.14e-0										6.91e-0	
10000	4.36e-0										1.01e+l	
20000	5.66e-0										1.45e+l	
45000	6.92e-0											
50000	7.16e-0										2.12e-f-l	
100000	7.87e-0										2.53e4-l	

Bo (eV)	75°	80°	85°	87°
9	1.88e-6	2.15e-6	2.31e-6	
10	1.03E-5	1.12E-5	1.14E-5	
12	3.71E-5	4.22E-5	3.98E-5	
15	1.13E-4	l,12e-4	1.11E-4	
20	3.47E-4	3.59E-4	3.52E-4	
25	1.19E-3	1.31E-3	1.39E-3	
27	1.81e-3	2.08e-3	2.27e-3	
30	3.78E-3	4.06E-3	4.21E-3	
30	3.94e-3	4.42e-3	4.39e-3	
35	8.31E-3	9.01E-3	9.26E-3	
40	1.54E-2	1.54E-2	1.65E-2	
50	3.40E-2	3.34E-2	3.23E-2	
50	3.68e-2	3.69e-2	3.32e-2	3.35e-2
60	5.46E-2	5.36E-2	5.04E-2	
70	8.16E-2	7.49E-2	6.95E-2	
80	1.09E-1	9.68E-2	8.85E-2	
100	1.61E-1	1.38E-1	1.19E-1	
100		1.42e-l	1.23e-l	
120	2.09E-1	1.74E-1	1.45E-1	
140	2.53E-1	2.02E-1	1.64E-1	
200	3.73E-1	2.77E-1	2.00E-1	
300	5.52E-1	3.85E-1	2.39E-1	
350		4.44e-l	2.62e-l	
400		4.97e-l		
500	8.81E-1	5.72E-1	2.99E-1	
800	1.35e-0	8.47e-l	3.89e-l	
1000	1.62E+0	1.03E+0	4.30E-1	
1000		1.04e-0	4.41e-l	
2000	2.94e-0			
2500	3.48e-0	2.36e-0	7.89e-l	

W-> W

Sputtered energy of W by W
21=74, ml = 183.*85, z2=74, m2=183.85, sbe=8.68 eV, rho = 19.30 g/cm**3
ef=8.60 eV, esb = 8.68 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc, trspvmcx, testvmcx
ne=58, na=16

E_0 (eV)	0°	10°	15°	20°	30°	40°	45°	50°	55°	60°	65°	70°
9									4.52e-8		1.45e-7	
10									3.08e-7		7.89e-7	
12							5.68e-7		2.06E-6		4.07E-6	
15					2.31E-7		3.73E-6		9.18E-6		1.58E-5	
17											2.28e-5	
20			1.51E-7		2.76E-6		2.03E-5		3.78E-5		5.42E-5	
20											4.70e-5	
23											9.94e-5	
25	5.03E-8		1.04E-6		1.23E-5		5.22E-5		9.56E-5		1.56E-4	
25											1.59e-4	
27	6.37e-8		9.24e-7		8.40e-6		3.70e-5		8.66e-5		2.13e-4	
28											3.33e-4	
30	2.91E-7		3.44E-6		2.91E-5		1.17E-4		2.47E-4		4.96E-4	
30	1.29e-6	6.64e-6		6.73e-6	2.55e-5	6.90e-5		1.59e-4		3.66e-4	5.35e-4	6.95e-4
35	1.06E-6		7.74E-6		5.97E-5		2.65E-4		6.17E-4		1.25E-3	
35	2.30e-6											
36	1.10e-5										1.59e-3	
37	2.83e-5											
38	5.81e-5											
40	2.79E-6		1.65E-5		1.16E-4		5.73E-4		1.33E-3		2.57E-3	
40	1.43e-4										2.66e-3	
42	2.89e-4											
45	5.69e-4											
50	9.96E-6		5.05E-5		3.84E-4		1.83E-3		3.91E-3		6.58E-3	
50	9.66e-6	2.36e-5		1.18e-4	3.72e-4	1.17e-3		2.95e-3		5.45e-3	6.89e-3	8.06e-3
55	1.93e-5											
60	3.15E-5		1.36E-4		9.31E-4		3.97E-3		7.83E-3		1.22E-2	
60	2.90e-5										1.27e-2	
65	5.52e-5											
70	8.20E-5		3.08E-4		1.85E-3		7.18E-3		1.31E-2		1.85E-2	
70	7.83e-5										1.87e-2	
80	1.70E-4		5.84E-4		3.01E-3		1.09E-2		1.85E-2		2.55E-2	
80	1.64e-4										2.61e-2	
100	5.02E-4		1.42E-3		6.15E-3		1.90E-2		3.02E-2		3.94E-2	
100	4.78e-4	8.61e-4		2.40e-3	6.03e-3	1.36e-2		2.56e-2		3.62e-2	3.93e-2	4.04e-2
120	1.00E-3		2.58E-3		9.69E-3		2.72E-2		4.18E-2		5.20E-2	
140	1.67E-3		3.82E-3		1.32E-2		3.52E-2		5.24E-2		6.39E-2	
140	1.65e-3										6.21e-2	
150	1.91e-3											
200	4.03E-3		7.73E-3		2.25E-2		5.31E-2		7.62E-2		9.05E-2	
200	3.73e-3										8.98e-2	
250	6.12e-3											
300	8.09E-3		1.34E-2		3.33E-2		7.16E-2		1.02E-1		1.18E-1	
300	7.39e-3								1.03e-l			
350	9.48e-3	1.18e-2		2.00e-2	3.58e-2	6.08e-2		9.28e-2	1.09e-l	1.21e-l	1.21e-l	1.22e-l
400	1.10e-2			2.27e-2		6.60e-2		9.83e-2	1.14e-l	1.28e-l	1.35e-l	1.30e-l
450									1.22e-l			
500	1.41E-2		2.10E-2		4.47E-2		8.99E-2		1.25E-1		1.46E-1	
500	1.32e-2								1.23e-l		1.45e-l	
800	1.88e-2	2.17e-2		3.16e-2	5.05e-2	8.02e-2		1.16e-l	1.40e-l	1.55e-l	1.65e-l	1.65e-l
1000	2.15E-2		2.92E-2		5.46E-2		1.04E-1		1.44E-1		1.77B-1	
1000	2.04e-2	2.39e-2		3.42e-2	5.26e-2	8.29e-2		1.21e-l		1.60e-l	1.75e-l	1.73e-l
2000	2.47e-2				5.69e-2					1.68e-l	1,87e-l	
2500	2.52e-2	2.83e-2		3.82e-2	5.64e-2	8.44e-2		1.23e-l	1.46e-l	1.70e-l	1.91e-l	1.98e-l
5000	2.56e-2										1.91e-l	
10000	2.41e-2										1.88e-l	
20000	2.05e-2										1.73e-l	
45000	1.68e-2											
50000	1.66e-2										1.47e-l	
100000	1.25e-2										1.27e-l	

Eg (eV)	75°	80°	85°	87°
9	2.46e-7	2.83e-7	3.09e-7	
10	1.39e-6	1.56e-6	1.62e-6	
12	5.72E-6	6.87E-6	6.58E-6	
15	1.93E-5	1.97E-5	2.01E-5	
20	6.49E-5	7.05E-5	7.25E-5	
25	2.36E-4	2.68E-4	2.90E-4	
27	3.75e-4	4.49e-4	4.96e-4	
30	7.96E-4	8.86E-4	9.38E-4	
30	8.27e-4	9.94e-4	1.00e-3	
35	1.87E-3	2.06E-3	2.16E-3	
40	3.55E-3	3.71E-3	4.05E-3	
50	8.21E-3	8.37E-3	8.26E-3	
50	8.76e-3	9.30e-3	8.65e-3	8.61e-3
60	1.39E-2	1.37E-2	1.30E-2	
70	2.00E-2	1.90E-2	1.80E-2	
80	2.66E-2	2.44E-2	2.27E-2	
100	3.86E-2	3.41E-2	2.98E-2	
100		3.43e-2	3.05e-2	
120	4.81E-2	4.15E-2	3.49E-2	
140	5.61E-2	4.69E-2	3.78E-2	
200	7.48E-2	5.73E-2	4.06E-2	
300	9.48E-2	6.75E-2	3.98E-2	
350		7.21e-2	3.97e-2	
400		7.67e-2		
500	1.19E-1	7.94E-2	3.76E-2	
800	1.35e-l	9.02e-2	3.40e-2	
1000	1.53E-1	l.OOE-1	3.40E-2	
1000		9.81e-2	3.49e-2	
2000	1.81e-l			
2500	1.90e-l	1.39e-l	4.19e-2	

W -> W

Particle reflection coefficient of W backscattered from W
21=74, ml = 183.85, z2=74, m2 = 183.85, sbe=8.68 eV. rho = 19.30 g/cm**3
ef=8.60 eV, esb = 8.68 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trvmc, trspvmcx, testvmcx
ne=51, na=16

Bq(eV)	0°	10°	15°	20°	30°	40°	45°	50°	55°	60°	65°	70°
15											1.00E-7	
17											2.63e-6	
20							3.60E-7		3.95E-6		4.73E-5	
20											4.87e-5	
23											3.48e-4	
25					2.40E-7		2.18E-5		1.78E-4		9.39E-4	
25											8.85e-4	
27			3.00e-9		1.15e-6		6.87e-5		4.91e-4		2.17e-3	
28											2.95e-3	
30					5.70E-6		2.44E-4		1.43E-3		5.14E-3	
30	1.40e-7	2.00e-7			5.10e-6	8.42e-5		5.84e-4		2.76e-3	5.28e-3	8.45e-3
35			3.33E-7		4.46E-5		1.13E-3		5.03E-3		1.47E-2	
36											1.80e-2	
40			3.80E-6		2.04E-4		3.12E-3		1.15E-2		3.03E-2	
40											3.06e-2	
50	2.10E-6		5.70E-5		1.19E-3		1.14E-2		3.31E-2		7.30E-2	
50	3.43e-6	1.60e-5		1.68e-4	1.18e-3	5.80e-3		2.02e-2		4.98e-2	7.24e-2	9.82e-2
55	1.93e-5											
60	2.12E-5		2.54E-4		3.50E-3		2.40E-2		6.28E-2		1.23E-1	
60	2.00e-5										1.24e-1	
65	5.10e-5											
70	8.15E-5		6.55E-4		6.57E-3		3.86E-2		9.30E-2		1.76E-1	
70	7.10e-5										1.72e-1	
80	1.90E-4		1.26E-3		1.07E-2		5.45E-2		1.23E-1		2.27E-1	
80	2.27e-4										2.26e-1	
100	6.89E-4		2.90E-3		1.91E-2		8.32E-2		1.74E-1		3.11E-1	
100	6.51e-4	1.54e-3		5.52e-3	1.93e-2	5.33e-2		1.24e-1		2.35e-1	3.17e-1	4.01e-1
120	1.39E-3		4.88E-3		2.73E-2		1.08E-1		2.16E-1		3.78E-1	
140	2.25E-3		7.20E-3		3.49E-2		1.25E-1		2.47E-1		4.25E-1	
140	2.22e-3										4.24e-1	
150	2.75e-3											
200	5.40E-3		1.32E-2		5.12E-2		1.60E-1		2.98E-1		4.95E-1	
200	5.50e-3										4.95e-1	
250	7.88e-3											
300	1.09E-2		2.12E-2		6.47E-2		1.77E-1		3.18E-1		5.17E-1	
300	8.20e-3								3.15e-1			
350	1.29e-2	1.74e-2		3.45e-2	6.89e-2	1.39e-1		2.38e-1	3.28e-1	4.12e-1	5.27e-1	6.42e-1
400	1.44e-2			3.84e-2		1.36e-1		2.40e-1	3.11e-1	4.09e-1	5.18e-1	6.35e-1
450									3.11e-1			
500	1.76e-2								3.20e-1		5.05e-1	
500	1.76E-2		2.97E-2		7.41E-2		1.83E-1		3.15E-1		5.07E-1	
800	2.30e-2	2.83e-2		4.48e-2	7.84e-2	1.33e-1		2.32e-1	3.01e-1	3.85e-1	4.72e-1	6.10e-1
1000	2.46E-2		3.71E-2		7.74E-2		1.70E-1		2.85E-1		4.58E-1	
1000	2.35e-2	2.97e-2		4.41e-2	7.59e-2	1.30e-1		2.14e-1		3.70e-1	4.49e-1	5.87e-1
2000	2.79e-2				7.63e-2					3.23e-1	4.18e-1	
2500	2.74e-2	3.16e-2		4.46e-2	7.05e-2	1.17e-1		1.85e-1	2.44e-1	3.17e-1	3.93e-1	5.07e-1
5000	2.61e-2										3.65e-1	
10000	2.10e-2										2.89e-1	
20000	2.14e-2										2.50e-1	
45000	1.94e-2											
50000	1.67e-2										2.54e-1	
100000	1.40e-2										2.37e-1	

Bo(eV)	75°	80°	85°	87°
15	1.48E-6	2.83E-6	4.08E-6	
20	2.18E-4	3.54E-4	4.61E-4	
25	2.83E-3	4.00E-3	4.90E-3	
27	5.86e-3	7.94e-3	9.56e-3	
30	1.23E-2	1.61E-2	1.90E-2	
30	1.23e-2	1.64e-2	1.91e-2	
35	3.07E-2	3.82E-2	4.48E-2	
40	5.67E-2	6.90E-2	8.06E-2	
50	1.25E-1	1.51E-1	1.69E-1	
50	1.25e-1	1.50e-1	1.69e-1	1.76e-1
60	2.05E-1	2.45E-1	2.75E-1	
70	2.86E-1	3.40E-1	3.81E-1	
80	3.62E-1	4.30E-1	4.79E-1	
100	4.91E-1	5.76E-1	6.33E-1	
100		5.79e-1	6.32e-1	
120	5.83E-1	6.71E-1	7.34E-1	
140	6.43E-1	7.36E-1	7.99E-1	
200	7.25E-1	8.26E-1	8.94E-1	
300	7.60E-1	8.68E-1	9.39E-1	
350		8.72e-1	9.49e-1	
400		8.78e-1		
500	7.63E-1	8.85E-1	9.64E-1	
800	7.57e-1	8.83e-1	9.74e-1	
1000	7.27E-1	8.74E-1	9.76E-1	
1000		8.76e-1	9.76e-1	
2000	6.67e-1			
2500	6.34e-1	8.20e-1	9.69e-1	

W → W

Energy reflection coefficient of W backscattered from W
zl=74, ml = 183.85, z2=74, m2 = 183.85, sbe=8.68 eV. rho = 19.30 g/cm**3
ef=8.60 eV, esb = 8.68 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trvmc, trspvmcx, testvmcx
ne = 51, na=16

E_0 (eV)	0°	10°	15°	20°	30°	40°	45°	50°	55°	60°	65°	70°
15											3.19E-8	
17											6.80e-7	
20							6.18E-8		7.52E-7		9.56E-6	
20											9.79e-6	
23											7.13e-5	
25					3.04E-8		3.50E-6		3.08E-5		1.95E-4	
25											1.81e-4	
27					1.64e-7		1.13e-5		8.89e-5		4.70e-4	
28											6.47e-4	
30					6.93E-7		3.95E-5		2.71E-4		1.17E-3	
30	3.86e-7	3.18e-7			1.41e-6	1.35e-5		1.Ole-4		5.65e-4	1.20e-3	2.06e-3
35			2.52E-8		5.63E-6		1.92E-4		1.03E-3		3.62E-3	
36											4.48e-3	
40	1.00e-9		3.36E-7		2.58E-5		5.69E-4		2.48E-3		7.93E-3	
40											8.07e-3	
50	1.20E-7		5.19E-6		1.59E-4		2.19E-3		7.89E-3		2.10E-2	
50	1.28e-6	1.90e-6		1.81e-5	1.59e-4	9.96e-4		4.36e-3		1.29e-2	2.10e-2	3.06e-2
55	1.93e-5											
60	1.29E-6		2.33E-5		4.80E-4		4.81E-3		1.58E-2		3.78E-2	
60	1.69e-6										3.81e-2	
65	3.43e-6											
70	5.25E-6		6.30E-5		9.27E-4		8.00E-3		2.43E-2		5.65E-2	
70	4.26e-6										5.46e-2	
80	1.18E-5		1.21E-4		1.51E-3		1.16E-2		3.29E-2		7.55E-2	
80	1.41e-5										7.50e-2	
100	4.36E-5		2.64E-4		2.72E-3		1.79E-2		4.83E-2		1.08E-1	
100	4.09e-5	1.22e-4		5.95e-4	2.79e-3	1.00e-2		3.04e-2		7.39e-2	1.10e-l	1.53e-l
120	8.31E-5		4.37E-4		3.84E-3		2.34E-2		6.09E-2		1.35E-1	
140	1.31E-4		6.23E-4		4.86E-3		2.70E-2		7.07E-2		1.56E-1	
140	1.29e-4										1.56e-l	
150	1.54e-4											
200	2.85E-4		1.07E-3		6.82E-3		3.41E-2		8.69E-2		1.91E-1	
200	2.93e-4										1.90e-l	
250	3.62e-4											
300	5.36E-4		1.54E-3		8.07E-3		3.70E-2		9.25E-2		2.07E-1	
300	4.26e-4								9.05e-2			
350	6.04e-4	1.06e-3		3.02e-3	8.34e-3	2.32e-2		5.74e-2	9.54e-2	1.40e-l	2.11e-l	3.00e-l
400	6.91e-4			3.16e-3		2.27e-2		5.85e-2	8.79e-2	1.41e-l	2.06e-l	3.02e-l
450									8.87e-2			
500	8.09E-4		1.94E-3		8.24E-3		3.61E-2		8.80E-2		2.03E-1	
500	7.90e-4								9.02e-2		2.00e-l	
800	9.68e-4	1.48e-3		3.27e-3	8.35e-3	2.Ole-2		5.34e-2	8.11e-2	1.24e-l	1.83e-l	2.79e-l
1000	1.03E-3		2.17E-3		7.77E-3		3.02E-2		7.32E-2		1.74E-1	
1000	9.97e-4	1.45e-3		2.98e-3	7.66e-3	1.87e-2		4.48e-2		1.17e-l	1.70e-l	2.71e-l
2000	1.06e-3				6.80e-3					9.39e-2	1.46e-l	
2500	1.04e-3	1.37e-3		2.84e-3	6.13e-3	1.48e-2		3.36e-2	5.46e-2	9.10e-2	1.34e-l	2.19e-l
5000	1.09e-3										1.16e-l	
10000	5.90e-4										8.34e-2	
20000	7.20e-4										6.96e-2	
45000	6.69e-4											
50000	6.20e-4										6.66e-2	
100000	4.91e-4										6.58e-2	

E_0 (eV)	75°	80°	85°	87°
15	3.44E-7	6.26E-7	9.31E-7	
20	4.85E-5	8.22E-5	1.09E-4	
25	6.85E-4	1.01E-3	1.28E-3	
27	1.48e-3	2.11e-3	2.63e-3	
30	3.25E-3	4.51E-3	5.50E-3	
30	3.26e-3	4.60e-3	5.56e-3	
35	8.85E-3	1.16E-2	1.42E-2	
40	1.75E-2	2.24E-2	2.74E-2	
50	4.24E-2	5.45E-2	6.36E-2	
50	4.25e-2	5.38e-2	6.32e-2	6.64e-2
60	7.40E-2	9.45E-2	1.10E-1	
70	1.09E-1	1.37E-1	1.61E-1	
80	1.43E-1	1.82E-1	2.11E-1	
100	2.05E-1	2.60E-1	3.02E-1	
100		2.62e-l	3.01e-l	
120	2.56E-1	3.21E-1	3.75E-1	
140	2.96E-1	3.71E-1	4.32E-1	
200	3.63E-1	4.64E-1	5.46E-1	
300	4.07E-1	5.32E-1	6.41E-1	
350		5.49e-l	6.69e-l	
400		5.58e-l		
500	4.26E-1	5.80E-1	7.23E-1	
800	4.23e-l	5.95e-l	7.75e-l	
1000	4.04E-1	5.91E-1	7.90E-1	
1000		5.92e-l	7.91e-l	
2000	3.56e-l			
2500	3.39e-l	5.39e-l	8.19e-l	

W ->▮W

Average depth (mean range) in Ä of W implanted in W
zl=74. ml = 183.85. z2=74. m2 = 183.85, sbe = 8.68 eV, rho=19.30 g/cm**3
ef=8.60 eV. esb=8.68 *eV,* ca=1.00. kkO= kkOr=2. kdeel=kdee2=3. ipot=ipotr=l (KrC)
program: trvmc, trspvmcx. testvmcx
ne=52. na=16

E_0 (eV)	0°	10°	15°	20°	30°	40°	45°	50°	55°	60°	65°	70°
9									4.00e-l		4.00e-l	
10	7.00E-1		7.00E-1		6.00E-1		5.00E-1		5.00E-1		4.00E-1	
12	9.00E-1		8.00E-1		7.00E-1		6.00E-1		6.00E-1		5.00E-1	
15	1.10E+0		1.00E+0		9.00E-1		8.00E-1		7.00E-1		6.00E-1	
17											4.08e-l	
20	1.30E + 0		1.30E+0		1.10E4-0		9.00E-1		8.00E-1		6.00E-1	
20											4.45e-l	
23											4.77e-l	
25	1.60E+0		1.50E+0		1.30E+0		1.10E-J-0		9.00E-1		7.00E-1	
25											4.98e-l	
27	1.70e+0		1.60e + 0		1.40e+0		1.10e+0		9.00e-l		7.00e-l	
28											5.29e-l	
30	1.80E4-0		1.70E4-0		1.50E+0		1.20E4-0		9.00E-1		7.00E-1	
30	1.74e+0	1.70e+0		1.60e4-0	1.43e+0	1.20e+0		9.36e-l		6.71e-l	5.51e-l	4.42e-l
35	2.00E4-0		1.90E4-0		1.70E+0		1.30E+0		1.00E4-0		8.00E-1	
36											6.13e-l	
40	2.20E4-0		2.10E4-0		1.80E+0		1.40E+0		1.10E4-0		8.00E-1	
40											6.57e-l	
50	2.50E4-0		2.40E+0		2.10E+0		1.60E+0		1.30E+0		9.00E-1	
50	2.50e+0	2.45e4-0		2.29e+0	2.04e + 0	1.70e+0		1.32e+0		9.37e-l	7.71e-l	6.02e-l
60	2.80E4-0		2.70E+0		2.30E+0		1.80E+0		1.40E + 0		1.00E4-0	
60	2.82e+0										8.94e-l	
65	2.95e+0											
70	3.10E+0		3.00E + 0		2.60E+0		2.00E+0		1.60E + 0		1.20E+0	
70	3.09e + 0										1.03e4-0	
80	3.40E + 0		3.20E+0		2.80E + 0		2.20E4-0		1.70E4-0		1.30E+0	
80	3.34e4-0										1.17e+0	
100	3.80E+0		3.60E+0		3.20E4-0		2.60E4-0		2.10E+0		1.6OE4-O	
100	3.80e+0	3.71e+0		3.50e + 0	3.14e + 0	2.72e+0		2.26e+0		1.70e + 0	1.46e + 0	1.20e-f-0
120	4.20E4-0		4.00E4-0		3.60E4-0		2.90E + 0		2.40E + 0		1.90E+0	
140	4.60E4-0		4.40E4-0		3.90E4-0		3.20E+0		2.70E+0		2.20E+0	
140	4.56e+0										2.11e+0	
150	4.72e+0											
200	5.50E4-0		5.30E4-0		4.80E+0		4.10E4-0		3.50E+0		3.00E4-0	
200	5.49e4-0										2.94e+0	
250	6.10e+0											
300	6.70E + 0		6.50E4-0		6.00E4-0		5.20E+0		4.60E + 0		3.90E4-0	
300	6.66e4-0								4.57e + 0			
350	7.19e+0	7.12e+0		6.85e + 0	6.44e+0	5.95e + 0		5.25e+0	5.05e+0	4.65e+0	4.40e + 0	3.89e4-0
400	7.71e + 0			7.30e + 0		6.31e+0		5.82e4-0	5.49e+0	5.02e+0	4.69e + 0	4.22e4-0
450									5.75e+0			
500	8.60E+0		8.40E+0		7.70E+0		6.80E4-0		6.10E4-0		5.40E4-0	
500	8.68e+0								6.04e+0		5.33e+0	
800	1.07e+l	1.06e4-l		1.02e4-l	9.75e+0	8.97e+0		8.16e-f-0	7.85e+0	7.14e + 0	6.86e+0	6.25e + 0
1000	1.19E + 1		1.16E+1		1.08E+1		9.50E+0		8.60E+0		7.60E4-0	
1000	1.20e4-l	1.19e + l		1.15e+l	1.08e+l	9.89e+0		9.14e+0		8.17e4-0	7.84e4-l	7.27e + 0
2000	1.65e+l				1.49e+l					1.13e + l	1.07e + l	
2500	1.83e + l	1.81e + l		1.75e+l	1.65e+l	1.53e+l		1.39e+l	1.30e+l	1.24e + l	1.16e + l	1.09e + l
5000	2.56e + l										1.64e + l	
10000	3.62e+l										2.25e+l	
20000	5.24e-J-l										3.17e+l	
45000	8.28e + l											
50000	8.88e + l										5.25e + l	
100000	1.35e + 2										8.14e + l	

E_0 (eV)	75°	80°	85°	87°
9	4.00e-l	4.00e-l	4.00e-l	
10	4.00E-1	4.00E-1	4.00E-1	
12	5.00E-1	4.00E-1	4.00E-1	
15	5.00E-1	5.00E-1	4.00E-1	
20	5.00E-1	5.00E-1	5.00E-1	
25	5.00E-1	5.00E-1	5.00E-1	
27	5.00e-l	5.00e-l	5.00e-l	
30	6.00E-1	5.00E-1	5.00E-1	
30	3.52e-l	2.88e-l	2.45e-l	
35	6.00E-1	5.00E-1	5.00E-1	
40	6.00E-1	5.00E-1	5.00E-1	
50	7.00E-1	6.00E-1	5.00E-1	
50	4.73e-l	3.80e-l	3.19e-l	3.06e-l
60	7.00E-1	6.00E-1	6.00E-1	
70	8.00E-1	7.00E-1	6.00E-1	
80	9.00E-1	7.00E-1	7.00E-1	
100	1.10E+0	9.00E-1	8.00E-1	
100		7.68e-l	6.21e-l	
120	1.30E+0	1.10E4-0	9.00E-1	
140	1.60E+0	1.30E4-0	1.10E4-0	
200	2.20E4-0	1.80E+0	1.50E4-0	
300	3.10E+0	2.60E+0	2.10E + 0	
350		2.82e+0	2.19e + 0	
400		3.08e+0		
500	4.40E+0	3.80E4-0	3.00E4-0	
800	5.84e4-0	4.79e+0	4.12e+0	
1000	6.50E4-0	5.80E+0	4.60E + 0	
1000		5.63e+0	4.28e+0	
2000	9.27e+0			
2500	1.03e + l	9.21e+0	7.87e+0	

W → W

Sputtering yield of W by W
zl = 74, ml= 183.85. z2= 74, m2 = 183.85, sbe = 8.68 eV, rho = 19.29 g/cm**3
ef=8.63 eV, esb = 8.68 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3, *ipot=ipotr=3('bl)*
program: ecklc (CRAY-T3E)
ne=19, na=2

E_0 (eV)	0°	45°
18		3.25e-7
19		9.11e-7
20		2.45e-6
25		6.66e-5
27	8.03e-7	1.52e-4
30	3.69e-6	4.20e-4
35	1.80e-5	1.43e-3
40	5.18e-5	3.39e-3
50	2.30e-4	1.13e-2
60	7.08e-4	2.41e-2
70	1.80e-3	4.17e-2
80	3.87e-3	6.37e-2
100	1.22e-2	1.16e-l
120	2.70e-2	1.76e-l
140	4.77e-2	2.38e-l
200	1.36e-l	4.32e-l
300	3.19e-l	7.34e-l
500	6.90e-l	1.26e-0
1000	1.45e-0	2.32e-0

Sputtered energy of W by W
ne=19, na=2

Eo (eV)	0°	45°
18		5.34e-8
19		1.41e-7
20		3.62e-7
25		9.18e-6
27	3.32e-8	2.13e-5
30	1.60e-7	6.03e-5
35	7.99e-7	2.10e-4
40	2.44e-6	5.04e-4
50	1.17e-5	1.71e-3
60	3.85e-5	3.65e-3
70	1.02e-4	6.27e-3
80	2.23e-4	9.46e-3
100	7.04e-4	1.68e-2
120	1.51e-3	2.46e-2
140	2.59e-3	3.24e-2
200	6.52e-3	5.30e-2
300	1.28e-2	7.73e-2
500	2.14e-2	1.03e-l
1000	3.02e-2	1.22e-l

W -> W

Particle reflection coefficient of W backscattered from W
z1=74. m1 = 183.85. z2= 74, m2= 183.85, sbe=8.68 eV. rho = 19.29 g/cm**3
ef=8.63 eV, esb= 8.68 eV, ca=1.00, kk0=kk0r=2, kdee1=kdee2=3, *ipot=ipotr=3(zbl)*
program: ecklc (CRAY-T3E)
ne=19. na=2

E_0 (eV)	0°	45°
18		2.20e-8
19		1.14e-7
20		4.00e-7
25		4.01e-5
27		1.06e-4
30		3.10e-4
35		1.12e-3
40		2.90e-3
50	2.00e-8	1.07e-2
60	9.40e-7	2.54e-2
70	1.05e-5	4.52e-2
80	5.45e-5	6.71e-2
100	3.64e-4	1.11e-1
120	1.02e-3	1.50e-1
140	1.93e-3	1.80e-1
200	5.55e-3	2.33e-1
300	1.15e-2	2.60e-1
500	1.97e-2	2.58e-1
1000	2.81e-2	2.24e-1

Energy reflection coefficient of W backscattered from W
ne=19, na=2

E_0 (eV)	0°	45°
18		2.77e-9
19		1.11e-8
20		4.10e-8
25		6.03e-6
27		1.68e-5
30		5.22e-5
35		1.98e-4
40		5.31e-4
50		2.02e-3
60	5.28e-8	4.97e-3
70	6.21e-7	9.18e-3
80	3.28e-6	1.40e-2
100	2.41e-5	2.42e-2
120	7.11e-5	3.34e-2
140	1.32e-4	4.08e-2
200	3.52e-4	5.38e-2
300	6.59e-4	5.93e-2
500	9.69e-4	5.61e-2
1000	1.19e-3	4.41e-2

Average depth (mean range) in Å of W implanted in W
ne=19, na=2

E_0 (eV)	0°	45°
18		1.81e-1
19		1.89e-1
20		1.97e-1
25		2.48e-1
27	3.82e-1	2.71e-1
30	4.54e-1	3.06e-1
35	5.76e-1	3.65e-1
40	6.84e-1	4.19e-1
50	8.59e-1	5.13e-1
60	1.01e+0	6.00e-1
70	1.15e+0	6.88e-1
80	1.30e+0	7.79e-1
100	1.58e+0	9.69e-1
120	1.83e+0	1.16e+0
140	2.06e+0	1.35e+0
200	2.68e+0	1.89e+0
300	3.54e+0	2.66e+0
500	4.92e+0	3.85e+0
1000	7.44e+0	5.92e+0

W W

W on W, Maxwellian velocity distribution, sheath potential 0 kT
zl=74, ml = 183.85, z2=74, m2 = 183.85, sbe=8.68 eV. rho = 19.30 g/cm**3
ef=8.60 eV. esb = 8.68 eV. ca=1.00. kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx
ne=12

kT(eV)	Y	Y_E	E_{sp}	R_N	r_e	E_b	range
7	6.57e-4	3.84e-4	8.19e+0	1.08e-3	1.03e-3	1.33eRl	4.72e-l
12	4.54e-3	2.24e-3	1.18e4-l	8.28e-3	6.76e-3	1.96e + l	7.91e-l
20	2.10e-2	8.11e-3	1.55e+l	3.09e-2	2.14e-2	2.77e + l	1.18e + 0
30	5.38e-2	1.67e-2	1.84e + l	6.41e-2	3.99e-2	3.74e + l	1.59e4-0
50	1.39e-l	3.33e-2	2.39e+l	1.21e-l	6.61e-2	5.48e + l	2.29e+0
70	2.34e-l	4.58e-2	2.74e + l	1.57e-l	8.12e-2	7.23e + l	2.91e+0
100	3.75e-l	5.83e-2	3.16e + l	1.99e-l	9.47e-2	9.67e+l	3.73e+0
200	7.62e-l	7.77e-2	4.06e + l	2.40e-l	9.82e-2	1.63e4-2	5.68e + 0
500	1.72e-0	9.91e-2	5.87e + l	2.54e-l	9.19e-2	3.70e + 2	9.34e+0
1000	2.83e-0	1.07e-l	7.63e + l	2.38e-l	8.21e-2	6.96e + 2	1.30e4-l
2000	4.29e-0	1.09e-l	1.03e+2	2.23e-l	7.55e-2	1.38e+3	1.78e+l
5000	7.05e-0	9.85e-2	1.43e+2	1.90e-l	5.91e-2	3.20e+3	2.78e + l

W on W, Maxwellian velocity distribution, sheath potential 3 kT
ne=21

kT(eV)	Y	Y_E	E_{sp}	R_{Ar}	R_b	Eb	range
5	5.07e-4	1.22e-4	6.02e + 0	2.87e-4	1.17e-4	1.02e+l	1.27e+0
6	1.17e-3	2.74e-4	6.99e+0	7.27e-4	2.74e-4	1.13e + l	1.46e+0
7	2.12e-3	4.90e-4	8.07e+0	1.28e-3	4.55e-4	1.24e + l	1.65e4-0
10	8.31e-3	1.62e-3	9.76e+0	4.80e-3	1.58e-3	1.65e+l	2.11e + 0
14	2.42e-2	4.07e-3	1.18e + l	1.16e-2	3.31e-3	2.00e+l	2.63e+0
20	6.13e-2	8.71e-3	1.42e + l	2.09e-2	5.09e-3	2.44e+l	3.29e + 0
24	9.52e-2	1.20e-2	1.51e + l	2.65e-2	6.13e-3	2.77e + l	3.64e + 0
30	1.48e-l	1.60e-2	1.62e + l	3.42e-2	7.15e-3	3.13e + l	4.16e4-0
36	2.03e-l	1.96e-2	1.74e + l	3.90e-2	7.93e-3	3.67e + l	4.62e + 0
40	2.42e-l	2.24e-2	1.85e4-l	4.30e-2	8.37e-3	3.89e + l	4.88e + 0
45	2.86e-l	2.44e-2	1.92e + l	4.69e-2	8.99e-3	4.32e4-l	5.22e-f-0
50	3.37e-l	2.68e-2	2.00e+l	4.96e-2	9.27e-3	4.68e+l	5.50e+0
60	4.26e-l	3.04e-2	2.14e+l	5.12e-2	8.67e-3	5.08e+l	6.10e+0
70	5.22e-l	3.37e-2	2.27e + l	5.58e-2	9.22e-3	5.80ed-l	6.55e4-0
75	5.69e-l	3.54e-2	2.33e+l	5.57e-2	8.66e-3	5.83e+l	6.86e+0
100	7.57e-l	3.82e-2	2.52e + l	6.08e-2	9.02e-3	7.42e4-l	7.88e-}-0
200	1.46e-0	4.79e-2	3.30e + l	6.34e-2	8.11e-3	1.28e4-2	1.09e + l
400	2.37e-0	5.13e-2	4.33e+l	6.17e-2	6.46e-3	2.09e+2	1.51e+l
1000	3.89e-0	4.95e-2	6.36e + l	5.50e-2	4.24e-3	3.86e4-2	2.36e+l
2000	5.42e-0	4.45e-2	8.24e+l	4.66e-2	4.31e-3	9.27e+2	3.36e4-l
5000	7.82e-0	3.78e-2	1.21e+2	4.00e-2	3.25e-3	2.04e+3	5.33e+l

W on W, Maxwellian velocity distribution, sheath potential 9 kT
ne=20

kT(eV)	Y	Y_e	E_{sp}	R_N	R_E	Ef,	range
3	2.72e-4	3.39e-5	4.12e+0	5.60e-5	1.28e-5	7.53e+0	1.75e+0
4	1.04e-3	1.28e-4	5.41e+0	2.76e-4	5.43e-5	8.65e4-0	2.14e+0
5	2.80e-3	3.33e-4	6.55e+0	9.53e-4	1.67e-4	9.61e+0	2.49e+0
7	1.16e-2	1.22e-3	8.05e+0	3.04e-3	4.75e-4	1.20e+l	3.06e4-0
10	3.95e-2	3.50e-3	9.74e+0	7.27e-3	1.03e-3	1.55e+l	3.76e+0
20	1.93e-l	1.19e-2	1.36e+l	1.88e-2	2.18e-3	2-56e4-l	5.51e+0
24	2.64e-l	1.43e-2	1.43e+l	2.43e-2	2.46e-3	2.67e4-l	6.03e+0
30	3.68e-l	1.76e-2	1.58e + l	2.83e-2	2.67e-3	3.11e+l	6.72e+0
36	4.73e-l	2.06e-2	1.73e-J-l	3.07e-2	2.71e-3	3.50e4-l	7.35e-f-0
40	5.32e-l	2.18e-2	1.80e+l	3.16e=2	2.83e-3	3.94e+l	7.76e+0
45	6.16e-l	2.37e-2	1.90e+l	3.31e-2	2.81e-3	4.20e+l	8.22e+0
50	6.80e-l	2.47e-2	1.99e+l	3.61e-2	2.77e-3	4.23e+l	8.65e + 0
60	8.47e-l	2.74e-2	2.14e4-l	3.80e-2	3.00e-3	5.20e+l	9.41e+0
70	9.69e-l	2.89e-2	2.29e + l	3.96e-2	2.89e-3	5.61e+l	1.02e-H
75	1.03e-0	2.92e-2	2.33e + l	3.93e-2	2.89e-3	6.05e4-l	1.05e + l
100	1.33e-0	3.25e-2	2.69e+l	4.14e-2	3.17e-3	8.43e+l	1.21e + l
200	2.22e-0	3.52e-2	3.49e+l	3.78e-2	2.35e-3	1.37e+2	1.67e+l
500	3.74e-0	3.55e-2	5.23e4-l	4.00e-2	2.36e-3	3.25e+2	2.56e4-l
1000	5.22e-0	3.31e-2	6.99e + l	3.28e-2	1.65e-3	5.53e+2	3.63e-H
2000	6.29e-0	2.70e-2	9.42e + l	2.75e-2	1.29e-3	1.03e-f-3	5.25e + l

He -> Pt

Sputtering yield of Pt by He
zl = 2. ml = 4.00. z2 = 78. m2 = 195.09. sbe=5.86 eV, rho=21.44 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : trvmc95. trspvmcx
ne= 4. na= 2

E_0 (eV)	0°	30°
500		4.49e-2
1000		7.35e-2
1500	7.59e-2	9.25e-2
3000	8.77e-2	

Sputtered energy of Pt by He
ne= 4. na= 2

MeV)	0°	30°
500		7.00e-4
1000		8.54e-4
1500	7.16e-4	8.82e-4
3000	5.50e-4	

Particle reflection coefficient of He backscattered from Pt
zl= 2. ml = 4.00. z2 = 78. m2 = 195.09, sbe=5.86 eV. rho=21.44 g/cm**3
ef=0.50 eV. esb = 0.00 eV, ca=1.00. kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr= 1 (KrC)
program : trvmc95. trspvmcx
ne= 4. na= 2

Ro(eV)	0°	30°
500		5.99e-l
1000		5.60e-l
1500	4.95e-l	5.36e-l
3000	4.46e-l	

Energy reflection coefficient of He backscattered from Pt
ne= 4. na= 2

E_0 (eV)	0°	30°
500		3.75e-l
1000		3.38e-l
1500	2.80e-l	3.14e-l
3000	2.41e-l	

Average depth (mean range) in Ä of He implanted in Pt
ne= 4, na= 2

Eq(eV)	0°	30°
500		6.02e+l
1000		9.01e+l
1500	1.15e+2	1.14e+2
3000	1.80e+2	

Ne -> Pt

Sputtering yield of Pt by Ne
zl = 10, ml = 20.18, z2 = 78, m2 = 195.09, sbe = 5.86 eV, rho = 21.44 g/cm**3
ef=0.50 eV. esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : trvmc95
ne = 6, na= 1

E_0 (eV)	0°
40	1.63e-3
200	2.61e-l
600	6.75e-l
3000	1.40e-0
5000	1.70e-0
9000	1.76e-0

Sputtered energy of Pt by Ne
ne= 6, na= 2

Eq(eV)	0°
40	6.75e-5
200	1.30e-2
600	1.90e-2
3000	1.47e-2
5000	1.28e-2
9000	9.52e-3

Particle reflection coefficient of Ne backscattered from Pt
zl = 10, ml = 20.18, z2 = 78, m2 = 195.09, sbe=5.86 eV, rho=21.44 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr= 1 (KrC)
program : trvmc95
ne= 6, na= 1

B_0 (eV)	Ö75
40	6.64e-l
200	5.07e-l
600	4.36e-l
3000	3.82e-l
5000	3.53e-l
9000	3.38e-l

Energy reflection coefficient of Ne backscattered from Pt
ne= 6, na= 1

E_0 (eV)	0°
40	3.40e-l
200	2.34e-l
600	1.90e-l
3000	1.70e-l
5000	1.42e-l
9000	1.48e-l

Average depth (mean range) in Ä of Ne implanted in Pt
ne= 6, na= 1

B_0 (eV)	0°
40	5.71e+0
200	1.19e4-l
600	2.07e+l
3000	5.37e + l
5000	6.84e + l
9000	1.10e + 2

Xe -> Pt

Sputtering yield of Pt by Xe
zl=54, ml = 131.30, z2=78, m2 = 195.09, sbe=5.86 eV, rho=21.44 g/cm**3
ef=0.50 eV, esb=0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : trvmc95, trspvmcx
ne= 8, na= 2

Eo(eV)	0°	30°
40	8.42e-4	
200	3.35e-l	
500		1.47e-0
600	1.33e-0	
1000		2.49e-0
1500		3.24e-0
3000	4.08e-0	
5000	5.25e-0	

Sputtered energy of Pt by Xe
ne= 8, na= 2

Eo(eV)	0°	30°
40	5.16e-5	
200	1.53e-2	
500		6.13e-2
600	3.33e-2	
1000		6.86e-2
1500		6.87e-2
3000	3.83e-2	
5000	3.62e-2	

Particle reflection coefficient of Xe backscattered from Pt
zl=54, ml = 131.30, z2=78, m2 = 195.09, sbe=5.86 eV, rho=21.44 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : trvmc95, trspvmcx
ne= 8, na= 2

E_o (eV)	0°	30°
40	2.27e-l	
200	1.91e-l	
500		2.31e-l
600	1.54e-l	
1000		2.10e-l
1500		1.90e-l
3000	1.03e-l	
5000	9.15e-2	

Energy reflection coefficient of Xe backscattered from Pt
ne= 8, na= 2

B_o (eV)	0°	30°
40	1.48e-2	
200	1.39e-2	
500		3.14e-2
600	1.12e-2	
1000		2.61e-2
1500		2.37e-2
3000	7.38e-3	
5000	6.56e-3	

Average depth (mean range) in Ä of Xe implanted in Pt
ne= 8, na= 2

E_0 (eV)	0ª	30°
40	2.43e+0	
200	5.60e+0	
500		8.00e+0
600	9.22e+0	
1000		1.08e+l
1500		1.29e4-l
3000	1.97e + l	
5000	2.52e+l	

$\mu \rightarrow$ Au

Particle reflection coefficient of p. backscattered from Au
zl = 1. mix 0.11. z2= 79. m2=196.97. sbe=3.80 eV. rho=19.31 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00. kk0=kk0r=2. kdee2=3. ipot=ipotr=l (KrC)
10 - 1000 eV : kdeel=3. 1000 - 20000 eV : kdeel = 4
program: trvmc
ne= 8. na= 1

E_0 (eV)	0°
10	6.72e-l
100	4.83e-l
500	3.79e-l
1000	3.15e-l
1000	2.46e-l
5000	1.24e-l
10000	8.52e-2
20000	4.85e-2

Energy reflection coefficient of /j. backscattered from Au
ne= 8. na= 1

E_0 (eV)	0 u
10	4.27e-l
100	2.43e-l
500	1.69e-l
1000	1.29e-l
1000	9.43e-2
5000	4.13e-2
10000	2.69e-2
20000	1.66e-2

Ax'erage depth (mean range) in Å of ju.implanted in Au
ne= 8, na= 1

Bo(eV)	0°
10	8.74e + 0
100	2.60e-H
500	6.00e + l
1000	8.80e+l
1000	7.02e+l
5000	2.01e + 2
10000	3.40e + 2
20000	6.06e + 2

D -> Au

Sputtering yield of Au by D
zl = 1, ml = 2.01. z2=79, m2 = 196.97, sbe=3.80, 3.93 eV, rho = 19.31 g/cm**3
ef=0.98 (0.90) eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, newtrim (Laszlo), TPP 9/82
ne=27., na= 8

Bo(eV)	0°	30°	45°	60°	65°	75°	80°	85°
120	8.40e-5				5.88e-5			
130	2.44e-4	2.68e-4	2.58e-4		1.89e-4	9.63e-5		
135	3.49e-4				2.86e-4			
140	4.92e-4		5.34e-4		4.11e-4	2.10e-4	8.94e-5	
150	7.96e-4	8.35e-4	8.74e-4	7.45e-4	6.86e-4	3.63e-4	1.71e-4	
155	9.27e-4							
160	1.14e-3				1.04e-3	5.78e-4	2.56e-4	
165	1.33e-3							
170		1.73e-3	1.63e-3	1.60e-3		8.27e-4	3.78e-4	
180	2.Ole-3					1.09e-3	5.76e-4	
190						1.48e-3	7.85e-4	
200	3.05e-3	3.27e-3	3.41e-3	3.34e-3	3.08e-3	1.89e-3	9.39e-4	
210							1.24e-3	
250	5.45e-3	6.16e-3	6.59e-3	6.96e-3		4.84e-3		
300	7.84e-3	8.68e-3	9.59e-3	1.10e-2	1.00e-2	8.81e-3	6.25e-3	1.47e-3
350				1.46e-2				
400	1.21e-2		1.60e-2			2.02e-2		
500	1.60e-2	1.67e-2	1.96e-2	2.49e-2		3.33e-2	3.25e-2	1.27e-2
700				3.76e-2				
750	2.15e-2	2.35e-2	2.79e-2			6.33e-2		
1000	2.51e-2	2.74e-2	3.43e-2	5.21e-2		8.49e-2	9.55e-2	5.98e-2
2000	2.91e-2				8.45e-2			
3000		3.73e-2	4.91e-2	7.34e-2		1.43e-l		
5000	2.98e-2							
10000	2.58e-2	3.14e-2	4.59e-2	6.81e-2		1.42e-l		
30000						1.03e-l		
kjoooo						5.73e-2		

Sputtered energy of Au by D
program: testvmcx, newtrim (Laszlo), TPP 9/82
ne=27, na= 8

B_o(eV)	0°	30°	45°	60°	65°	75°	80°	85°
120	2.46e-7				1.81e-7			
130	9.75e-7	1.09e-6	l.lle-6		8.04e-7	3.85e-7		
135	1.52e-6				1.34e-6			
140	2.39e-6		2.67e-6		2.10e-6	9.99e-7	4.17e-7	
150	4.32e-6	4.70e-6	5.17e-6	4.37e-6	3.96e-6	2.05e-6	9.17e-7	
155	5.25e-6							
160	6.81e-6				6.59e-6	3.60e-6	1.54e-6	
165	8.21e-6							
170		1.15e-5	1.10e-5	1.09e-5		5.46e-6	2.50e-6	
180	1.41e-5					7.68e-6	3.95e-6	
190						1.10e-5	5.80e-6	
200	2.27e-5	2.44e-5	2.62e-5	2.57e-5	2.46e-5	1.46e-5	7.18e-6	
210							1.Ole-5	
250	4.54e-5	5.13e-5	5.62e-5	5.98e-5		4.16e-5		
300	6.60e-5	7.44e-5	8.31e-5	9.62e-5	9.35e-5	7.91e-5	5.48e-5	1.32e-5
350				1.30e-4				
400	1.02e-4		1.42e-4			1.79e-4		
500	1.28e-4	1.41e-4	1.65e-4	2.06e-4		2.72e-4	2.97e-4	1.34e-4
700				2.82e-4				
750	1.53e-4	1.69e-4	2.05e-4			4.83e-4		
1000	1.64e-4	1.81e-4	2.22e-4	3.33e-4		5.99e-4	7.14e-4	5.42e-4
2000	1.29e-4				3.95e-4			
3000		1.28e-4	1.77e-4	2.56e-4		5.57e-4		
5000	7.43e-5							
10000	3.75e-5	4.55e-5	7.27e-5	1.21e-4		2.66e-4		
30000						8.20e-5		
100000						2.40e-5		

D → Au

Particle reflection coefficient of D backscattered from Au
zl = 1. ml= 2.01. z2= 79. m2=196.97. sbe=3.80 ; 3.93 eV. rho = 19.31 g/cm**3
ef=0.98 (0.90) eV, esb = 1.00 eV. ca=1.00. kk0 = kk0r=2, kdeel=kdee2 = 3. ipot=ipotr= 1 (KrC)
program: testvmcx. newtrim (Laszlo)
ne=28, na= 8

E_0 (eV)	0°	30°	45°	60°	65°	75°	80°	85°
100	6.50e-l				8.22e-l			
120	6.43e-l				8.13e-l			
130	6.39e-l	6.72e-l	7.15e-l		8.09e-l	8.90e-l		
135	6.38e-l				8.07e-l			
140	6.36e-l		7.11e-l		8.05e-l	8.86e-l	9.43e-l	
150	6.33e-l	6.66e-l	7.09e-l	7.73e-l	8.01e-l	8.82e-l	9.40e-l	
155	6.32e-l							
160	6.30e-l				7.98e-l	8.78e-l	9.38e-l	
165	6.29e-l							
170		6.61e-l	7.03e-l	7.66e-l		8.75e-l	9.35e-l	
180	6.25e-l					8.71e-l	9.32e-l	
190						8.68e-l	9.30e-l	
200	6.19e-l	6.51e-l	6.95e-l	7.59e-l	7.86e-l	8.66e-l	9.27e-l	
210							9.25e-l	
250	6.08e-l	6.42e-l	6.85e-l	7.48e-l		8.53e-l		
300	5.99e-l	6.36e-l	6.78e-l	7.40e-l	7.68e-l	8.42e-l	9.05e-l	9.82e-l
350				7.33e-l				
400	5.84e-l		6.59e-l			8.27e-l		
500	5.70e-l	6.10e-l	6.51e-l	7.18e-l		8.12e-l	8.73e-l	9.69e-l
700				6.98e-l				
750	5.49e-l	5.80e-l	6.27e-l			7.96e-l		
1000	5.24e-l	5.65e-l	6.11e-l	6.78e-l		7.84e-l	8.35e-l	9.36e-l
2000	4.69e-l				6.66e-l			
3000		4.73e-l	5.28e-l	6.06e-l		7.14e-l		
5000	3.75e-l							
10000	2.96e-l	3.43e-l	4.11e-l	5.04e-l		6.35e-l		
30000						5.21e-l		
100000						3.96e-l		

Energy reflection coefficient of D backscattered from Au
ne=28, na= 8

E_0 (eV)	0°	30°	45°	60°	65°	75°	80°	85°
100	6.50e-l				8.22e-l			
120	6.43e-l				8.13e-l			
130	6.39e-l	6.72e-l	7.15e-l		8.09e-l	8.90e-l		
135	6.38e-l				8.07e-l			
140	6.36e-l		7.11e-l		8.05e-l	8.86e-l	9.43e-l	
150	6.33e-l	6.66e-l	7.09e-l	7.73e-l	8.01e-l	8.82e-l	9.40e-l	
155	6.32e-l							
160	6.30e-l				7.98e-l	8.78e-l	9.38e-l	
165	6.29e-l							
170		6.61e-l	7.03e-l	7.66e-l		8.75e-l	9.35e-l	
180	6.25e-l					8.71e-l	9.32e-l	
190						8.68e-l	9.30e-l	
200	6.19e-l	6.51e-l	6.95e-l	7.59e-l	7.86e-l	8.66e-l	9.27e-l	
210							9.25e-l	
250	6.08e-l	6.42e-l	6.85e-l	7.48e-l		8.53e-l		
300	5.99e-l	6.36e-l	6.78e-l	7.40e-l	7.68e-l	8.42e-l	9.05e-l	9.82e-l
350				7.33e-l				
400	5.84e-l		6.59e-l			8.27e-l		
500	5.70e-l	6.10e-l	6.51e-l	7.18e-l		8.12e-l	8.73e-l	9.69e-l
700				6.98e-l				
750	5.49e-l	5.80e-l	6.27e-l			7.96e-l		
1000	5.24e-l	5.65e-l	6.11e-l	6.78e-l		7.84e-l	8.35e-l	9.36e-l
2000	4.69e-l				6.66e-l			
3000		4.73e-l	5.28e-l	6.06e-l		7.14e-l		
5000	3.75e-l							
10000	2.96e-l	3.43e-l	4.11e-l	5.04e-l		6.35e-l		
30000						5.21e-l		
100000						3.96e-l		

D -> Au

Average depth (mean range) in A of D implanted in Au
zl = 1, ml = 2.01. z2=79, m2 = 196.97, sbe=3.80. 3.93 eV, rho = 19.31 g/cm**3
ef=0.98 (0.90) eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2 = 3, ipot=ipotr=l (KrC)
program: testvmcx, newtrim (Laszlo)
ne=28, na= 8

E_0 (eV)	0°	30°	45°	60°	65°	75°	80^u	85^u
100	4.72e4-l				4.54e+l			
120	5.17e+l				5.00e + l			
130	5.39e + l	5.34e+l	5.29e + l		5.21e + l	5.18e+l		
135	5.50e4-l				5.31e + l			
140	5.60e+l		5.49e + l		5.42e+l	5.39e+l	5.37e+l	
150	5.81e-J-l	5.76e+l	5.70e4-l	5.64e + l	5.62e+l	5.58e4-l	5.56e + l	
155	5.91e+l							
160	6.01e+l				5.81e+l	5.77e+l	5.76e + l	
165	6.11e + l							
170		6.14e+l	6.08e+l	6.02e+l		5.96e+l	5.94e + l	
180	6.41e + l					6.15e+l	6.12e + l	
190						6.31e+l	6.31e + l	
200	6.77e+l	6.71e+l	6.64e + l	6.57e + l	6.51e + l	6.50e+l	6.48e + l	
210							6.65e + l	
250	7.67e+l	7.59e+l	7.48e4-l	7.41e+l		7.29e4-l		
300	8.48e + l	8.36e+l	8.26e4-l	8.17e + l	8.08e + 1	8.05e+l	8.05e + l	8.07e + l
350				8.89e + l				
400	9.94e + l		9.61e + l			9.46e+l		
500	1.13e + 2	1.12e+2	1.10e+2	1.08e4-2		1.07e+2	1.06e4-2	1.07e+2
700				1.32e+2				
750	1.44e+2	1.42e-f-2	1.40e+2			1.36e + 2		
1000	1.70e + 2	1.68e+2	1.66e+2	1.63e + 2		1.61e+2	1.60e+2	1.60e+2
2000	2.66e + 2				2.49e+2			
3000		3.42e + 2	3.34e+2	3.26e4-2		3.18e+2		
5000	4.98e + 2							
10000	8.41e+2	8.06e+2	7.70e+2	7.34e+2		7.10e+2		
30000						1.17e+3		
100000						2.44e+3		

He —> Au

Sputtering yield of Au by He
zl = 2. ml = 4.00. z2=79, m2=196.97, sbe=3.80 eV, rho=19.30 g/cm**3
ef=3.80 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, cascpol, case, IPP 9/82
ne= 7, na= 2

E_0 (eV)	0°	75 °	comment
100	5.46e-3		
300	4.98e-2		
500	7.42e-2		
1000	1.06e-l		
2000	1.70e-l	4.64e-l	ca= 1.09
4000	1.31e-l		
10000	1.52e-l		

Sputtered energy of Au by He
program: trspvmcx. cascpol. case
ne= 7. na= 2

Eo(eV)	0°	75 °	comment
100	7.28e-5		
300	7.63e-4		
500	9.42e-4		
1000	9.91e-4		
2000	1.Ole-3	3.60e-3	ca= 1.09
4000	5.26e-4		
10000	3.02e-4		

Particle reflection coefficient of He backscattered from Au
zl= 2, ml= 4.00, z2=79, m2 = 196.97, sbe=3.80 eV. rho=19.30 g/cm**3
ef=3.80 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trspvmcx, cascpol, case
ne= 8, na= 2

E_0 (eV)	0°	75°	comment
50	6.79e-l		
100	6.41e-l		
300	5.79e-l		
500	5.60e-l		
1000	5.25e-l		
2000	4.93e-l	7.76e-l	ca=1.09
4000	4.35e-l		
10000	3.51e-l		

Energy reflection coefficient of He backscattered from Au
ne= 8. na= 2

E_0 (eV)	0°	75°	comment
50	4.56e-l		
100	4.14e-l		
300	3.56e-l		
500	3.33e-l		
1000	3.02e-l		
2000	2.94e-l	6.25e-l	ca=1.09
4000	2.31e-l		
10000	1.80e-l		

Average depth (mean range) in Ä of He implanted in Au
ne= 8, na= 2

E_0 (eV)	0°	75°	comment
50	2.07e-H		
100	2.93e + l		
300	5.15e+l		
500	6.87e + l		
1000	1.02e + 2		
2000	1.26e + 2	1.18e-j-2	ca=1.09
4000	2.44e-f-2		
10000	4.19e-}-2		

He —> Au

Sputtering yield of Au by He
zl = 2, ml = 4.00. z2=79, m2 = 196.97; sbe=3.80 eV. rho = 19.31 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel =kdee2, ipot=ipotr (KrC)
alpha=0.00 program: trspvmcx
ne= 4, na= 1, n(ipot) = 3

E_0 (eV)	KrC	Mol	ZBL	comment
4000	1.15e-l			kdeel=kdee2 = l (LS)
4000	1.58e-l			kdeel=kdee2=2 (OB)
4000		1.61e-l	1.59e-l	kdeel=kdee2=3
4000	1.09e-l			kdeel=kdee2=3, ca=0.8

Sputtered energy of Au by He
ne= 4, na= 1, n(ipot)= 3

E_0 (eV)	KrC	Mol	ZBL	comment
4000	4.34e-4			kdeel = kdee2 = l (LS)
4000	5.87e-4			kdeel=kdee2=2 (OR)
4000		6.17e-4	5.50e-4	kdeel=kdee2 = 3
4000	4.73e-4			kdeel=kdee2=3, ca=0.8

Particle reflection coefficient of He backscattered from Au
zl = 2, ml = 4.00, z2=79, m2 = 196.97, sbe=3.80 eV, rho = 19.31 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2, ipot=ipotr (KrC)
alpha=0.00 program: trspvmcx
ne= 8, na= 1, n(ipot) = 3

Eq (eV)	KrC	Mol	ZBL	comment
50	6.45e-l			kdeel=kdee2 = l (LS)
50	7.15e-l			kdeel = kdee2=2 (OR)
50		7.38e-l	7.06e-l	kdeel=kdee2=3
50	6.27e-l			kdeel=kdee2=3, ca=0.8
4000	4.19e-l			kdeel=kdee2 = l (LS)
4000	4.28e-l			kdeel = kdee2=2 (OR)
4000		4.28e-l	4.39e-l	kdeel = kdee2=3
4000	4.00e-l			kdeel=kdee2=3, ca=0.8

Energy reflection coefficient of He backscattered from Au
ne= 8, na= 1, n(ipot)= 3

E_0 (eV)	KrC	Mol	ZBL	comment
50	4.20e-l			kdeel=kdee2 = l (LS)
50	4.96e-l			kdeel=kdee2=2 (OR)
50		5.32e-l	4.96e-l	kdeel=kdee2=3
50	3.92e-l			kdeel = kdee2 = 3, ca=0.8
4000	2.21e-l			kdeel=kdee2 = l (LS)
4000	2.25e-l			kdeel=kdee2=2 (OR)
4000		2.36e-l	2.43e-l	kdeel=kdee2=3
4000	2.00e-l			kdeel=kdee2=3, ca=0.8

Average depth (mean range) in Ä of He implanted in Au
ne= 8. na= 1, n(ipot)= 3

E_0 (eV)	KrC	Mol	ZBL	comment
50	1.84e+l			kdeel = kdee2= 1 (LS)
50	2.41e + l			kdeel=kdee2 = 2 (OR)
50		1.59e+l	1.53e+l	kdeel=kdee2=3
50	2.79e+l			kdeel=kdee2=3, ca=0.8
4000	2.40e+2			kdeel=kdee2= 1 (LS)
4000	2.54e + 2			kdeel=kdee2 = 2 (OR)
4000		2.23e+2	2.18e+2	kdeel=kdee2=3
4000	2.90e + 2			kdeel = kdee2=3, ca=0.8

Ne —> Au

Sputtering yield of Au by Ne
zl = 10, ml= 20.18, z2=79, m2 = 196.97, sbe=3.80 eV. rho = 19.30 g/cm**3
ef=3.80 eV, esb=0.00 eV, *ca=1.09*. kk0=kk0r=l, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: cascpol, case
ne= 2, na= 2

E_0 (eV)	0°	75 °
2000	2.73e-0	2.46e-0
10000		6.53e-0

Sputtered energy of Au by Ne
ne= 2, na= 2

Bo(eV)	0°'	75°
2000	2.72e-2	4.90e-2
10000		3.93e-2

Particle reflection coefficient of Ne backscattered from Au
zl = 10, ml= 20.18, z2=79, m2 = 196.97, sbe=3.80 eV, rho = 19.30 g/cm**3
ef=3.80 eV, esb=0.00 eV, *ca=1.09*, kkO= kkOr=l, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: cascpol, case
ne= 2, na= 2

E_0 (eV)	Ö°	75°
2000	4.02e-l	8.08e-l
10000		6.67e-l

Energy reflection coefficient of Ne backscattered from Au
ne= 2. na= 2

B_0 (eV)	0°	75°
2000	1.83e-l	6.33e-l
10000		4.71e-l

Na —> Au

Sputtering yield of Au by Na
zlsll, ml = 22.99, z2= 79, m2 = 196.97, sbe=3.80 eV, rho = 19.30 g/cm**3
ef= eV, esb= eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
only low fluence!
TPP9/82
ne= 1, na= 8

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	2.20e-0	2.45e-0	3.03e-0	3.45e-0	4.42e-0	5.62e-0	7.42e-0	8.27e-0

Sputtered energy of Au by Na
ne= 1, na= 8

Bo (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	4.12e-3	4.73e-3	6.50e-3	8.03e-3	1.13e-2	1.60e-2	2.38e-2	3.11e-2

Particle reflection coefficient of Na backscattered from Au
zl = ll, ml = 22.99, z2=79, m2=196.97, sbe=3.80 eV, rho = 19.30 g/cm**3
ef= eV, esb= eV, ca=1.00, kk0 = kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
only low fluence!
ne= 1, na= 8

Bq (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	2.29e-l	2.33e-l	2.74e-l	3.06e-l	3.61e-l	4.32e-l	5.32e-l	6.71e-l

Energy reflection coefficient of Na backscattered from Au
ne= 1, na= 8

E_0 (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	8.13e-2	8.78e-2	1.08e-l	1.27e-l	1.65e-l	2.21e-l	3.08e-l	4.65e-l

Average depth (mean range) in Ä of Na implanted in Au
ne= 1, na= 8

B_0 (eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	2.39e+2	2.36e4-2	2.26e+2	2.17e+2	2.07e+2	1.99e+2	1.89e+2	1.84e+2

Ar —> Au

Sputtering yield of Au by Ar
zl = 18, ml= 39.95, z2=79, m2=196.97, sbe=3.80 eV. rho = 19.31 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r=2, kdeel = kdee2=3. ipot=ipotr = l (KrC)
program: trspvmcx, trspvlcs. TPP 9/82
ne = 9. na= 1

E_0 (eV)	0°
50	7.43e-2
100	2.86e-l
300	9.30e-l
500	1.38e-0
1000	2.10e-0
2000	3.03e-0
3000	3.72e-0
4000	3.68e-0
100000	4.03e-0

Sputtered energy of Au by Ar
program: trspvmcx, trspvlcs
ne= 8. na= 1

Eo(eV)	0°
50	5.84e-3
100	1.86e-2
300	3.31e-2
500	3.62e-2
1000	3.57e-2
2000	3.45e-2
3000	3.41e-2
4000	2.60e-2

Particle reflection coefficient of Ar backscattered from Au
zl = 18, ml= 39.95, z2=79, m2 = 196.97, sbe=3.80 eV, rho = 19.31 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trspvmcx, trspvlcs
ne= 8, na= 1

Eo (eV)"	cP
50	5.67e-l
100	4.89e-l
300	3.99e-l
500	3.66e-l
1000	3.35e-l
2000	3.01e-l
3000	2.84e-l
4000	2.74e-l

Energy reflection coefficient of Ar backscattered from Au
ne= 8, na= 1

Ro(eV)	0°
50	2.04e-l
100	1.71e-l
300	1.31e-l
500	1.16e-l
1000	1.03e-l
2000	9.50e-2
3000	8.88e-2
4000	8.12e-2

Average depth (mean range) in Ä of Ar implanted in Au
ne= 8, na= 1

E_0 (eV)	0°
50	5.16e + 0
100	6.96e + 0
300	1.15e + l
500	1.46e + l
1000	2.06e + l
2000	3.07e + l
3000	3.78e + l
4000	4.38e+l

K -> Au

Sputtering yield of Au by K
zl = 19, ml = 42.00. z2=79. m2 = 196.97, sbe=3.80 eV. rho = 19.30 g/cm**3
ef= eV, esb=2.00 eV. ca=1.00, kk0 = kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
IPP9/82
only low fluence!
ne= 1, na= 8

Eq(eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	4.72e-0	5.11e-0	5.99e-0	7.31e-0	8.90e-0	1.11e + 1	1.33e4-l	1.30e+l

Sputtered energy of Au by K
ne= 1, na= 8

B0(eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	1.03e-2	1.15e-2	1.52e-2	2.06e-2	2.82e-2	3.88e-2	5.51e-2	6.62e-2

Particle reflection coefficient of K backscattered from Au
zl = 19, ml = 42.00, z2=79, m2=196.97, sbe=3.80 eV, rho = 19.30 g/cm**3
ef= eV, esb = 2.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
only low fluence!
ne= 1, na= 8

E0(eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	1.79e-l	1.94e-l	2.18e-l	2.60e-l	3.21e-l	3.86e-l	4.87e-l	6.41e-l

Energy reflection coefficient of K backscattered from Au
ne= 1, na= 8

Eq(eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	4.94e-2	5.55e-2	6.83e-2	9.13e-2	1.27e-l	1.75e-l	2.56e-l	4.24e-l

Average depth (mean range) in Ä of K implanted in Au
ne= 1, na= 8

E0(eV)	0°	15°	30°	40°	50°	60°	70°	80°
30000	1.50e+2	1.48e+2	1.43e+2	1.36e+2	1.29e + 2	1.20e+2	1.16e+2	1.08e+2

Xe → Au

Sputtering yield of Au by Xe
zl=54. ml = 131.00, z2=79, m2 = 196.97, sbe=3.80 eV. rho = 19.30 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: trspvmcx, cascpol. trsptest, TPP 9/82
ne = 9, na= 2

E_0 (eV)	0°	75°	comment
50	2.70e-2		
100	2.16e-l		
300	1.07e-0		
500	1.71e-0		
1000	2.87e-0		
2000	4.49e-0		
2000	6.54e-0	4.29e-0	ca=1.09
3000	5.54e-0		
4000	5.95e-0		

Sputtered energy of Au by Xe
program: trspvmcx. cascpol, trsptest
ne= 9, na= 2

E_0 (eV)	0°	75°	comment
50	1.73e-3		
100	1.07e-2		
300	3.11e-2		
500	3.77e-2		
1000	4.14e-2		
2000	4.42e-2		
2000	6.89e-2	1.67e-l	ca=1.09
3000	4.34e-2		
4000	3.75e-2		

Particle reflection coefficient of Xe backscattered from Au
zl = 54, ml = 131.00, z2=79, m2 = 196.97. sbe = 3.80 eV. rho = 19.30 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3. ipot=ipotr=l (KrC)
program: trspvmcx, cascpol, trsptest
ne= 9. na= 2

E_0 (eV)	0°	75°	comment
50	2.36e-l		
100	2.23e-l		
300	1.79e-l		
500	1.64e-l		
1000	1.38e-l		
2000	1.27e-l		
2000	1.49e-l	7.99e-l	ca=1.09
3000	1.07e-l		
4000	9.52e-2		

Energy reflection coefficient of Xe backscattered from Au
ne= 9, na= 2

E_0 (eV)	0°	75°	comment
50	1.73e-2		
100	1.66e-2		
300	1.33e-2		
500	1.21e-2		
1000	1.02e-2		
2000	9.71e-3		
2000	1.18e-2	4.72e-l	ca= 1.09
3000	8.04e-3		
4000	6.69e-3		

Average depth (mean range) in Å of Xe implanted in Au
ne = 9, na= 2

E_0 (eV)	0°	75°	comment
50	3.34e + 0		
100	4.75e+0		
300	7.76e+0		
500	9.73e + 0		
1000	1.32e+l		
2000	1.83e + l		
2000	1.12e + l	7.29e + 0	ca=1.09
3000	2.18e+l		
4000	2.56e + l		

Au –> Au

Sputtering yield of Au by Au
zl = 79, 1X11= 196.97, z2=79, m2 = 196.97, sbe=3.93 eV, rho = 19.30 g/cm**3
ef=3.43 eV, esb=3.93 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: newtrim (Laszlo)
ne=24, na= 2

E_0 (eV)	0°	65°
10		5.28e-5
12		5.31e-4
13		1.10e-3
14		1.98e-3
15		3.11e-3
20		1.61e-2
30	5.97e-4	6.51e-2
33	1.20e-3	
37	2.65e-3	
40	4.49e-3	1.28e-l
50	1.34e-2	
60	3.03e-2	
80	8.38e-2	
100	1.50e-l	
120	2.11e-l	
140	2.80e-l	
150	3.11e-l	
170	3.91e-l	
200	5.09e-l	
250	6.74e-l	
300	8.36e-l	
400	1.22e-0	
500	1.40e-0	
600	1.60e-0	2.74e-0

Sputtered energy of Au by Au
ne=24, na= 2

E_0 (eV)	0°	65°
10		1.09e-5
12		1.03e-4
13		2.07e-4
14		3.74e-4
15		6.07e-4
20		3.33e-3
30	3.46e-5	1.37e-2
33	7.Ole-5	
37	1.51e-4	
40	2.52e-4	2.65e-2
50	7.12e-4	
60	1.50e-3	
80	3.59e-3	
100	6.15e-3	
120	7.93e-3	
140	1.02e-2	
150	1.06e-2	
170	1.30e-2	
200	1.52e-2	
250	1.86e-2	
300	2.13e-2	
400	2.63e-2	
500	2.78e-2	
600	2.87e-2	1.89e-l

Au → Au

Particle reflection coefficient of Au backscattered from Au
zl=79. ml = 196.97. z2= 79. m2 = 196.97. sbe = 3.93 eV. rho = 19.30 g/cm**3
ef=3.43 eV, esb = 3.93 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2 = 3. ipots=ipotr = l (KrC)
program: newtrim (Laszlo)
ne=24. na= 2

R_0 (eV)	0°	65°
10		2.21e-4
12		1.47e-3
13		2.94e-3
14		5.23e-3
15		8.92e-3
20		4.19e-2
30	1.44e-5	1.55e-l
33	2.86e-5	
37	1.09e-4	
40	1.89e-4	2.74e-l
50	7.22e-4	
60	1.68e-3	
80	4.09e-3	
100	7.34e-3	
120	9.22e-3	
140	1.05e-2	
150	1.33e-2	
170	1.57e-2	
200	1.90e-2	
250	2.18e-2	
300	2.59e-2	
400	2.45e-2	
500	2.48e-2	
600	2.86e-2	4.96e-l

Energy reflection coefficient of Au backscattered from Au
ne=24, na= 2

Eo(eV)	0°	65°
10		5.30e-5
12		3.57e-4
13		7.09e-4
14		1.29e-3
15		2.22e-3
20		1.13e-2
30	7.91e-7	4.73e-2
33	1.92e-6	
37	6.14e-6	
40	1.09e-5	9.06e-2
50	4.28e-5	
60	1.04e-4	
80	2.55e-4	
100	4.48e-4	
120	4.47e-4	
140	5.23e-4	
150	6.71e-4	
170	8.79e-4	
200	9.23e-4	
250	9.22e-4	
300	9.99e~4	
400	8.09e-4	
500	9.82e-4	
600	1.44e-3	1.95e-l

Average depth (mean range) in Ä of Au implanted in Au
ne=24. na= 2

E_0 (eV)	0°	65°
10		1.97e-l
12		2.23e-l
13		2.41e-l
14		2.63e-l
15		2.78e-l
20		3.62e-l
30	1.80e + 0	5.63e-l
33	1.93e + 0	
37	2.25e + 0	
40	2.55e + 0	7.84e-l
50	2.93e + 0	
60	3.27e+0	
80	3.85e + 0	
100	4.31e + 0	
120	4.74e + 0	
140	5.13e + 0	
150	5.31e + 0	
170	5.65e + 0	
200	6.10e + 0	
250	6.82e + 0	
300	7.53e + 0	
400	8.65e + 0	
500	9.42e4-0	
600	1.00e + l	6.81e + 0

Au —> Au

Backward sputtering, forward sputtering, transmission; backscattering
zl=79. ml = 196.97, z2=79, m2 = 196.97, sbe=3.80 eV. rho = 19.31 g/cm**3
ef=3.75 eV. esb=0.00 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
e0=2.3e-f-8 eV, dx = 1000 Å
program: trvmc95
na= 3

alpha(degree)	Y	Y_F	YT	yt_b	T_N	T_E	R_N	Re
0	1.52e + 0	1.26e-5	1.61e+0	9.28e-5	1.00e-0	9.90e-l		
45	1.89e-J-0	6.69e-5	2.00e + 0	1.41e-4	1.00e-0	9.86e-l	9.99e-6	3.86e-6
70	3.93e4-0	2.12e-4	4.09e+0	2.77e-4	1.00e-0	9.71e+0	2.60e-4	1.59e-4

Kr —> Hg

Sputtering yield of Hg by Kr
zl = 36. ml= 83.80. z2 = 80, m2 = 200.59, sbe=6.36 eV, rho = 13.60 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program : TPP 9/82
ne=13, na=12

B_0 (eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
50	8.75e-3											
100	9.07e-2											
200	2.85e-l											
500	7.62e-l											
762	1.06e-0	1.10e-0	1.23e-0	1.43e-0	1.66e-0	1.77e-0	1.88e-0	1.99e-0	1.77e-0	1.42e-0	8.30e-l	1.45e-l
1000	1.27e-0											
2000	1.92e-0											
5000	2.88e-0											
10000	3.65e-0											
20000	4.33e-0											
50000	4.95e-0											
100000	4.92e-0											
200000	4.69e-0											

Sputtered energy of Hg by Kr
program :
ne=13, na=12

E_0 (eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
50	6.92e-4											
100	6.52e-3											
200	1.56e-2											
500	2.59e-2											
762	2.87e-2	3.02e-2	3.72e-2	4.89e-2	6.68e-2	7.86e-2	9.10e-2	1.15e-l	1.28e-l	1.15e-l	7.53e-2	l.lle-2
1000	2.93e-2											
2000	2.97e-2											
5000	2.68e-2											
10000	2.31e-2											
20000	1.88e-2											
50000	1.31e-2											
100000	8.76e-3											
200000	5.83e-3											

Kr -> Hg

Particle reflection coefficient of Kr backscattered from Hg
zl=36. ml = 83.80. z2=80. m2 = 200.59. sbe=6.36 eV. rho = 13.60 g/cm**3
ef=0.50 eV. esb=0.00 eV. ca=1.00. kkO=kkOr=2, kdeel = kdee2=3. ipot=:ipotr = l (KrC)
program :
ne=13. na=12

E_0 (eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
50	3.49e-l											
100	3.09e-l											
200	2.65e-l											
500	2.22e-l											
762	2.02e-l	2.14e-l	2.29e-l	2.60e~l	3.13e-l	3.48e-l	3.85e-l	4.91e-l	6.50e-l	7.60e-l	8.90e-l	9.94e-l
1000	1.99e-l											
2000	1.74e-l											
5000	1.50e-l											
10000	1.33e-l											
20000	1.19e-l											
50000	9.58e-2											
100000	7.67e-2											
200000	5.52e-2											

Energy reflection coefficient of Kr backscattered from Hg
ne=13, na=12

E_0 (eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
50	5.76e-2											
100	5.17e-2											
200	4.41e-2											
500	3.60e-2											
762	3.15e-2	3.49e-2	4.14e-2	5.38e-2	7.82e-2	9.71e-2	1.19e-l	1.96e-l	3.43e-l	4.74e-l	6.73e-l	9.15e-l
1000	3.14e-2											
2000	2.66e-2											
5000	2.28e-2											
10000	2.03e-2											
20000	1.83e-2											
50000	1.49e-2											
100000	1.17e-2											
200000	8.72e-3											

Average depth (mean range) in Å of Kr implanted in Hg
ne=13, na=12

E_0 (eV)	0°	10°	20°	30°	40°	45°	50°	60°	70°	75°	80°	85°
50	8.31e+0											
100	1.02e-f-l											
200	1.27e+l											
500	1.75e+l											
762	2.09e + l	2.07e+l	2.04e4-l	1.97e + l	1.91e+l	1.86e4-l	1.82e + l	1.73e + l	1.65e + l	1.60e-|-l	1.54e+l	1.43e+l
1000	2.35e + l											
2000	3.17e-f-l											
5000	4.94e + l											
10000	7.18e+l											
20000	1.09e+2											
50000	1.92e+2											
100000	3.18e-f-2											
200000	5.43e+2											

H → U

Sputtering yield of U by H
zl = 1, ml= 1.01, z2=92, m2=238.03, sbe=5.42 eV. rho = 19.07 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx, TPP 9/82
ne= 1, na= 8

Bo(eV)	0°	30°	45°	60°	70°	80°	85°	87°
2000	4.13e-3	5.Ole-3	5.78e-3	8.53e-3	1.24e-2	2.20e-2	2.38e-2	1.35e-2

Sputtered energy of U by PT
program : testvmcx
ne= 1, na= 8

B_o(eV)	0°	30°	45°	60°	70°	80°	85°	87°
2000	1.29e-5	1.62e-5	1.85e-5	2.71e-5	3.99e-5	7.36e-5	9.37e-5	5.75e-5

Particle reflection coefficient of H backscattered from U
zl= 1, ml = 1.01, z2=92, m2=238.03, sbe=5.42 eV, rho=19.07 g/cm**3
ef=0.95 eV, esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : testvmcx
ne= 1, na= 8

Bo(eV)	0°	30°	45°	60°	70°	80°	85°	87°
2000	4.55e-l	4.96e-l	5.49e-l	6.26e-l	6.91e-l	7.79e-l	8.72e-l	9.50e-l

Energy reflection coefficient of Pl backscattered from U
ne= 1, na= 8

Bo(eV)	0°	30°	45°	60°	70°	80°	85°	87°
2000	2.44e-l	2.79e-l	3.28e-l	4.08e-l	4.86e-l	6.13e-l	7.63e-l	8.95e-l

Average depth (mean range) in Ä of H implanted in U
ne= 1, na= 8

Bq(eV)	0°	30°	45°	60°	70°	80°	85°	87°
2000	2.81e+2	2.75e + 2	2.68e+2	2.61e + 2	2.56e+2	2.54e-)-2	2.53e+2	2.53e+2

He → U

Sputtering yield of U by He
zl= 2, ml= 4.00. z2= 92. m2=238.03, sbe=5.42 eV, rho=19.07 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : TPP 9/82
ne=12, na= 1

Bp(eV)	0°
200	5.40e-3
300	1.63e-2
500	2.27e-2
1000	4.45e-2
3000	6.40e-2
5000	6.54e-2
10000	5.94e-2
30000	4.57e-2
50000	3.12e-2
75000	2.59e-2
100000	2.09e-2
200000	1.26e-2

Ne –> U

Sputtering yield of U by Ne
zl = 10, ml = 20.18, z2=92, m2=238.03, sbe=5.42 eV, rho = 19.07 g/cm**3
ef=0.50 eV, esb = 0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : TPP 9/82
ne=13, na= 1

B_0 (eV)	0°
50	7.30e-3
100	7.56e-2
300	2.96e-l
500	4.26e-l
1000	6.46e-l
2000	8.72e-l
3000	9.97e-l
5000	1.17e-0
10000	1.28e-0
30000	1.34e-0
100000	9.68e-l
300000	5.84e-l
500000	5.12e-l

Ar –> U

Sputtering yield of U by Ar
zl = 10, ml= 20.18, z2= 92, m2=238.03, sbe=5.42 eV, rho = 19.07 g/cm**3
ef=0.50 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program : IPP 9/82
ne=ll, na= 1

Bo(eV)	0°
50	2.22e-2
100	1.37e-l
300	5.07e-l
1000	1.19e-0
3000	2.00e-0
10000	2.77e-0
30000	3.08e-0
34300	3.05e-0
100000	2.77e-0
300000	2.10e-0
500000	1.54e-0

Kr > U

Sputtering yield of U by Kr
z1 = 36, m1 = 83.80, z2 = 92, m2 = 238.03, sbe=5.42 eV. rho = 19.07 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdee1 = kdee2=3, ipot=ipotr=1 (KrC)
program : IPP 9/82
ne=12, na=15

E_0 (eV)	0°	15°	20°	30°	45°	50°	55°	60°	65°	70°	75°	80°
50	1.93e-2											
100	1.48e-1											
300	6.78e-1											
1000	1.70e-0											
3000	3.09e-0											
10000	4.67e-0											
17900	5.76e-0	5.88e-0	6.26e-0	6.97e-0	9.15e-0	1.01e+1	1.04e+1	1.11e+1	1.21e+1	1.23e+1	1.20e+1	1.05e+1
17930	5.47e-0											
30000	6.12e-0											
100000	6.37e-0											
300000	5.80e-0											
500000	4.93e-0											

E_0(eV)	82.5°	85°	87.5°
17900	8.78e+0	5.96e+0	1.26e-0

Sputtered energy of U by Kr
program :
ne= 1, na=15

E_0 (eV)	0°	15°	20°	30°	45°	50°	55°	60°	65°	70°	75°	80°
17900	2.25e-2	2.48e-2	2.83e-2	3.61e-2	5.73e-2	6.64e-2	8.00e-2	8.98e-2	1.03e-1	1.13e-1	1.25e-1	1.27e-1

E_0(eV)	82.5°	85°	87.5°
17900	1.11e-1	7.55e-2	1.41e-2

Particle reflection coefficient of Kr backscattered from U
z1=36, m1= 83.80, z2=92, m2=238.03, sbe=5.42 eV. rho = 19.07 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdee1=kdee2=3, ipot=ipotr=1 (KrC)
program :
ne= 1, na=15

E_0 (eV)	0°	15°	20°	30°	45°	50°	55°	60°	65°	70°	75°	80°
17900	1.60e-1	1.71e-1	1.63e-1	1.93e-1	2.51e-1	2.94e-1	3.18e-1	3.87e-1	4.28e-1	4.97e-1	5.61e-1	6.57e-1

E_0(eV)	82.5°	85°	87.5°
17900	7.32e-1	8.47e-1	9.86e-1

Energy reflection coefficient of Kr backscattered from U
ne= 1, na=15

E_0(eV)	0°	15°	20°	30°	45°	50°	55°	60°	65°	70°	75°	80°
17900	3.09e-2	3.13e-2	3.25e-2	4.23e-2	7.14e-2	8.80e-2	1.07e-1	1.42e-1	1.79e-1	2.27e-1	2.96e-1	4.07e-1

E_0 (eV)	82.5°	85°	87.5°
17900	6.99e-1	8.05e-1	9.34e-1

Average depth (mean range) in Å of Kr implanted in U
ne= 1, na=15

E_0 (eV)	0°	15°	20°	30°	45°	50°	55°	60°	65°	70°	75°	80°
17900	8.13e+1	8.29e+1	8.09e+1	7.81e+1	7.14e+1	6.90e+1	6.72e+1	6.58e+1	6.19e+1	6.03e+1	5.91e+1	5.87e+1

E_0 (eV)	82.5°	85°	87.5°
17900	5.70e+1	5.51e+1	4.83e+1

Xc — U

Sputtering yield of U by Xe
zl = 54. ml = 131.30. z2 = 92. m2=238.03. sbe=5.42 eV. rho = 19.07 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr= 1 (KrC)
program : TPP 9/82
ne=12., na= 1

E_0 (eV)	0°
50	6.30e-3
70	3.26e-2
100	1.01e-l
200	3.72e-l
300	6.33e-l
1000	1.80e-0
3000	3.41e-0
10000	5.35e-0
30000	7.58e-0
100000	8.62e-0
300000	8.98e-0
500000	8.13e-0

Rn —> U

Sputtering yield of U by Rn
zl = 86. ml = 222.00. z2=92. m2=238.03. sbe=5.42 eV. rho=19.07 g/cm**3
ef=0.50 eV, esb = 0.00 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2 = 3. ipot=ipotr = l (KrC)
program : IPP 9/82
ne=12., na= 1

R_0 (eV)	0°
50	9.00e-4
70	9.70e-3
100	4.05e-2
150	1.37e-l
200	2.47e-l
300	4.69e-l
1000	1.62e-0
3000	3.30e-0
10000	5.85e-0
30000	8.55e-0
100000	1.12e + l
300000	1.25e+l

u->u

Sputtering yield of U by U
zl=92, ml = 238.03, z2=92, m2=238.03, sbe=5.42 eV, rho = 19.07 g/cm**3
ef=5.37 eV. esb=5.42 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program : TPP 9/82
ne=ll, na= 1

E0(eV)	0°
70	1.32e-2
100	4.84e-2
150	1.38e-l
200	2.58e-l
300	4.60e-l
500	8.84e-l
1000	1.64e-0
3000	3.35e-0
10000	6.06e-0
30000	8.50e-0
100000	1.14e+l

Sputtered energy of U by U
program : trspvmc
ne= 7, na= 1

	ca=1.00	ca=l. 15
Eq(eV)	0°	0°
70	7.78e-4	1.02e-3
100	2.28e-3	3.59e-3
200	9.19e-3	1.26e-2
500	1.95e-2	2.68e-2
1000	2.56e-2	3.40e-2
3000	2.84e-2	3.59e-2
10000	2.63e-2	2.90e-2

Particle reflection coefficient of U backscattered from U
zl=92, ml = 238.03, z2=92, m2=238.03, sbe=5.42 eV, rho = 19.07 g/cm**3
ef=5.37 eV, esb=5.42 eV, ca=1.00, kkO=kkOr=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program : trspvmc
ne= 7, na= 1

	ca=1.00	ca= 1.15
E0(eV)	0°	0°
70	6.60e-4	1.42e-3
100	2.90e-3	5.40e-3
200	1.26e-2	1.54e-2
500	2.15e-2	2.62e-2
1000	2.66e-2	3.17e-2
3000	2.74e-2	3.30e-2
10000	2.23e-2	2.29e-2

Energy reflection coefficient of IJ backscattered from U
ne= 7, na= 1

	ca=1.00	ca=l. 15
E0(eV)	0°	0°
70	3.46e-5	1.18e-4
100	1.38e-4	3.09e-4
200	5.83e-4	8.48e-4
500	8.93e-4	1.19e-3
1000	1.15e-3	1.30e-3
3000	1.09e-3	1.25e-3
10000	7.81e-4	9.25e-4

Average depth (mean range) in Ä of U implanted in U
ne= 7, na= 1

	ca=1.00	ca=l. 15
Bo(eV)	0°	0°
70	3.83e + 0	2.35e-)-0
100	4.61e+0	2.95e-f-0
200	6.46e+0	4.38e+0
500	9.93e + 0	7.18e-}-0
1000	1.38e+l	1.02e+l
3000	2.30e4-l	1.73e+l
10000	4.11e+l	3.28e+l

Compound targets

O -4- BeO

Sputtering yield of BeO by O
z1 = 8, m1 = 16.00
z2 = 4 (0.50). 8 (0.50), m2 = 9.01, 16.00, sbe=6.33 eV, rho = 3.01 g/cm**3
ef=6.30 eV, esb = 6.33 eV. ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=1 (KrC)
program: trspvmcx, TPP 9/82
only low fluence !
ne=10, na=17

Be

Eo(eV)	0°	10°	20°	30°	40°	50°	55°	60°	62.5°	65°	67.5°	70°
100	1.23e-2											
140	2.66e-2											
200	5.03e-2	6.00e-2	1.01e-1	1.62e-1	2.52e-1	3.58e-1	3.95e-1	4.22e-1		3.96e-1		3.37e-1
300	8.18e-2	9.59e-2	1.39e-1	2.19e-1	3.35e-1	4.75e-1	5.34e-1	5.82e-1	5.87e-1	5.78e-1		5.02e-1
500	1.31e-1	1.44e-1	1.99e-1	2.87e-1	4.23e-1	6.24e-1		7.94e-1		8.36e-1		7.95e-1
1000	1.92e-1	2.11e-1	2.66e-1	3.71e-1	5.38e-1	7.78e-1		1.07e-0		1.18e-0	1.24e-0	1.26e-0
2000	2.40e-1											
3000	2.54e-1	2.84e-1	3.36e-1	4.33e-1	6.12e-1	8.96e-1		1.29e-0		1.56e-0		1.81e-0
5000	2.64e-1											
10000	2.35e-1											

Be

Bo (eV)	72.5°	75°	77.5°	80°	85°
200		2.40e-1		1.27e-1	6.18e-2
300		3.66e-1		1.82e-1	6.02e-2
500		5.90e-1		2.99e-1	6.81e-2
1000	1.20e-0	1.11e-0	9.21e-1	6.52e-1	1.05e-1
3000		1.98e-0		1.76e-0	4.68e-1

O

Bq (eV)	0°	10°	20°	30°	40°	50°	55°	60°	62.5°	65°	67.5°	70°
100	5.77e-3											
140	1.46e-2											
200	2.89e-2	3.45e-2	6.70e-2	1.20e-1	2.05e-1	3.11e-1	3.55e-1	3.75e-1		3.61e-1		3.05e-1
300	5.05e-2	6.61e-2	1.01e-1	1.70e-1	2.80e-1	4.23e-1	5.03e-1	5.22e-1	5.35e-1	5.30e-1		4.64e-1
500	8.35e-2	9.99e-2	1.41e-1	2.35e-1	3.63e-1	5.48e-1		7.31e-1		7.77e-1		7.56e-1
1000	1.35e-1	1.51e-1	1.96e-1	2.93e-1	4.52e-1	6.88e-1		9.70e-1		1.09e-0	1.14e-0	1.19e-0
2000	1.81e-1											
3000	1.96e-1	2.01e-1	2.57e-1	3.54e-1	5.09e-1	7.55e-1		1.16e-0		1.43e-0		1.70e-0
5000	2.08e-1											
10000	1.88e-1											

O

E_0 (eV)	72.5°	75°	77.5°	80°	85°
200		2.11e-1		1.15e-1	4.86e-2
300		3.29e-1		1.62e-1	5.45e-2
500		5.70e-1		2.72e-1	5.75e-2
1000	1.16e-0	1.06e-0	8.84e-1	6.28e-1	9.22e-2
3000		1.88e-0		1.70e-0	4.46e-1

O -> BeO

Sputtered energy of BeO by O
zl = 8. ml = 16,00
z2 = 4 (0.50); 8 (0.50); m2 = 9.01, 16.00. sbe = 6.33 eV. rho = 3.01 g/cm**3
ef=6.30 eV, esb = 6.33 eV. ca=1.00; kk0=kk0r=2; kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trspvmcx
only low fluence !
ne=10, na=17

Be

B_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	62.5°	65°	67.5°	70°
100	2.42e-4											
140	5.17e-4											
200	8.67e-4	1.20e-3	3.08e-3	7.32e-3	1.63e-2	3.20e-2	4.22e-2	4.91e-2		5.39e-2		5.15e-2
300	1.25e-3	1.84e-3	3.76e-3	8.19e-3	1.84e-2	3.50e-2	4.64e-2	5.46e-2	6.Ole-2	6.44e-2		6.32e-2
500	1.73e-3	2.27e-3	3.96e-3	8.84e-3	1.80e-2	3.27e-2		5.61e-2		6.71e-2		7.34e-2
1000	1.94e-3	2.44e-3	4.13e-3	8.12e-3	1.53e-2	2.88e-2		5.00e-2		6.23e-2	6.87e-2	7.45e-2
2000	1.83e-3											
3000	1.62e-3	1.75e-3	3.14e-3	5.54e-3	1.02e-2	1.94e-2		3.56e-2		4.68e-2		6.10e-2
5000	1.38e-3											
10000	9.05e-4											

Be

Bo (eV)	72.5°	75°	77.5°	80°	85°
200		4.03e-2		2.12e-2	9.60e-3
300		4.79e-2		2.59e-2	7.87e-3
500		5.81e-2		3.29e-2	7.49e-3
1000	7.29e-2	7.19e-2	6.25e-2	4.62e-2	7.34e-3
3000		6.57e-2		6.28e-2	1.96e-2

O

E_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	62.5°	65°	67.5°	70°
100	2.42e-4											
140	5.17e-4											
200	8.67e-4	1.20e-3	3,08e-3	7.32e-3	1.63e-2	3.20e-2	4.22e-2	4.91e-2		5.39e-2		5.15e-2
300	1.25e-3	1.84e-3	3.76e-3	8.19e-3	1.84e-2	3.50e-2	4.64e-2	5.46e-2	6.Ole-2	6.44e-2		6.32e-2
500	1.73e-3	2.27e-3	3.96e-3	8.84e-3	1.80e-2	3.27e-2		5.61e-2		6.71e-2		7.34e-2
1000	1.94e-3	2.44e-3	4.13e-3	8.12e-3	1.53e-2	2.88e-2		5.00e-2		6.23e-2	6.87e-2	7.45e-2
2000	1.83e-3											
3000	1.62e-3	1.75e-3	3.14e-3	5.54e-3	1.02e-2	1.94e-2		3.56e-2		4.68e-2		6.10e-2
5000	1.38e-3											
10000	9.05e-4											

O

E_0 (eV)	72.5°	75°	77.5°	80°	85°
200		3.97e-2		2.28e-2	9.63e-3
300		5.07e-2		2.63e-2	8.03e-3
500		6.52e-l		3.54e-2	7.93e-3
1000	7.97e-2	7.67e-2	6.97e-2	5.43e-2	8.87e-3
3000		7.15e-2		7.21e-2	2.43e-2

O -> BeO

Particle reflection coefficient of O backscattered from
zl= 8, ml= 16.00
z2= 4 (0.50), 8 (0.50), m2= 9.01. 16.00. sbe = 6.33 eV, rho = 3.01 g/cm**3
ef=6.30 eV, esb=6.33 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx, TPP 9/82
only low fluence !
ne=10, na=17

Ro(eV)	0°	10°	20°	30°	40°	50°	55°	60°	62.5°	65°	67.5°	70°
100	4.70e-4											
140	1.04e-3											
200	1.33e-3	2.78e-3	7.98e-3	2.40e-2	5.98e-2	1.50e-l	2.28e-l	3.33e-l		4.64e-l		6.26e-l
300	2.17e-3	3.60e-3	8.90e-3	2.43e-2	5.76e-2	1.29e-l	1.92e-l	2.85e-l	3.52e-l	4.18e-l		5.79e-l
500	3.35e-3	4.10e-3	8.80e-3	2.04e-2	4.68e-2	1.03e-l		2.29e-l		3.42e-l		4.82e-l
1000	3.05e-3	2.80e-3	5.70e-3	1.54e-2	3.45e-2	7.77e-2		1.75e-l		2.46e-l	3.02e-l	3.66e-l
2000	1.60e-3											
3000	1.30e-3	2.40e-3	4.60e-3	9.20e-3	2.19e-2	5.05e-2		1.13e-l		1.76e-l		2.59e-l
5000	1.50e-3											
10000	6.00e-4											

Bo(eV)	72.5°	75 u	77.5°	80 u	85 u
200		7.84e-l		9.08e-l	9.70e-l
300		7.60e-l		9.12e-l	9.82e-l
500		6.89e-l		8.87e-l	9.86e-l
1000	4.52e-l	5.48e-l	6.68e-l	7.95e-l	9.84e-l
3000		3.72e-l		5.77e-l	9.22e-/

Energy reflection coefficient of O backscattered from
only low fluence I
ne=10, na=17

Eq(eV)	0°	10°	20°	30°	40°	50°	55°	60°	62.5°	65°	67.5°	70°
100	3.04e-5											
140	6.79e-5											
200	6.65e-5	2.05e-4	7.18e-4	2.97e-3	1.06e-2	3.74e-2	6.76e-2	1.19e-l		1.98e-l		3.21e-l
300	1.06e-4	1.98e-4	7.34e-4	2.58e-3	9.50e-3	2.96e-2	5.37e-2	9.73e-2	1.32e-l	1.76e-l		2.95e-l
500	1.10e-4	2.20e-4	6.41e-4	1.98e-3	6.80e-3	2.15e-2		7.12e-2		1.30e-l		2.33e-l
1000	1.00e-4	1.43e-4	3.83e-4	1.66e-3	4.77e-3	1.43e-2		4.72e-2		8.73e-2	1.18e-l	1.55e-l
2000	1.35e-4											
3000	4.39e-5	8.83e-5	2.54e-4	6.55e-4	2.48e-3	8.56e-3		2.81e-2		5.27e-2		9.43e-2
5000	7.74e-5											
10000	2.07e-5											

Ro(eV)	72.5 U	75 u	77.5°	80°	85 u
200		4.67e-l		6.27e-l	7.33e-l
300		4.68e-l		6.66e-l	8.05e-l
500		4.21e-l		6.62e-l	8.57e-l
1000	2.20e-l	3.04e-l	4.32e-l	5.82e-l	8.88e-l
3000		1.75e-l		3.64e-l	8.13e-l

Average depth (mean range) in Ä of O implanted in
only low fluence !
ne=10, na=17

R_0 (eV)	0°	10°	20°	30°	40°	50°	55°	60°	62.5°	65°	67.5°	70°
100	4.28e+0											
140	5.51e+0											
200	7.18e+0	7.08e + 0	6.70e+0	6.14e+0	5.44e4-0	4.69e+0	4.29e+0	3.88e+0		3.48e + 0		3.12e + 0
300	9.66e+0	9.50e+0	9.08e+0	8.29e+0	7.35e+0	6.42e+0	5.87ed-0	5.37e4-0	5.15e4-0	4.87e+0		4.47e + 0
500	1.40e4-l	1.38e+l	1.32e + l	1.22e+l	1.08e+l	9.39e+0		8.02e+0		7.29e+0		6.66e-f-0
1000	2.38e + l	2.33e4-l	2.23e + l	2.06e+l	1.85e + l	1.60e+l		1.35e + l		1.26e+l	1.19e+l	1.13e + l
2000	4.14e+l											
3000	5.89e + l	5.79e+l	5.51e-{-l	5.13e4-l	4.61e + l	3.94e+l		3.30ed-l		2.98e+l		2.70e + l
5000	9.25e + l											
10000	1.79e+2											

Ro(eV)	72.5°	75°	77.5°	80°	85°
200		2.67e4-0		2.09e + 0	1.60e+0
300		3.91e4-0		3.15e+0	2.61e+0
500		6.15e+0		5.21e4-0	4.03e+0
1000	1.07e+l	1.03e+l	9.70e+0	9.08e + 0	7.28e+0
3000		2.44e4-l		2.27e + l	1.88e + l

H -> B_4C

Sputtering yield of B4C by H
zl= 1. ml= 1.01. z2= 5 (0.8). 6 (0.2), m2= 10.81. 12.01. alpha=0.00
testvmcx: sbe=5.73. 7.42 eV. rho=2.51 g/cm**3. ef=1.00 eV
trspvmc: sbe=5.90. 7.40 eV. rho = 2.28 g/cm**3. ef=0.90 eV
esb = 1.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: testvmcx. IPP 9/82. trspvmc
only low fluence !
ne=12. na= 1

E_0 (eV)	B	C	B + C	comment
40	3.61e-4	5.35e-5	4.15e-4	
50	1.23e-3	2.19e-4	1.45e-3	
70	2.99e-3	6.41e-4	3.63e-3	
100	5.17e-3	1.32e-3	6.49e-3	
100	5.49e-3	1.09e-3	6.58e-3	trspvmc
200	7.61e-3	1.72e-3	9.33e-3	
300	7.70e-3	1.93e-3	9.63e-3	trspvmc
333	7.93e-3	2.03e-3	9,96e-3	trspvmc
500	7.57e-3	1.83e-3	9.39e-3	
1000	6.40e-3	1.40e-3	7.80e-3	
1000	5.67e-3	1.47e-3	7.14e-3	trspvmc
2000	4.40e-3	1.06e-3	5.46e-3	trspvmc

Sputtered energy of B4C by H
program: testvmcx. trspvmc
only low fluence !
ne=12, na= 1

Bo(eV)	B	C	B + C	comment
40	1.17e-5	1.37e-6	1.31e-5	
50	5.10e-5	7.62e-6	5.86e-5	
70	1.43e-4	2.80e-5	1.71e-4	
100	2.45e-4	5.89e-5	3.04e-4	
100	2.68e-4	4.60e-5	3.14e-4	trspvmc
200	3.10e-4	5.81e-5	3.68e-4	
300	2.56e-4	6.13e-5	3.17e-4	trspvmc
333	2.45e-4	6.24e-5	3.17e-4	trspvmc
500	1.85e-4	4.22e-5	2.27e-4	
1000	1.Ole-4	2.05e-5	1.22e-4	
1000	8.82e-5	2.05e-5	1.09e-4	trspvmc
2000	4.33e-5	1.05e-5	5.38e-5	trspvmc

H -> B_4C

Particle reflection coefficient of H backscattered from B_4C
zl = 1, ml = 1.01, z2 = 5 (0.8), 6 (0.2), m2 = 10.81, 12.01, alpha=0.00
testvmcx: sbe=5.73, 7.42 eV, rho=2.51 g/cm**3. ef=1.00 eV
trspvmc: sbe=5.90, 7.40 eV, rbo = 2.28 g/cm**3, ef=0.90 eV
esb = 1.00 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, trspvmc
only low fluence !
ne=12, na= 1

Eo(eV)	0°	comment
40	3.43e-l	
50	3.22e-l	
70	2.93e-l	
100	2.65e-l	
100	2.63e-l	trspvmc
200	2.09e-l	
300	1.76e-l	trspvmc
333	1.70e-l	trspvmc
500	1.38e-l	
1000	8.57e-2	
1000	8.43e-2	trspvmc
2000	4.35e-2	trspvmc

Energy reflection coefficient of H backscattered from B_4C
only low fluence !
ne=12, na= 1

E_0 (eV)	0°	comment
40	1.57e-l	
50	1.44e-l	
70	1.28e-l	
100	1.12e-l	
100	l.lle-1	trspvmc
200	8.26e-2	
300	6.56e-2	trspvmc
333	6.25e-2	trspvmc
500	4.82e-2	
1000	2.68e-2	
1000	2.62e-2	trspvmc
2000	1.19e-2	trspvmc

Average depth (mean range) in Ä of H implanted in B_4C
only low fluence !
ne=12, na= 1

E_0 (eV)	0°	comment
40	1.18e4-l	
50	1.40e + l	
70	1.82e + l	
100	2.43e + l	
100	2.67e + l	trspvmc
200	4.31e + l	
300	6.73e + l	trspvmc
333	7.34e + l	trspvmc
500	9.53e + l	
1000	1.76e+2	
1000	1.94e+2	trspvmc
2000	3.58e+2	trspvmc

D -> B_4C

Sputtering yield of B4C by D
zl = 1. ml = 2.01, z2 = 5 (0.8). 6 (0.2), m2= 10.81, 12.01, sbe=5.73, 7.42 eV, rho = 2.51 g/cm**3
ef=1.00 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: testvmcx, IPP 9/82
only low fluence!
ne=ll, na= 2

	B	B	C	C	B + C	B + C
E_0 (eV)	0°	85°	0°	85°	0°	85°
25	1.47e-4		1.90e-5		1.66e-4	
30	7.54e-4		1.02e-4		8.56e-4	
40	2.75e-3		5.28e-4		3.27e-3	
50	4.75e-3		9.73e-4		5.72e-3	
70	8.26e-3		2.07e-3		1.03e-2	
100	1.15e-2		2.71e-3		1.42e-2	
200	1.51e-2		3.50e-3		1.86e-2	
500	1.49e-2		3.67e-3		1.86e-2	
1000	1.34e-2		2.98e-3		1.63e-2	
8000	4.10e-3		1.20e-3		5.30e-3	
100000		3.06e-2		7.54e-3		3.81e-2

Sputtered energy of B4C by D
program: testvmcx
only low fluence!
ne=ll, na= 2

	B	B	C	C	B 4- C	B + C
E_0 (eV)	0°	85°	0°	85°	0°	85°
25	6.95e-6		6.72e-7		7.62e-6	
30	4.22e-5		5.13e-6		4.73e-5	
40	1.77e-4		3.04e-5		2.07e-4	
50	3.21e-4		5.82e-5		3.79e-4	
70	5.72e-4		1.39e-4		7.11e-4	
100	7.32e-4		1.50e-4		8.82e-4	
200	7.42e-4		1.55e-4		8.97e-4	
500	4.45e-4		1.04e-4		5.49e-4	
1000	2.46e-4		5.20e-5		2.98e-4	
8000	1.91e-5		2.96e-6		2.21e-5	
100000		5.26e-5		1.04e-5		6.30e-5

D -> B_4C

Particle reflection coefficient of D backscattered from B4C
zl = 1, ml= 2.01; z2= 5 (0.8), 6 (0.2), m2= 10.81. 12.01, sbe=5.73, 7.42 eV, rho=2.51 g/cm**3
ef=1.00 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx
only low fluence!
ne=ll, na= 2

E_0 (eV)	0°	85°
25	2.95e-l	
30	2.78e-l	
40	2.54e-l	
50	2.35e-l	
70	2.12e-l	
100	1.92e-l	
200	1.52e-l	
500	1.03e-l	
1000	6.68e-2	
8000	6.40e-3	
100000		2.91e-l

Energy reflection coefficient of D backscattered from B4C
only low fluence!
ne=ll, na= 2

B_0 (eV)	0°	85°
25	1,09e-l	
30	1.02e-l	
40	9.17e-2	
50	8.39e-2	
70	7.42e-2	
100	6.59e-2	
200	5.03e-2	
500	3.20e-2	
1000	1.90e-2	
8000	1.28e-3	
100000		4.05e-2

Average depth (mean range) in Ä of D implanted in B4C
only low fluence!
ne=ll, na= 2

E_0 (eV)	0°	85°
25	7.04e+0	
30	8.10e4-0	
40	1.02e+l	
50	1.22e+l	
70	1.61e + l	
100	2.17e+l	
200	4.02e+l	
500	9.45e + l	
1000	1.85e+2	
8000	1.29e+3	
100000		9.82e+2

D B_4C

Sputtering yield of B_4C by T)
zl = 1, ml= 2.01, z2= 5 (0.8), 6 (0.2). m2 = 10.81, 12.01, sbe = 5.98, 5.98 eV. rho = 2.52 g/cm**3
ef=0.90 eV. esb = 1.00 eV. ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr = l (KrC)
program: trspvmc
only low fluence!
ne= 3, na= 6

B

Eo(eV)	0°	30°	45°	60°	75°	85°
100	1.14e-2	1.74e-2	3.19e-2	5.79e-2	6.04e-2	2.50e-3
300	1.46e-2					
500	1.60e-2	2.83e-2	5.35e-2	1.05e-l	2.02e-l	4.03e-2

C

E_0 (eV)	0°	30°	45°	60°	75°	85°
100	2.59e-3	3.84e-3	7.24e-3	1.27e-2	1.43e-2	6.15e-4
300	3.60e-3					
500	3.66e-3	7.95e-3	1.27e-2	2.55e-2	5.39e-2	1.07e-2

B + C

Eo(eV)	0°	30°	45°	60°	75°	85°
100	1.40e-2	2.12e-2	3.91e-2	7.06e-2	7.47e-2	3.12e-3
300	1.82e-2					
500	1.97e-2	3.63e-2	6.62e-2	1.31e-l	2.56e-l	5.10e-2

Sputtered energy of B_4C by D
only low fluence!
ne= 3, na= 6

B

E_0 (eV)	0°	30°	45°	60°	75°	85°
100	7.56e-4	1.20e-3	2.37e-3	5.00e-3	7.00e-3	3.89e-4
300	5.66e-4					
500	4.57e-4	8.15e-4	1,81e-3	4.42e-3	9.76e-3	3.06e-3

C

Bo (eV)	0°	30°	45°	60°	75°	85°
100	1.63e-4	2.49e-4	4.95e-4	1.04e-3	1.59e-3	8.50e-5
300	1.37e-4					
500	1.04e-4	2.41e-4	4.43e-4	1.15e-3	2.80e-3	7.48e-4

B + C

E_0 (eV)	0°	30°	45°	60°	75°	85°
100	9.19e-4	1.45e-3	2.87e-3	6.04e-3	8.59e-3	3.12e-3
300	7.03e-4					
500	5.61e-4	1.06e-3	2.25e-3	5.57e-3	1.26e-2	3.81e-3

Particle reflection coefficient of D backscattered from B_4C
zl= 1, ml= 2.01, z2= 5 (0.8), 6 (0.2), m2= 10.81, 12.01, sbe = 5.98, 5.98 eV, rho = 2.52 g/cm**3
ef=0.90 eV. esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = 1 (KrC)
program: trspvmc
only low fluence!
ne= 3, na= 6

E_0 (eV)	0°	30°	45°	60°	75°	85°
100	1.92e-l	2.49e-l	3.40e-l	4.96e-l	8.18e-l	9.97e-l
300	1.28e-l					
500	1.04e-l	1.51e-l	2.14e-l	3.36e-l	5.55e-l	9.66e-l

Energy reflection coefficient of D backscattered from B4C
only low fluence!
ne= 3, na= 6

E_0 (eV)	0°	30°	45°	60°	75°	85°
100	6.56e-2	9.85e-2	1.56e-l	2.85e-l	6.66e-l	9.58e-l
300	4.14e-2					
500	3.22e-2	5.27e-2	8.58e-2	1.61e-l	3.65e-l	9.17e-l

Average depth (mean range) in Ä of D implanted in B4C
only low fluence!
ne= 3, na= 6

B_0 (eV)	0°	30°	45°	60°	75°	85°
100	2.16e+l	2.03e-|-l	1.88e+l	1.74e + l	1.61e + l	1.46e+l
300	6.43e + l					
500	9.38e + l	8.73e+l	7.90e + l	6.95e + l	6.26e + l	5.89e-H

He -4- B_4C

Sputtering yield of B4C by He
zl = 2, ml= 4.00, z2= 5 (0.8). 6 (0.2), m2= 10.81, 12.01, sbe=5.73, 7.42 eV, rho = 2.51 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kkO=kkOr=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, TPP 9/82, trspvmc
only low fluence!
ne=10. na= 5

B

E_0 (eV)	0°	30°	60°	75°	85°	comment
30	8.92e-4					
40	3.61e-3					
50	8.27e-3					
70	1.65e-2					
100	2.51e-2					
200	4.14e-2					
500	5.70e-2					
800	5.89e-2	1.09e-l	3.77e-l	6.38e-l	3.79e-2	sbe = 5.98, 5.98 eV
1000	5.76e-2					
2000	4.72e-2					

C

Eo(eV)	0°	30°	60°	75°	85°	comment
30	1.45e-4					
40	7.64e-4					
50	1.77e-3					
70	3.57e-3					
100	6.09e-3					
200	9.53e-3					
500	1.26e-2					
800	1.55e-2	2.63e-2	9.33e-2	1.60e-l	8.13e-3	sbe=5.98, 5.98 eV
1000	1.30e-2					
2000	1.216-2					

B + C

E_0 (eV)	0°	30°	60°	75°	85°	comment
30	1.04e-3					
40	4.37e-3					
50	1.00e-2					
70	2.Ole-2					
100	3.12e-2					
200	5.09e-2					
500	6.96e-2					
800	7.44e-2	1.35e-l	4.70e-l	7.98e-l	4.60e-2	sbe=5.98, 5.98 eV
1000	7.06e-2					
2000	5.93e-2					

He -> B_4C

Sputtered energy of B_4C by He
program: testvmcx. trspvmc
only low fluence!
ne=10., na= 5

B

Eq(eV)	0°	30°	60°	75°	85°	comment
30	6.29e-5					
40	2.73e-4					
50	6.24e-4					
70	1.20e-3					
100	1.66e-3					
200	2.03e-3					
500	1.63e-3					
800	1.35e-3	3.10e-3	1.58e-2	3.24e-2	2.63e-3	sbe=5.98., 5.98 eV
1000	1.18e-3					
2000	6.03e-4					

C

E_0 (eV)	0°	30°	60°	75°	85°	comment
30	1.09e-5					
40	5.64e-5					
50	1.20e-4					
70	2.36e-4					
100	4.00e-4					
200	4.78e-4					
500	3.69e-4					
800	3.98e-4	7.38e-4	3.85e-3	7.82e-3	5.22e-4	sbe=5.98, 5.98 eV
1000	2.51e-4					
2000	1.59e-4					

B + C

E_0 (eV)	0°	30°	60°	75°	85°	comment
30	7.38e-5					
40	3.29e-4					
50	7.44e-4					
70	1.44e-3					
100	2.06e-3					
200	2.51e-3					
500	2.00e-3					
800	1.75e-3	3.84e-3	1.97e-2	4.02e-2	3.15e-3	sbe = 5.98, 5.98 eV
1000	1.43e-3					
2000	7.62e-4					

He -» B_4C

Particle reflection coefficient of He backscattered from B_4C
zl= 2, ml= 4.00, z2= 5 (0.8), 6 (0.2), m2 = 10.81, 12.01, sbe=5.73, 7.42 eV, rho=2.51 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: testvmcx, trspvmc
only low fluence!
ne=10, na= 5

E_0 (eV)	0°	30°	60°	75°	85°
30	2.47e-1				
40	2.12e-1				
50	1.88e-1				
70	1.59e-1				
100	1.33e-1				
200	9.90e-2				
500	6.88e-2				
800	5.18e-2	8.40e-2	2.71e-1	5.16e-1	9.84e-1
1000	4.85e-2				
2000	2.88e-2				

Energy reflection coefficient of He backscattered from B_4C
only low fluence!
ne=10., na= 5
B

E_D(eV)	0°	30°	60°	75°	85°
30	5.45e-2				
40	4.64e-2				
50	4.11e-2				
70	3.42e-2				
100	2.86e-2				
200	2.07e-2				
500	1.40e-2				
800	1.07e-2	2.11e-2	1.13e-1	3.19e-1	9.45e-1
1000	9.93e-3				
2000	5.33e-3				

Average depth (mean range) in Ä of He implanted in B_4C
only low fluence!
ne=10, na= 5
B

E_o (eV)	0°	30°	60°	75 ⁶	85°
30	4.41e+0				
40	5.48e+0				
50	6.48e+0				
70	8.43e4-0				
100	1.12e-H				
200	1.99e+1				
500	4.52e+1				
800	7.04e+1	6.27e+1	4.76e + 1	4.02e4-l	2.64e-f-l
1000	8.73e+1				
2000	1.74e+2				

$C \rightarrow B_4C$

Sputtering yield of B4C by C
zl= 6, ml = 12.01, z2= 5 (0.8), 6 (0.2), m2= 10.81. 12.01. sbe = 5.98, 5.98 eV. rho=2.52 g/cm**3
ef=2.00 eV. esb = 2.50 eV. ca=1.00, kk0 = kk0r = 2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: trspvmc
only low fluence !
ne= 4, na= 4
B

E_0 (eV)	0°	60°	70°	80°	comment
150			3.83e-l		sbe = 5.90, 7.40 eV, esb = 2.60 eV
300			8.30e-l		sbe=5.90. 7.40 eV, esb = 2.60 eV
1000	2.10e-l	1.34e-0	1.77e-0	1.07e-0	
3000			2.24e-0		

C

E_0 (eV)	0°	60°	70°	80°	comment
150			8.92e-2		sbe=5.90. 7.40 eV. esb = 2.60 eV
300			2.1le-1		sbe=5.90. 7.40 eV. esb = 2.60 eV
1000	4.34e-2	3.36e-l	4.47e-l	2.64e-l	
3000			5.36e-	1	

B + C

E_0 (eV)	0°	60°	70°	80°	comment
150			4.72e-l		sbe=5.90, 7.40 eV, esb = 2.60 eV
300			1.04e-0		sbe=5.90, 7.40 eV, esb=2.60 eV
1000	2.53e-2	1.68e-0	2.22e-0	1.33e-0	
2000			2.78e-0		

Sputtered energy of B4C by C
only low fluence !
ne= 4, na= 4
B

Ro (eV)	0°	60°	70°	80°	comment
150			7.00e-2		sbe = 5.90, 7.40 eV, esb = 2.60 eV
300			9.73e-2		sbe=5.90, 7.40 eV, esb = 2.60 eV
1000	3.43e-3	6.47e-2	9.79e-2	7.45e-2	
3000			7.13e-	2	

C

Ro (eV)	0°	60°	70°	80°	comment
150			1.51e-2		sbe=5.90, 7.40 eV, esb=2.60 eV
300			2.50e-2		sbe=5.90, 7.40 eV, esb = 2.60 eV
1000	7.06e-4	1.70e-2	2.55e-2	1.95e-2	
3000			1.94e-2		

B + C

Ro (eV)	0°	60°	70°	80°	comment
150			8.51e-2		sbe=5.90, 7.40 eV, esb = 2.60 eV
300			1.08e-l		sbe=5.90, 7.40 eV, esb=2.60 eV
1000	4.14e-3	8.17e-2	1.23e-l	9.40e-2	
2000			9.07e-2		

c -> b_4c

Particle reflection coefficient of C backscattered from B4C
zl = 6, ml= 12.01, z2= 5 (0.8), 6 (0.2), m2= 10.81, 12.01, sbe=5.98, 5.98 eV, rho=2.52 g/cm**3
ef=2.00 eV, esb = 2.50 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne = 4, na= 4

Eo(eV)	0 °	60°	70°	80°	comment
150			6.87e-l		esb=2.60 eV
300			5.37e-l		esb = 2.60 eV
1000	4.90e-3	1.68e-l	3.36e-l	7.58e-l	
3000			2.38e-l		

Energy reflection coefficient of C backscattered from B_4C
only low fluence !
ne= 4, na= 4

Bo(eV)	0°	60°	70°	80°	comment
150			3.82e-l		esb=2.60 eV
300			2.75e-l		esb=2.60 eV
1000	1.98e-4	4.76e-2	1.42e-l	5.57e-l	
3000			8.65e-2		

Average depth (mean range) in A of C implanted in B4C
only low fluence I
ne= 4, na= 4

Eo(eV)	0°	60°	70°	80°	comment
150			3.83e+0		esb=2.60 eV
300			6.93e4-0		esb=2.60 eV
1000	3.11e4-l	1.79e4-l	1.49e+l	1.24e+l	
3000			4.10e + l		

$O \rightarrow B_4C$

Sputtering yield of B4C by O
z1 = 8, m1= 16.00, z2= 5 (0.8), 6 (0.2), m2= 10.81, 12.01, sbe = 5.90, 7.40 eV
rho = 0.85, 1.62, 2.28, 2.52 g/cm**3, sbe(average) = 1.17, 1.28, 2.21, 5.98, 6.05 eV, alpha=0.00
ef=2.10 eV, esb = 2.60 eV, ca=1.00, kk0 = kk0r=2, kdeel =kdee2 = 3, ipot=ipotr = 1 (KrC)
program: trspvmc
only low fluence !
ne= 5, na= 1, n(rho)= 4

B

rho (g/cm* *3)	0.85	0.85	1.62	2.28	2.28	2.28	2.52
sbe(eV)	1.17	2.21	1.28	1.17	2.21	6.05	5.98
Ro (eV) 0°	0°	0°	0°	0°	0°	0°	
100							1.03e-2
150	4.12e-1	1.41e-1	5.90e-1	8.32e-1	3.03e-1	2.88e-2	
300	6.19e-1	2.51e-1	8.48e-1	1.29e-0	8.98e-2	5.32e-1	1.02e-1
1000	8.63e-1	4.48e-1	1.17e-0	1.68e-0	2.34e-1	8.48e-1	2.52e-1
3000	9.86e-1	5.52e-1	1.18e-0	1.79e-0	3.13e-1	9.60e-1	3.18e-1

C

rho(g/cm**3)	0.85	0.85	1.62	2.28	2.28	2.28	2.52
sbe(eV)	1.17	2.21	1.28	1.17	2.21	6.05	5.98
Ro (eV) 0°	0°	0°	0°	0°	0°	0°	
100							2.31e-3
150	1.04e-1	3.37e-2	1.38e-1	1.94e-1	7.06e-2	6.12e-3	
300	1.39e-1	5.81e-2	2.26e-1	3.17e-1	2.14e-2	1.20e-1	2.46e-2
1000	1.98e-1	1.10e-1	2.93e-1	4.60e-1	5.02e-2	2.09e-1	5.61e-2
3000	2.76e-1	1.23e-1	3.02e-1	4.39e-1	6.55e-2	2.30e-1	7.04e-2

B + C

rho (g/cm* *3)	0.85	0.85	1.62	2.28	2.28	2.28	2.52
sbe(eV)	1.17	2.21	1.28	1.17	2.21	6.05	5.98
Ro (eV) 0°	0°	0°	0°	0°	0°	0°	
100							1.26e-2
150	5.16e-1	1.73e-1	7.28e-1	1.03e-0	3.73e-1	3.48e-2	
300	7.58e-1	3.09e-1	1.07e-0	1.61e-0	1.11e-1	6.51e-1	1.27e-1
1000	1.06e-0	5.58e-1	1.46e-0	2.14e-0	2.84e-1	1.06e-0	3.08e-1
3000	1.26e-0	6.45e-1	1.48e-0	2.23e-0	3.78e-1	1.19e-0	3.88e-1

Sputtered energy of B4C by O
only low fluence !
ne= 5, na= 1, n(rho) = 4

B

rho(g/cm**3)	0.85	0.85	1.62	2.28	2.28	2.28	2.52
sbe(eV)	1.17	2.21	1.28	1.17	2.21	6.05	5.98
Ro (eV) 0°	0°	0°	0°	0°	0°	0°	
100							3.96e-4
150	7.37e-3	3.42e-3	1.01e-2	1.36e-2	5.88e-3	9.71e-4	
300	7.85e-3	4.46e-3	9.38e-3	1.32e-2	8.49e-3	2.50e-3	2.69e-3
1000	5.72e-3	4.74e-3	6.52e-3	8.32e-3	6.63e-3	3.90e-3	4.14e-3
3000	5.13e-3	3.71e-3	4.16e-3	5.36e-3	4.36e-3	2.60e-3	2.70e-3

C

rho(g/ cm**3)	0.85	0.85	1.62	2.28	2.28	2.28	2.52
sbe(eV)	1.17	2.21	1.28	1.17	2.21	6.05	5.98
R_0 (eV) 0°	0°	0°	0°	0°	0°	0°	
100							8.62e-5
150	1.79e-3	8.20e-4	2.07e-3	2.89e-3	1.36e-3	2.04e-4	
300	1.53e-3	9.69e-4	2.48e-3	3.10e-3	1.82e-3	5.17e-4	6.04e-4
1000	1.27e-3	1.25e-3	1.58e-3	1.96e-3	1.66e-3	8.12e-4	8.59e-4
3000	9.54e-4	4.64e-4	8.75e-4	1.51e-3	1.09e-3	6.58e-4	6.01e-4

B + C

rho(g/cm**3)	0.85	0.85	1.62	2.28	2.28	2.28	2.52
sbe(eV)	1.17	2.21	1.28	1.17	2.21	6.05	5.98
Bo (eV) 0°	0°	0°	0°	0°	0°	0°	
100							4.78e-4
150	9.16e-3	4.24e-3	1.22e-2	1.65e-2	7.25e-3	1.18e-3	
300	9.38e-3	5.43e-3	1.19e-2	1.63e-2	1.03e-2	3.02e-3	3.29e-3
1000	6.98e-3	5.99e-3	8.09e-3	1.03e-2	8.30e-3	4.17e-3	4.99e-3
3000	6.08e-3	4.17e-3	5.03e-3	6.87e-3	5.45e-3	3.26e-3	3.30e-3

0 -> b_4c

Average depth (mean range) in Ä of O implanted in B4C
zl = 8, ml= 16.00, z2= 5 (0.8). 6 (0.2), m2= 10.81, 12.01. sbe=5.90, 7.40 eV
rho=0.85, 1.62, 2.28. 2.52 g/cm**3, sbe(average) = 1.17, 1.28, 2.21, 5.98. 6.05 eV, alpha=0.00
ef=2.10 eV, esb = 2.60 eV, ca=1.00. kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne= 5, na= 1, n(rho)= 4

rho(g/cm**3)	0.85	0.85	1.62	2.28	2.28	2.28	2.52
sbe(eV)	1.17	2.21	1.28	1.17	2.21	6.05	5.98
E_o (eV) 0°	0°	0°	0°	0°	0°	0°	
100							4.89e+0
150	2.23e + l	2.19e + l	1.08e4-l	7.51e4-0	7.48e4-0	7.57e+0	
300	3.59e+l	3.45e + l	1.75e + l	1.24e+l	1.22e+l	1.24e+l	1.08e+l
1000	8.45e+l	8.21e + l	4.18e+l	3.09e+l	2.97e4-l	3.07e + l	2.71e+l
3000	2.12e + l	1.95e+2	1.05e+2	7.62e + l	7.36e+l	7.83e + l	6.68e + l

Ne B_4C

Sputtering yield of B4C by Ne
zl = 10, ml= 20.18, z2= 5, 6, m2= 10.81, 12.01, sbe=6.06 eV, rho=2.51 g/cm**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: TPP 9/82; total yield only!
only low fluence !
ne= 7, na= 1
B + C

Bo(eV)	0°
100	8.10e-3
300	1.09e-l
500	1.98e-l
1000	3.34e-l
2000	4.46e-l
5000	5.40e-l
10000	5.41e-l

$O \rightarrow B_2O_3$

Sputtering yield of B_2O_3 by O
zl = 8, ml = 16.00, z2= 5 (0.4), 8 (0.6). m2= 10.81. 16.00, sbe=5.90, 2.50 eV
rho = 1.62 g/cm**3, sbe(average) = 1.28 eV, alpha=0.00
ef=2.10 eV, esb = 2.60 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne= 4, na= 1

E_0 (eV)	B	O	B + 0
150	3.26e-l	4.27e-l	7.52e-l
300	4.51e-l	6.21e-l	1.07e-0
1000	6.72e-l	8.54e-l	1.53e-0
3000	6.29e-l	9.17e-l	1.55e-0

Sputtered energy of B2O3 by O
only low fluence !
ne = 4, na= 1

E_0 (eV)	B	0	B + O
150	5.97e-3	7.21e-3	1.32e-2
300	5.54e-3	7.09e-3	1.26e-2
1000	4.71e-3	4.62e-3	9.33e-3
3000	2.22e-3	2.74e-3	4.95e-3

Average depth (mean range) in Å of O implanted in B2O3
only low fluence !
ne= 4, na= 1

Bo(eV)	gctrc
150	1.22e + l
300	1.94e + l
1000	4.60e + l
3000	1.13e+2

O -> $B(OH)_3$

Sputtering yield of $B(OH)_3$ by 0
zl = 8, ml= 16.00, z2= 5 (0.14), 8 (0.43), 1 (0.43), m2 = 10.81, 16.00, 1.01
sbe = 5.90, 2.50, 2.19 eV, sbe(average) = 1.22 eV, rho=0.85 g/cm**3. alpha=0.00
ef=2.10 eV, esb=2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne= 4, na= 1

E_0 (eV)	B	O	H	B + O + H
150	5.95e-2	1.52e-l	1.89e-l	4.01e-l
300	9.29e-2	2.29e-l	3.62e-l	6.84e-l
1000	1.44e-l	4.07e-l	6.47e-l	1.20e-0
3000	1.32e-l	3.71e-l	7.74e-l	1.28e-0

Sputtered energy of B(OH)3 by O
only low fluence !
ne= 4, na= 1

E_0 (eV)	B	O	H	B + 0 + H
150	1.40e-3	2.88e-3	3.63e-3	7.91e-3
300	1.46e-3	2.89e-3	4.92e-3	9.27e-3
1000	1.06e-3	2.82e-3	5.67e-3	9.55e-3
3000	1.10e-3	1.20e-3	5.02e-3	7.32e-3

Average depth (mean range) in Ä of O implanted in $B(OH)_3$
only low fluence !
ne= 4, na= 1

E_o (eV)	° ctrc
150	2.26e + l
300	3.61e+l
1000	8.05e + l
3000	1.97e+2

Particle reflection coefficient of p backscattered from SiO_2
zl = 1. ml = 0.11, z2=14, 8; m2 = 28.09. 16.00. sbe=4.70 eV, rho = 2.20 g/cm**3
ef=0.50 eV, esb = 0.00 eV. ca=1.00, kk0=kk0r=2, kdee2 = 3, ipot=ipotr=l (KrC)
10 - 1000 eV : kdeel = 3, 1000 - 20000 eV : kdeel = 4
program: trvmc
only low fluence !
ne= 8, na= 1

E_0 (eV)	QCtrc
10	5.64e-l
100	3.02e-l
500	1.48e-l
1000	8.83e-2
1000	7.88e-2
5000	1.28e-2
10000	5.10e-3
20000	1.70e-3

Energy reflection coefficient of p backscattered from SiO_2
only low fluence !
ne= 8, na= 1

E_0 (eV)	Q^{ctrc}
10	3.16e-l
100	1.25e-l
500	4.79e-2
1000	2.79e-2
1000	2.32e-2
5000	3.58e-3
10000	1.40e-3
20000	5.71e-4

Average depth (mean range) in Ä of p implanted in SiO_2
only low fluence !
ne= 8, na= 1

B_0 (eV)	gctrc
10	8.03e4-0
100	3.11e+l
500	9.03e-J-l
1000	1.48e+2
1000	1.33e + 2
5000	4.50e + 2
10000	7.93e+2
20000	1.56e + 3

H –> Ti Cy

Sputtering yield of Ti Gy by H
zl = 1, ml = 1.01, z2= 22 (0.72, 0.6). 6 (0.28.0.4). m2= 47.90, 12.01, sbe=4.89, 7.40 eV, rho=4.93 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx
only low fluence !
nt— 2, na= 2

Ti

E_0 (eV)	0°	30°	comment
500	6.79e-3		x=0.72. y=0.28
2000		6.06e-3	x=0.60. y=0.40

C

Eq (eV)	0°	30°	comment
500	7.37e-3		x=0.72, y=0.28
2000		6.63e-3	x = 0.60. y=0.40

Ti + C

E_0 (eV)	0°	30°	comment
500	1.42e-2		x=0.72, y=0.28
2000		1.27e-2	x=0.60. y=0.40

Sputtered energy of $Ti_x C_y$ by H
only low fluence !
ne= 2, na= 2

Ti

Eq (eV)	0°	30°	comment
500	9.28e-5		x=0.72, y=0.28
2000		4.10e-5	x=0.60, y=0.40

C

Bo (eV)	0°	30°	comment
500	2.23e-4		x=0.72, y=0.28
2000		9.23e-5	x = 0.60, y = 0.40

Ti + C

E_0 (eV)	0°	30°	comment
500	3.16e-4		x=0.72, y = 0.28
2000		1.33e-4	x=0.60. y=0.40

Particle reflection coefficient of H backscattered from Ti_x Gy
zl= 1, ml= 1.01, z2=22 (0.72, 0.6), 6 (0.28,0.4), m2= 47.90, 12.01, sbe=4.89, 7.40 eV, rho=4.93 g/cm**3
ef=0.98 eV, esb = 1.00 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmcx
only low fluence !
ne= 2, na= 2

E_0 (eV)	0°	30°	comment
500	3.79e-l		x=0.72, y=0.28
2000		2.25e-l	x=0.60, y=0.40

Energy reflection coefficient of H backscattered from Ti_x Cy
only low fluence !
ne= 2, na= 2

B_0 (eV)	0°	30°	comment
500	1.92e-l		x=0.72, y=0.28
2000		9.11e-2	x=0.60, y = 0.40

Average depth (mean range) in Å of H implanted in $Ti_x C_y$
only low fluence !
ne= 2, na= 2

E_0 (eV)	0°	30°	comment
500	9.84e + l		x=0.72, y=0.28
2000		2.62e+2	x=0.60, y=0.40

O -> WO_3

Sputtering yield of WO 3 by O
zl= 8, ml = 16.00, z2 = 74 (0.25), 8 (0.75), m2 = 183.85, 16.00. sbe = 6.28, 6.28 eV, rho = 6.47 g/cm**3
ef=2.50 eV, esb = 2.60 eV, ca=1.00. kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: trspvmc
only low fluence 1
ne=ll, na= 4

W

Ro (eV)	0°	30°	60°	85°	comment
50	7.71e-5				sbe = 6.28, 6.28 eV
100	1.68e-3				sbe=6.28, 6.28 eV
200	7.79e-3				sbe = 6.28, 6.28 eV
300	1.30e-2				sbe=6.28, 6.28 eV
500	2.29e-2				sbe = 6.28, 6.28 eV
500	4.46e-2				sbe=8.68, 2.60 eV
1000	4.61e-2	8.06e-2	1.71e-l	2.38e-2	sbe = 6.28, 6.28 eV
1000	6.32e-2	8.75e-2	2.61e-l	3.58e-2	sbe = 8.68, 2.60 eV
2000	6.88e-2				sbe = 6.28, 6.28 eV
6000	8.87e-2	1.33e-l	3.26e-l	3.63e-l	sbe = 6.28, 6.28 eV
6000	1.17e-l	2.04e-l	4.87e-l	4.39e-l	sbe=8.68, 2.60 eV

O

Eo(eV)	0°	30°	60°	85°	comment
50	3.99e-2				sbe=6.28, 6.28 eV
100	1.18e-l				sbe=6.28, 6.28 eV
200	2.33e-l				sbe=6.28, 6.28 eV
300	3.03e-l				sbe=6.28, 6.28 eV
500	4.05e-l				sbe=6.28, 6.28 eV
500	5.79e-l				sbe=8.68, 2.60 eV
1000	5.43e-l	7.50e-l	1.32e-0	1.88e-l	sbe=6.28, 6.28 eV
1000	7.65e-l	9.86e-l	1.78e-0	2.44e-l	sbe = 8.68, 2.60 eV
2000	6.21e-l				sbe = 6.28, 6.28 eV
6000	6.70e-l	8.97e-l	1.74e-0	1.67e-0	sbe = 6.28, 6.28 eV
6000	8.98e-l	1.24e-0	2.27e-0	1.88e-0	sbe = 8.68, 2.60 eV

W + O

Ro (eV)	0°	30"	60°	85°	comment
50	4.00e-2				
100	1.20e-l				
200	2.41e-l				
300	3.16e-l				
500	4.28e-l				
500	6.24e-l				sbe = 8.68, 2.60 eV
1000	5.89e-l	8.31e-l	1.49e-0	2.12e-l	
1000	8.28e-l	1.07e-0	2.04e-0	2.80e-l	sbe=8.68, 2.60 eV
2000	6.90e-l				
6000	7.59e-l	1.03e-0	2.07e-0	2.30e-0	
6000	1.02e-0	1.44e-0	2.76e-0	2.32e-0	sbe = 8.68, 2.60 eV

O -4WO 3

Sputtered energy of WO 3 by O
only low fluence !
ne=ll, na= *4*

W

Bo (eV)	0 °	30 °	60°	85°	comment
50	2.75e-6				sbe=6.28., 6.28 eV
100	8.06e-5				sbe=6.28., 6.28 eV
200	3.59e-4				sbe=6.28., 6.28 eV
300	4.52e-4				sbe=6.28, 6.28 eV
500	5.74e-4				sbe=6.28., 6.28 eV
500	9.92e-4				sbe=8.68., 2.60 eV
1000	8.91e-4	1.46e-3	4.78e-3	1.43e-3	sbe=6.28., 6.28 eV
1000	1.08e-3	1.61e-3	5.34e-3	1.77e-3	sbe=8.68., 2.60 eV
2000	1.00e-3				sbe=6.28., 6.28 eV
6000	6.27e-4	1.14e-3	3.16e-3	7.22e-3	sbe=6.28., 6.28 eV
6000	5.00e-4	1.98e-3	4.03e-3	8.53e-3	sbe=8.68., 2.60 eV

O

B_0 (eV)	0°	30°	60 °	85°	comment
50	6.29e-3				sbe=6.28., 6.28 eV
100	1.33e-2				sbe=6.28, 6.28 eV
200	1.89e-2				sbe=6.28., 6.28 eV
300	2.05e-2				sbe=6.28., 6.28 eV
500	2.21e-2				sbe=6.28, 6.28 eV
500	2.54e-2				sbe=8.68j 2.60 eV
1000	2.Ole-2	3.22e-2	8.04e-2	1.60e-2	sbe=6.28., 6.28 eV
1000	2.20e-2	3.48e-2	8.68e-2	1.52e-2	sbe=8.68., 2.60 eV
2000	1.80e-2				sbe=6.28., 6.28 eV
6000	1.34e-2	1.89e-2	4.72e-2	5.44e-2	sbe=6.28., 6.28 eV
6000	1.26e-2	2.10e-2	4.93e-2	4.41e-2	sbe=8.68., 2.60 eV

W + O

B_o (eV)	0°	30 °	60 °	85 °	comment
50	6.29e-3				
100	1.34e-2				
200	1.93e-2				
300	2.10e-2				
500	2.27e-2				
500	2.64e-2				sbe=8.68., 2.60 eV
1000	2.10e-2	3.37e-2	8.52e-2	1.74e-2	
1000	2.31e-2	3.64e-2	9.21e-2	1.70e-2	sbe=8.68, 2.60 eV
2000	1.90e-2				
6000	1.40e-2	2.00e-2	5.04e-2	6.16e-2	
6000	1.31e-2	2.30e-2	5.33e-2	5.26e-2	sbe=8.68., 2.60 eV

O WO$_3$

Particle reflection coefficient of O backscattered from WO $_3$
zl = 8, ml = 16.00, z2 = 74 (0.25), 8 (0.75), m2 = 183.85, 16.00, sbe=6.28, 6.28 eV, rho = 6.47 g/cm**3
ef=2.50 eV, esb = 2.60 eV, ca=1.00, kk0 = kk0r=2, kdeel =kdee2 = 3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne=ll, na= 4

E $_0$ (eV)	0°	30°	60°	85 ^{u}	comment
50	1.33e-l				
100	1.30e-l				
200	1.24e-l				
300	1.25e-l				
500	1.18e-l				
500	1.26e-l				sbe = 8.68, 2.60 eV
1000	1.10e-l	1.61e-l	3.24e-l	9.72e-l	
1000	1.06e-l	1.51e-l	3.51e-l	9.69e-l	sbe = 8.68, 2.60 eV
2000	l.lle-1				
6000	1.01e-l	1.29e-l	2.87e-l	7.73e-l	
6000	9.32e-2	1.22e-l	2.85e-l	7.69e-l	sbe = 8.68, 2.60 eV

Energy reflection coefficient of O backscattered from WO 3
only low fluence !
ne=ll, na= 4

Eq (eV)	0°	30°	60°	85°	comment
50	5.30e-2				
100	4.87e-2				
200	4.34e-2				
300	4.37e-2				
500	3.97e-2				
500	4.49e-2				sbe = 8.68, 2.60 eV
1000	3.77e-2	5.72e-2	1.49e-l	8.97e-l	
1000	3.68e-2	5.49e-2	1.52e-l	8.97e-l	sbe = 8.68, 2.60 eV
2000	4.03e-2				
6000	3.53e-2	4.77e-2	1.27e-l	6.43e-l	
6000	3.11e-2	4.99e-2	1.37e-l	6.49e-l	sbe = 8.68, 2.60 eV

Average depth (mean range) in Ä of O implanted in WO 3
only low fluence !
ne=ll, na= 4

E $_0$ (eV)	0°	30°	60°	85°	comment
50	5.30e-{-0				
100	8.21e + 0				
200	1.25e + 1				
300	1.63e+l				
500	2.24e + 1				
500	2.20e + 1				sbe=8.68, 2.60 eV
1000	3.49e + 1	3.12e+l	2.38e+l	1.61e + 1	
1000	3.39e + 1	3.13e-J-l	2.28e-|-l	1.59e+l	sbe=8.68. 2.60 eV
2000	5.61e + 1				
6000	1.36e + 2	1.15e + 2	8.40e + 1	5.62e+l	
6000	1.26e + 2	1.12e+2	8.07e + 1	5.43e-f-l	sbe=8.68, 2.60 eV

Ne -> W0 $_3$

Sputtering yield of WO 3 by Ne
zl = 10, ml = 20.18. z2=74 (0.25), 8 (0.75), m2 = 183.85, 16.00, sbe=6.28. 6.28 eV, rho=6.47 g/cm**3, alpha=0.00
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel =kdee2=3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne= 5, na= 1

E_0 (eV)	W	O	w 4- O
100	1.98e-3	1.15e-l	1.17e-l
200	8.51e-3	2.35e-l	2.44e-l
500	2.53e-2	4.58e-l	4.83e-l
1000	4.72e-2	5.89e-l	6.36e-l
5000	1.12e-l	8.36e-l	9.48e-l

Sputtered energy of WO 3 by Ne
only low fluence !
ne= 5, na= 1

E_0 (eV)	W	O	w + O
100	1.09e-4	1.25e-2	1.26e-2
200	3.88e-4	1.88e-2	1.92e-2
500	8.86e-4	2.50e-2	2.59e-2
1000	1.04e-3	2.18e-2	2.28e-2
5000	1.04e-3	1.78e-2	1.88e-2

Particle reflection coefficient of Ne backscattered from WO 3
zl = 10, ml= 20.18, z2=74 (0.25), 8 (0.75), m2 = 183.85, 16.00, sbe=6.28, 6.28 eV, rho=6.47 g/cm**3, alpha=0.00
ef=0.20 eV, esb = 0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr= 1 (KrC)
program: trspvmc
only low fluence !
ne= 5, na= 1

Eq(eV)	Ö°
100	1.44e-l
200	1.27e-l
500	1.13e-l
1000	1.06e-l
5000	9.46e-2

Energy reflection coefficient of Ne backscattered from WO 3
only low fluence '
ne= 5, na= 1

E_0 (eV)	0°
100	4.54e-2
200	3.91e-2
500	3.34e-2
1000	3.27e-2
5000	3.16e-2

Average depth (mean range) in Ä of Ne implanted in WO 3
only low fluence 1
ne= 5, na= 1

E_0 (eV)	0°
100	7.91ed-0
200	1.18e + l
500	2.01e+l
1000	3.15e+l
5000	9.92e+l

Kr -> W0 3

Sputtering yield of WO 3 by Kr
zl = 36, ml = 83.80. z2=74 (0.25), 8 (0.75). m2 = 183.85. 16.00, sbe=3.01, 3.01 eV, rho=6.47 g/cm**3, alpha=0.00
ef=0.20 eV, esb = 0.00 eV. ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: trspvmc
only low fluence !
ne= 3, na= 1

Bq(eV)	w	O	w 4- O	comment
6000	4.81e-l	2.82e-0	3.30e-0	
10000	5.82e-l	3.26e-0	3.84e-0	
10000	3.38e-l	1.86e-0	2.20e-0	sbe=6.28, 6.28 eV

Sputtered energy of WO 3 by Kr
only low fluence 1
ne= 3, na= 1

Eo(eV)	w	O	W 4- O	comment
6000	1.96e-3	1.82e-2	2.02e-2	
10000	2.21e-3	1.62e-2	1.84e-2	
10000	2.05e-3	1.58e-2	1.79e-2	sbe=6.28, 6.28 eV

Particle reflection coefficient of Kr backscattered from WO3
zl = 36, ml= 83.80, z2= 74 (0.25), 8 (0.75), m2=183.85, 16.00, sbe=3.01, 3.01 eV, rho=6.47 g/cm**3, alpha=0.00
ef=0.20 eV, esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne= 3, na= 1

Eq(eV)	0°	comment
6000	3.50e-2	
10000	4.94e-2	
10000	4.24e-2	sbe = 6.28, 6.28 eV

Energy reflection coefficient of Kr backscattered from WO 3
only low fluence !
ne= 3, na= 1

E_0 (eV)	0°	comment
6000	3.02e-3	
10000	3.33e-3	
10000	3.35e-3	sbe = 6.28, 6.28 eV

Average depth (mean range) in Ä of Kr implanted in WO 3
only low fluence !
ne= 3, na= 1

B_0 (eV)	0°	comment
6000	6.29e4-l	
10000	7.68e4-l	
10000	8.46e4-l	sbe = 6.28, 6.28 eV

O -> WO_4

Sputtering yield of WO 4 by O
zl = 8, mis 16.00, z2=74 (0.20), 8 (0.80). m2 = 183.85, 16.00, sbe = 8.68, 2.60 eV, rho = 6.47 g/cm**3, alpha=0.00
ef=2.50 eV, esb=2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence I
ne= 3, na= 1

E_o (eV)	W	O	w + O
500	3.12e-2	6.69e-l	7.00e-2
1000	5.75e-2	8.71e-l	9.29e-2
6000	8.70e-2	9.22e-l	1.Ole-3

Sputtered energy of WO 4 by O
only low fluence !
ne= 3, na= 1

B_0 (eV)	W	O	w + O
500	5.53e-4	2.45e-2	2.51e-2
1000	7.09e-4	2.30e-2	2.37e-2
6000	5.21e-4	1.16e-2	1.21e-2

Particle reflection coefficient of O backscattered from WO 4
zl= 8, ml = 16.00, z2=74 (0.20), 8 (0.80), m2=183.85, 16.00, sbe = 8.68, 2.60 eV, rho = 6.47 g/cm**3, alpha=0.00
ef=2.50 eV, esb=2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne- 3, na= 1

Bp(eV)	0°
500	1.05e-l
1000	1.03e-l
6000	7.29e-2

Energy reflection coefficient of O backscattered from WO 4
only low fluence !
ne= 3, na= 1

Bo(eV)	0°
500	3.32e-2
1000	3.13e-2
6000	2.37e-2

Average depth (mean range) in Å of O implanted in WO 4
only low fluence !
ne= 3, na= 1

B_o (eV)	0°
500	1.89e+l
1000	2.93e+l
6000	1.16e+2

o -> $W_K O_V$

Sputtering yield of $W_x O_y$ by O
zl = 8, ml= 16.00, z2 = 74 (x), 8 (y), m2 = 183.85, 16.00, sbe = 6.28, 6.28 eV, rho = 6.47 g/cm**3, alpha=0.00
ef=2.50 eV, esb=2.60 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2 = 3, ipot=ipotr = l (KrC)
program: trspvmc
only low fluence !
ne = 5, na= 1, n(x) = 10

W

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
E_0 (eV)										
100	2.31e-2	1.76e-2	1.60e-2							
200			5.38e-2	5.25e-2	4.22e-2					
500		1.69e-l			1.15e-l	1.00e-l	8.81e-2			
1000								1.33e-l	8.92e-2	
5000										1.43e-l

O

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
E_0 (eV)										
100	2.89e-2	5.43e-2	6.76e-2							
200			1.35e-l	1.63e-l	1.83e-l					
500		2.00e-l			3.06e-l	3.35e-l	3.67e-l			
1000								4.90e-l	5.01e-l	
5000										6.29e-l

W + O

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
Bo(eV)										
100	5.20e-2	7.19e-2	8.36e-2							
200			1.89e-l	2.16e-l	2.25e-l					
500		3.69e-l			4.21e-l	4.35e-l	4.55e-l			
1000								6.23e-l	5.90e-l	
5000										7.72e-l

Sputtered energy of $W_x O_y$ by O
only low fluence !
ne= 5, na= 1, n(x) = 10

W

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
Bo(eV)										
100	1.33e-3	9.79e-4	8.69e-4							
200			2.40e-3	2.38e-3	1.91e-3					
500		5.50e-3			3.38e-3	3.06e-3	2.63e-3			
1000								2.90e-3	1.78e-3	
5000										1.23e-3

O

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
Ro(eV)										
100	4.66e-3	8.69e-3	1.07e-2							
200			1.61e-2	1.93e-2	2.02e-2					
500		1.65e-2			2.40e-2	2.60e-2	2.62e-2			
1000								2.61e-2	2.37e-2	
5000										1.53e-2

W + O

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
Eq(eV)										
100	5.99e-3	9.67e-3	1.16e-2							
200			1.85e-2	2.17e-2	2.21e-2					
500		2.20e-2			2.74e-2	2.91e-2	2.88e-2			
1000								2.90e-2	2.55e-2	
5000										1.65e-2

O -> WA $_y$

Particle reflection coefficient of O backscattered from $W_x O_y$
zl = 8. ml = 16.00. z2=74 (x). 8 (y). m2 = 183.85, 16.00. sbe = 6.28, 6.28 eV. rho=6.47 g/cm**3, alpha=0.00
ef=2.50 eV, esb=2.60 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne= 5. na= 1. n(x) = 10

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
E_0 (eV)										
100	4.16e-l	3.66e-l	3.42e-l							
200			3.36e-l	3.08e-l	2.91e-l					
500		3.44e-l			2.77e-l	2.56e-l	2.33e-l			
1000								2.16e-l	1.80e-l	
5000										1.35e-l

Energy reflection coefficient of O backscattered from $W_x O_y$
only low fluence !
ne= 5, na= 1, n(x) = 10

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
E_0 (eV)										
100	1.93e-l	1.64e-l	1.51e-l							
200			1.45e-l	1.31e-l	1.22e-l					
500		1.46e-l			1.14e-l	1.03e-l	9.13e-2			
1000								8.24e-2	6.49e-2	
5000										5.05e-2

Average depth (mean range) in Ä of O implanted in $W_x O_y$
only low fluence !
ne= 5. na= 1, n(x) = 10

x	0.90	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
B_0 (eV)										
100	2.78e + l	2.38e+l	2.19e+l							
200			3.15e + l	2.92e4-l	2.73e + l					
500		5.38e+l			4.53e + l	4.24e+l	3.91e + l			
1000								5.45e + l	4.81e + l	
5000										1.35e+2

Layered targets

Ar —> Li on Cu

Sputtering yield of Li on Cu by Ar
zl = 18, miss 39.95
layer 1: z2= 3. m2= 6.94, sbe = 1.68 eV, rho = 0.53 g/cm**3
layer 2: z2= 29, m2= 63.54, sbes=3.52 eV. rho=8.95 g/cm**3
ef=0.50 eV. esb=0.00 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipots=ipotr=l (KrC)
program: testvmcx
e0 = 6000 eV, alpha=0.00, dx(l) =thickness (in A) of layer 1
only low fluence !
ne=ll, n(m2)= 2

dx (Ä)	Li	Cu
0		3.77e-0
1	2.16e-l	4.74e-0
2	3.49e-l	4.31e-0
4	1.13e-0	2.99e-0
6	1.49e-0	1.44e-0
8	1.58e-0	8.50e-l
10	1.52e-0	4.76e-l
12	1.60e-0	3.77e-l
14	1.57e-0	2.55e-l
20	1.53e-0	1.20e-l
30	1.54e-0	4.73e-2

Sputtered energy of Li on Cu by Ar
only low fluence !
ne=ll, n(m2)= 2

dx (A)	Li	Cu
0		1.62e-2
1	1.95e-3	9.82e-3
2	3.09e-3	8.73e-3
4	4.12e-3	6.05e-3
6	5.43e-3	4.02e-3
8	6.42e-3	3.42e-3
10	6.97e-3	2.42e-3
12	7.79e-3	2.05e-3
14	8.19e-3	1.68e-3
20	8.85e-3	1.05e-3
30	8.91e-3	4.34e-4

Ar → Li on Cu

Particle reflection coefficient of Ar backscattered from Li on Cu
zl = 18. ml = 39.95
layer 1: z2= 3. m2= 6.94. sbe=1.68 eV. rho = 0.53 g/cm**3
layer 2: z2= 29, m2 = 63.54. sbe=3.52 eV. rho = 8.95 g/cm**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00. kk0=kk0r=2. kdeel = kdee2 = 3. ipot=ipotr = l (KrC)
program: testvmcx
e0 = 6000 eV, alpha=0.00. dx(l) =thickness (in A) of layer 1
only low fluence !
ne=ll, n(m2) = 2

dx (A)	0°
0	5.80e-2
1	3.72e-2
2	3.35e-2
4	3.83e-2
6	2.80e-2
8	2.68e-2
10	2.83e-2
12	2.92e-2
14	2.97e-2
20	2.42e-2
30	2.09e-2

Energy reflection coefficient of Ar backscattered from Li on Cu
only low fluence !
ne=ll, n(m2) = 2

dx (A)	0°
0	5.08e-3
1	2.79e-3
2	2.52e-3
4	2.68e-3
6	1.85e-3
8	2.16e-3
10	1.80e-3
12	1.51e-3
14	1.92e-3
20	9.27e-4
30	7.49e-4

Average depth (mean range) in Ä of Ar implanted in Li on Cu
only low fluence !
ne=ll, n(m2)= 2

dx (A)	0°
0	4.50e + l
1	4.65effl
2	4.62effl
4	4.86effl
6	5.06effl
8	5.14effl
10	5.50e + l
12	5.57effl
14	5.75effl
20	6.33e + l
30	7.24e + l

Ar —> Li on Cu

Sputtering yield of Li on Cu by Ar
zl = 18, ml = 39.95
layer 1: z2= 3, m2= 6.94. sbe=1.67 eV, ef=1.65 eV, rho = 4.60e-2 atoms/A**3
layer 2: z2 = 29, m2= 63.54, sbe=3.52 eV, ef=3.50 eV, rho = 8.48e-2 atoms/A**3
ef=0.50 eV, esb = 0.00 eV, ca=1.00, kk0 = kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: tridyn (version 3.3), idrel = l (static)
e0 = 6000 eV, alpha=O.OO. dx(l) =thickness (in A) of layer 1
only low fluence !
ne=15, n(m2)= 2

dx (A)	Li	Cu
0		4.01e-0
1.5	1.03e-0	2.89e-0
2	1.36e-0	2.64e-0
3	1.83e-0	2.29e-0
4	2.13e-0	1.98e-0
5	2.46e-0	1.82e-0
5	2.12e-0	1.64e-0
6	2.51e-0	1.51e-0
7.5	2.54e-0	1.19e-0
10	2.43e-0	8.30e-l
12.5	2.27e-0	5.68e-l
15	2.15e-0	4.31e-l
20	2.09e-0	2.54e-l
25	2.09e-0	1.71e-l
30	1.93e-0	1.14e-l

Sputtered energy of Li on Cu by Ar
only low fluence !
ne = 15, n(m2)= 2

dx (Ä)	Li	Cu
0		1.77e-2
1.5	2.15e-3	1.27e-2
2	2.95e-3	1.07e-2
3	3.80e-3	1.13e-2
4	5.78e-3	9.55e-3
5	6.57e-3	8.85e-3
5	5.61e-3	8.66e-3
6	6.79e-3	8.28e-3
7.5	7.92e-3	6.75e-3
10	9.21e-3	5.27e-3
12.5	1.10e-2	4.18e-3
15	1.00e-2	2.72e-3
20	1.08e-2	2.38e-3
25	1.20e-2	1.82e-3
30	1.35e-2	9.79e-4

Ar → Li on Cu

Particle reflection coefficient of Ar backscattered from Li on Cu
zl = 18. ml = 39.95
layer 1: z2= 3. m2= 6.94. sbe=1.67 eV. ef=1.65 eV. rho = 4.60e-2 atoms/A**3
layer 2: z2= 29. m2 = 63.54. sbe = 3.52 eV. ef=3.50 eV. rho = 8.48e-2 atoms/A**3
ef=0.50 eV. esb = 0.00 eV. ca=1.00. kk0 = kk0r=2. kdeel = kdee2 = 3. ipot=ipotr = l (KrC)
program: tridyn (version 3.3). idrel = l (static)
e0 = 6000 eV. alpha=0.00. dx(l) =thickness (in A) of layer 1
only low fluence !
ne=15. n(m2) = 2

dx (Ä)	0°
0	5.60e-3
1.5	4.00e-3
2	3.52e-3
3	3.34e-3
4	4.28e-3
5	3.99e-3
5	3.82e-3
6	3.74e-3
7.5	4.50e-3
10	3.35e-3
12.5	1.89e-3
15	2.15e-3
20	2.09e-3
25	1.93e-3
30	1.03e-3

Energy reflection coefficient of Ar backscattered from Li on Cu
only low fluence !
ne=15, n(m2)= 2

dx (Ä)	0°
0	5.30e-2
1.5	5.20e-2
2	4.20e-2
3	5.20e-2
4	5.50e-2
5	5.70e-2
5	4.90e-2
6	5.70e-2
7.5	4.90e-2
10	4.70e-2
12.5	4.20e-2
15	4.10e-2
20	3.90e-2
25	5.10e-2
30	2.40e-2

Average depth (mean range) in Ä of Ar implanted in Li on Cu
only low fluence !
ne=15. n(m2)= 2

dx (Ä)	0°
0	4.40e + l
1.5	4.71e + l
2	4.69e4-l
3	4.69e + l
4	4.98e4-l
5	4.79e + l
5	4.93e + l
6	4.95e + l
7.5	5.31e + l
10	5.41e4-l
12.5	5.62e + l
15	5.94e + l
20	6.23e + l
25	6.66e-f-l
30	7.09e + l

D –> Li on LiCu

Sputtering yield of Li on LiCu by D
zl = 1. ml= 2.01, ef=0.20 eV. dns0 = 1.00e-l atoms/A**3
layer 1: z2= 3, m2= 6.94. sbe = 1.67 eV, ef=1.65 eV, rho=4.60e-2 atoms/A**3
layer 2: z2= 3 (0.24), 29 (0.76), m2=6.94, 63.54, sbe = 1.67, 3.52 eV,
ef=1.65, 3.50 eV, rho = 4.60e-2, 8.48e-2 atoms/A**3
ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr= 1 (KrC)
program: tridyn (version 3.3), idrel=l (static)
alpha=0.00, dx(l) =thickness (in A) of layer 1
only low fluence !
ne= 4, na= 1, n(dx(l)) = 15, n(m2)= 2

E_0	30 eV		100 eV		300 eV		1000 eV	
dx (A)	Li	Cu	Li	Gu	Li	Cu	Li	Cu
0	4.62e-2	6.00e-5	5.66e-2	8.43e-3	4.63e-2	2.55e-2	3.18e-2	2.73e-2
1	6.29e-2	2.00e-5						
1.5			8.16e-2	4.00e-3	6.94e-2	1.93e-2	4.35e-2	2.18e-2
2	8.19e-2				8.16e-2	1.45e-2	4.75e-2	1.88e-2
3	8.94e-2		1.10e-l	1.77e-3	8.41e-2	1.1le-2	5.66e-2	1.45e-2
4	9.70e-2							
5			1.30e-l	1.67e-4	1.05e-l	5.00e-3	7.00e-2	1.16e-2
6	9.16e-2							
7.5					1.22e-l	3.27e-3	8.45e-2	5.75e-3
8	8.39e-2							
10	7.36e-2		1.43e-l		1.33e-l	6.00e-4	8.35e-2	3.88e-3
15	4.85e-2		1.41e-l		1.44e-l		8.78e-2	1.50e-3
20	3.48e-2		1.25e-l		1.50e-l		8.68e-2	7.50e-4
25	2.79e-2		1.17e-l		1.46e-l		8.56e-2	2.50e-4
30	2.36e-2		1.02e-l		1.41e-l		1.01e-l	

Sputtered energy of Li on LiCu by D
only low fluence !
ne= 4, na= 1, n(dx(l)) = 15. n(m2)= 2

Eq	30 eV		100 eV		300 eV		1000 eV	
dx (A)	Li	Cu	Li	Cu	Li	Cu	Li	Cu
0	5.05e-3	2.Ole-6	3.94e-3	2.00e-4	1.97e-3	4.68e-4	6.61e-4	3.38e-4
1	7.51e-3	5.16e-7						
1.5			6.10e-3	8.67e-5	2.95e-3	3.36e-4	8.30e-4	2.04e-4
2	9.61e-3				3.23e-3	2.54e-4	1.08e-3	1.91e-4
3	1.Ole-2		7.94e-3	2.79e-5	3.40e-3	1.70e-4	1.06e-3	1.50e-4
4	1.04e-2							
5			8.82e-3	2.21e-5	4.21e-3	7.97e-5	1.24e-3	1.06e-4
6	8.91e-3							
7.5					5.08e-3	3.30e-5	1.54e-3	4.28e-5
8	7.72e-3							
10	6.48e-3		9.Ole-3		5.33e-3	3.93e-6	1.40e-3	3.07e-5
15	3.82e-3		8.21e-3		5.67e-3		1.85e-3	8.35e-6
20	2.33e-3		6.88e-3		5.64e-3		1.54e-3	3.57e-6
25	1.84e-3		6.51e-3		5.69e-3		1.90e-3	1.90e-6
30	1.56e-3		5.23e-3		5.41e-3		2.20e-3	

D —> Li on LiCu

Particle reflection coefficient of D backscattered from Li on LiCu
zl= 1, ml= 2.01, ef=0.20 eV, dns0 = 1.00e-l atoms/A**3
layer 1: z2= 3. m2= 6.94. sbe = 1.67 eV. ef=1.65 eV. rho = 4.60e-2 atoms/A**3
layer 2: z2= 3 (0.24), 29 (0.76). m2 = 6.94. 63.54, sbe=1.67, 3.52 eV,
ef=1.65, 3.50 eV. rho = 4.60e-2, 8.48e-2 atoms/A**3
ca=1.00, kk0=kk0r=2, kdeel =kdee2=3, ipot=ipotr= 1 (KrC)
program: tridyn (version 3.3), idrel = l (static)
alpha=0.00, dx(l) =thickness (in A) of layer 1
only low fluence !
ne= 4, na= 1, n(dx(l)) = 15, n(m2)= 2

Eq	30 eV	100 eV	300 eV	1000 eV
dx (A)	0°	0°	0°	0°
0	5.19e-l	4.53e-l	4.10e-l	3.24e-l
1	4.92e-l			
1.5		4.43e-l	3.93e-l	3.35e-l
2	4.79e-l		4.03e-l	3.27e-l
3	4.65e-l	4.38e-l	4.00e-l	3.30e-l
4	4.56e-l			
5		4.32e-l	3.99e-l	3.25e-l
6	4.25e-l			
7.5			3.91e-l	3.35e-l
8	3.96e-l			
10	3.62e-l	4.11e-l	3.90e-l	3.28e-l
15	2.77e-l	3.83e-l	3.76e-l	3.24e-l
20	2.19e-l	3.48e-l	3.82e-l	3.22e-l
25	1.80e-l	3.18e-l	3.64e-l	3.20e-l
30	1.60e-l	2.84e-l	3.53e-l	3.13e-l

Energy reflection coefficient of D backscattered from Li on LiCu
only low fluence !
ne= 4, na= 1, n(dx(l)) = 15, n(m2)= 2

E_o	30 eV	100 eV	300 eV	1000 eV
dx (Ä)	0°	0°	0°	0°
0	3.04e-l	2.57e-l	2.24e-l	1.61e-l
1	2.67e-l			
1.5		2.41e-l	2.13e-l	1.66e-l
2	2.45e-l		2.11e-l	1.64e-l
3	2.26e-l	2.31e-l	2.11e-l	1.62e-l
4	2.11e-l			
5		2.22e-l	2.09e-l	1.62e-l
6	1.77e-l			
7.5			2.01e-l	1.64e~l
8	1.52e-l			
10	1.27e-l	1.92e-l	1.96e-l	1.60e-l
15	8.15e-2	1.63e-l	1.83e-l	1.56e-l
20	5.75e-2	1.36e-l	1.80e-l	1.52e-l
25	4.56e-2	1.15e-l	1.65e-l	1.53e-l
30	4.09e-2	9.65e-2	1.56e-l	1.45e-l

Average depth (mean range) in Ä of D implanted in Li on LiCu
only low fluence !
ne= 4, na= 1, n(dx(l)) = 15, n(m2) = 2

E_o	30 eV	100 eV	300 eV	1000 eV
dx (Ä)	0°	0°	0°	0°
0	1.61e-f-l	3.64e4-l	8.04e + l	2.00e + 2
1	1.64e + l			
1.5		3.71e+l	7.95e + l	2.00e + 2
2	1.68e4-l		8.01e + l	2.01e+2
3	1.72e + l	3.78e + l	8.09e + l	1.98e4-2
4	1.74e + l			
5		3.94e+l	8.28e-f-l	2.04e + 2
6	1.79e4-l			
7.5			8.43e + l	2.05e+2
8	1.83e4-l			
10	1.84e + l	4.12e+l	8.59e + l	2.04e + 2
15	1.94e + l	4.24e + l	8.89e + l	2.10e+2
20	2.07e + l	4.40e + l	9.18e + l	2.10e + 2
25	2.24e-H	4.57e + l	9.32e4-l	2.13e+2
30	2.41e + l	4.72e + l	9.57e+l	2.20e+2

D –> Li on LiCu

Sputtering yield of Li on LiCu by D
zl = 1. ml= 2.01. ef=0.20 eV. dns0 = l.00e-l atoms/A**3
layer 1: z2= 3, m2= 6.94. sbe=1.67 eV. ef=1.65 eV, rho=4.60e-2 atoms/A**3
layer 2: z2=3 (0.06), 29 (0.94). m2 = 6.94, 63.54. sbe=1.67. 3.52 eV,
ef=1.65, 3.50 eV, rho=4.60e-2, 8.48e-2 atoms/A**3
ca=1.00. kkO=kkOr=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: tridyn (version 3.3). idrel = l (static)
alpha=0.00. dx(l) =thickness (in A) of layer 1
only low fluence !
ne= 4, na= 1. n(dx(l)) = 16, n(m2)= 2

Bo	30 eV		100 eV		300 eV		1000 eV	
dx (A)	Li	Cu	Li	Cu	Li	Cu	Li	Cu
0	1.33e-2		1.32e-2	1.31e-2	1.23e-2	3.88e-2	6.50e-3	5.05e-2
1	4.55e-2							
1.5			5.66e-2	7.57e-3	4.65e-2	3.09e-2	2.83e-2	3.57e-2
2	7.49e-2		7.23e-2	5.20e-3	5.57e-2	2.35e-2	4.03e-2	3.04e-2
2.5					6.45e-2	2.26e-2		
3	9.17e-2		9.15e-2	2.47e-3	7.54e-2	1.90e-2	5.11e-2	2.59e-2
4	1.01e-l							
5			1.19e-l	5.00e-4	9.89e-2	1.05e-2	5.99e-2	1.67e-2
6	1.05e-l							
7.5					1.12e-l	4.30e-3	7.49e-2	9.10e-3
8	9.49e-2							
10	8.54e-2		1.52e-l		1.31e-l	1.50e-3	8.13e-2	6.10e-3
15	5.64e-2		1.57e-l		1.40e-l	1.00e-4	9.14e-2	2.30e-3
20	3.86e-2		1.43e-l		1.46e-l		9.05e-2	8.00e-4
25	2.83e-2		1.27e-l		1.48e-l		9.42e-2	l.1le-4
30	2.64e-2		1.14e-l		1.64e-l		1.05e-l	

Sputtered energy of Li on LiCu by D
only low fluence !
ne= 4. na= 1, n(dx(l)) = 16, n(m2)= 2

Bq	30 eV		100 eV		300 eV		1000 eV	
dx (A)	Li	Cu	Li	Cu	Li	Cu	Li	Cu
0	1.47e-3		9.94e-4	3.05e-4	5.47e-4	6.90e-4	1.68e-4	4.32e-4
1	6.14e-3							
1.5			4.90e-3	1.56e-4	1.89e-3	5.21e-4	3.62e-4	3.21e-4
2	9.43e-3		5.85e-3	8.65e-5	2.23e-3	3.55e-4	5.16e-4	2.61e-4
2.5					2.27e-3	3.49e-4		
3	1.08e-2		6.98e-3	3.54e-5	2.68e-3	2.79e-4	8.07e-4	2.27e-4
4	1.14e-2							
5			9.05e-3	4.68e-6	3.67e-3	1.49e-4	8.61e-4	1.43e-4
6	1.09e-2							
7.5					4.32e-3	5.25e-5	1.13e-3	8.24e-5
8	9.19e-3							
10	7.67e-3		9.96e-3		5.41e-3	8.10e-6	1.20e-3	6.49e-5
15	4.47e-3		9.80e-3		5.18e-3	6.66e-7	1.68e-3	1.57e-5
20	2.83e-3		8.80e-3		5.73e-3		2.00e-3	4.76e-5
25	1.87e-3		7.00e-3		5.88e-3		2.04e-3	1.43e-7
30	1.77e-3		6.12e-3		6.26e-3		2.25e-3	

D –> Li on LiCu

Particle reflection coefficient of D backscattered from Li on LiCu
zl = 1. ml = 2.01, ef=0.20 eV. dns0 = 1.00e-l atoms/A**3
layer 1: z2= 3. m2= 6.94, sbe=1.67 eV. ef=1.65 eV. rho = 4.60e-2 atoms/A**3
layer 2: z2 = 3 (0.06). 29 (0.94). m2=6.94, 63.54, sbe = 1.67, 3.52 eV.
ef=1.65, 3.50 eV, rho = 4.60e-2, 8.48e-2 atoms/A**3
ca=1.00, kk0 = kk0r=2, kdeel=kdee2 = 3, ipot=ipotr= 1 (KrC)
program: tridyn (version 3.3). idrel = l (static)
alpha=0.00, dx(l) =thickness (in A) of layer 1
only low fluence !
ne = 4. na = 1, n(dx(l)) = 16, n(m2)= 2

E_o	30 eV	100 eV	300 eV	1000 eV
dx (A)	0°	0°	0°	0°
0	6.01e-l	5.16e-l	4.49e-l	3.61e-l
1	5.58e-l			
1.5		4.96e-l	4.41e-l	3.64e-l
2	5.49e-l	4.94e-l	4.46e-l	3.59e-l
2.5			4.43e-l	
3	5.34e-l	4.99e-l	4.44e-l	3.57e-l
4	5.26e-l			
5		4.83e-l	4.35e-l	3.53e-l
6	4.93e-l			
7.5			4.32e-l	3.63e-l
8	4.57e-l			
10	4.11e-l	4.60e-l	4.34e-l	3.56e-l
15	3.12e-l	4.31e-l	4.27e-l	3.49e-l
20	2.34e-l	3.99e-l	4.16e-l	3.50e-l
25	1.89e-l	3.57e-l	4.02e-l	3.54e-l
30	1.64e-l	3.24e-l	3.96e-l	3.56e-l

Energy reflection coefficient of D backscattered from Li on LiCu
only low fluence !
ne= 4, na= 1, n(dx(l)) = 16, n(m2)= 2

E_o	30 eV	100 eV	300 eV	1000 eV
dx (A)	0°	0°	0°	0°
0	3.74e-l	3.06e-l	2.50e-l	1.87e-l
1	3.20e-l			
1.5		2.81e-l	2.42e-l	1.84e-l
2	2.98e-l	2.76e-l	2.45e-l	1.85e-l
2.5			2.42e-l	
3	2.74e-l	2.75e-l	2.41e-l	1.79e-l
4	2.55e-l			
5		2.57e-l	2.35e-l	1.78e-l
6	2.14e-l			
7.5			2.27e-l	1.82e-l
8	1.81e-l			
10	1.49e-l	2.22e-l	2.25e-l	1.76e-l
15	9.45e-2	1.92e-l	2.13e-l	1.73e-l
20	6.21e-2	1.61e-l	2.02e-l	1.72e-l
25	4.85e-2	1.32e-l	1.87e-l	1.69e-l
30	4.17e-2	l.lle-1	1.77e-l	1.69e-l

Average depth (mean range) in Ä of D implanted in Li on LiCu
only low fluence !
ne= 4, na= 1, n(dx(l)) = 16, n(m2)= 2

Eq	30 eV	100 eV	300 eV	1000 eV
dx (Ä)	0°	0°	0°	0°
0	1.43e + l	3.09e+l	6.46e+l	1.54e + 2
1	1.46e-f-l			
1.5		3.18e4-l	6.55e + l	1.57e+2
2	1.52e + l	3.22e + l	6.62e+l	1.58e-f-2
2.5			6.63e-|-l	
3	1.55e + l	3.29e-{-l	6.63e+l	1.59e-}-2
4	1.59e + l			
5		3.38e + l	6.83e + l	1.61e-}-2
6	1.63e-f-l			
7.5			6.98e+l	1.60e-J-2
8	1.65e-{-l			
10	1.67e + l	3.61e+l	7.06e + l	1.64e + 2
15	1.77e + l	3.80e+l	7.42e + l	1.66e + 2
20	1.92e-{-l	3.96e+l	7.79e + l	1.72e + 2
25	2.10e + l	4.14e+l	8.05e + l	1.76e+2
30	2.30e + l	4.26e + l	8.31e + l	1.79e+2

Ar –> Li on LiCu

Sputtering yield of Li on LiCu by Ar
zl = 18, ml = 39.95
layer 1: z2 = 3, m2= 6.94. sbe = 1.67 eV. ef=1.65 eV, rho=4.60e-2 atoms/A**3
layer 2: z2 = 3 (0.24). 29 (0.76), m2=6.94, 63.54, sbe = 1.67, 3.52 eV,
ef=1.65, 3.50 eV, rho=4.60e-2, 8.48e-2 atoms/A**3
ef=0.20, sbe=0.00, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
program: tridyn (version 3.3), idrel = l (static)
e0=6000 eV, alpha=0.00, dx(l)=thickness (in A) of layer 1
only low fluence !
ne=ll, n(m2)= 2

dx (Å)	Li	Cu
0	1.48e-0	2.16e-0
1.5	1.83e-0	1.74e-0
2	2.04e-0	1.51e-0
3	2.38e-0	1.36e-0
5	2.36e-0	9.55e-l
10	2.67e-0	4.71e-l
12.5	2.40e-0	3.71e-l
15	2.39e-0	2.88e-l
20	2.45e-0	2.06e-l
25	2.13e-0	1.27e-l
30	2.19e-0	7.20e-2

Sputtered energy of Li on LiCu by Ar
only low fluence !
ne=15, n(m2)= 2

dx (A)	Li	Cu
0	9.27e-3	1.06e-2
1.5	1.03e-2	7.99e-3
2	9.59e-3	7.31e-3
3	1.07e-2	6.99e-3
5	1.15e-2	5.53e-3
10	1.37e-2	3.31e-3
12.5	1.46e-2	2.46e-3
15	1.45e-2	2.34e-3
20	1.50e-2	2.29e-3
25	1.68e-2	8.19e-4
30	1.81e-2	4.60e-4

Ar –> Li on LiCu

Particle reflection coefficient of Ar backscattered from Li on LiCu
zl = 18. ml = 39.95
layer 1: z2= 3. m2= 6.94. sbe = 1.67 eV. ef=1.65 eV. rho=4.60e-2 atoms/A**3
layer 2: z2= 3 (0.24). 29 (0.76). m2=6.94, 63.54. sbe = 1.67. 3.52 eV,
ef=1.65, 3.50 eV, rho=4.60e-2. 8.48e-2 atoms/A**3
ef=0.20, sbe = 0.00. ca=1.00, kk0=kk0r=2, kdeel = kdee2=3. ipot=ipotr=l (KrC)
program: tridyn (version 3.3). idrel = l (static)
e0=6000 eV. alpha=0.00. dx(l) =thickness (in A) of layer 1
only low fluence !
ne=ll. n(m2)= 2

dx (A)	0°
0	4.60e-2
1.5	5.20e-2
2	4.10e-2
3	4.50e-2
5	4.00e-2
10	4.80e-2
12.5	4.00e-2
15	3.10e-2
20	3.20e-2
25	3.30e-2
30	2.50e-2

Energy reflection coefficient of Ar backscattered from Li on LiCu
only low fluence !
ne=ll, n(m2)= 2

dx (A)	0°
0	3.42e-3
1.5	4.55e-3
2	2.93e-3
3	4.25e-3
5	2.71e-3
10	2.15e-3
12.5	2.18e-3
15	1.67e-3
20	1.36e-3
25	1.06e-3
30	9.20e-4

Average depth (mean range) in Ä of Ar implanted in Li on LiCu
only low fluence !
ne=ll. n(m2)= 2

dx (A)	0°
0	6.56e + l
1.5	6.69e + l
2	6.79e + l
3	6.81e + l
5	6.97e + l
10	7.47e + l
12.5	7.68e + l
15	7.91e + l
20	8.27e + l
25	8.50e + l
30	8.83e + l

O —> B2O3 on B

Sputtering yield of R_2O_3 on B by O
zl = 8, ml= 16.00
1.layer: z2= 5 (0.40). 8 (0.60). m2= 10.81. 16.00. sbe = 5.90. 2.50 eV. rho = 1.62 g/cm**3
2.layer: z2= 5, m2= 10.81, sbe = 5.90 eV. rho= 2.35 g/cm**3
ef=2.10 eV. esb=2.60 eV, ca=1.00. kk0=kk0r=2, kdeel=kdee2 = 3, ipot=ipotr = l (KrC)
alpha=0.00, dx(l) =thickness of 1.layer
program: trspvmc
only low fluence 1
ne= 4, na= 1. n(dx(l)) = 2

B (1.layer)

dx (Ä)	5	10
E_o (eV)		
100	2.39e-l	2.53e-l
300	4.68e-l	4.72e-l
1000	5.87e-l	6.07e-l
3000		6.03e-l

O (1.layer)

dx (Ä)	5	10
Bo (eV)		
100	2.86e-l	2.83e-l
300	5.56e-l	6.16e-l
1000	8.37e-l	8.07e-l
3000		7.99e-l

B (2.layer)

dx (Ä)	5	10
B_o (eV)		
100	5.10e-3	
300	4.43e-2	5.13e-4
1000	1.01e-l	1.43e-2
3000		3.28e-2

Sputtered energy of B2O3 on B by O
only low fluence !
ne= 4, na= 1, n(dx(l))= 2

B (1.layer)

dx (Ä)	5	10
B_o (eV)		
100	5.90e-3	5.99e-3
300	5.06e-3	6.44e-3
1000	3.05e-3	4.19e-3
3000		2.05e-3

0 (1.layer)

dx (Ä)	5	10
B_o (eV)		
100	5.89e-3	6.06e-3
300	5.75e-3	6.64e-3
1000	4.42e-3	4.81e-3
3000		2.32e-3

B (2.layer)

dx (Ä)	5	10
B_o (eV)		
100	1.69e-4	
300	7.62e-4	6.83e-6
1000	1.21e-3	4.22e-4
3000		4.79e-4

O —> B2O3 on B

Particle reflection coefficient of O backscattered from B 2 C>3 on B
zl = 8, ml = 16.00
1.layer: z2= 5 (0.40). 8 (0.60). m2= 10.81. 16.00. sbe=5.90, 2.50 eV, rho = 1.62 g/cm**3
2.layer: z2= 5, m2= 10.81. sbe = 5.90 eV. rho = 2.35 g/cm**3
ef=2.10 eV. esb = 2.60 eV, ca=1.00, kkO=kkOr=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(l) =thickness of 1.layer
program: trspvmc
only low fluence !
ne= 4, na= 1, n(dx(l)) = 2

dx (Ä)	5	10
Bo (eV)		
100	4.37e-3	5.46e-3
300	6.58e-3	6.15e-3
1000	4.68e-3	3.96e-3
3000		1.75e-3

Energy reflection coefficient of O backscattered from B2O3 on B
only low fluence !
ne= 4, na= 1, n(dx(l)) = 2

dx (Ä)	5	10
Ro (eV)		
100	1.84e-4	1.94e-4
300	3.12e-4	2.83e-4
1000	2.89e-4	7.97e-5
3000		4.88e-5

Average depth (mean range) in Ä of O implanted in B 2 O 3 on B
only low fluence !
ne= 4, na= 1, n(dx(l))= 2

dx (A)	5	10
Eq (eV)		
100	7.60e + 0	8.94e+0
300	1.42e+l	1.59e+l
1000	3.22e-f-l	3.38e+l
3000		8.05e+l

O -4 B_2O_3 on B_4C

Sputtering yield of R2O3 on B4C by O
zl = 8, ml= 16.00
1.layer: z2 = 5 (0.40). 8 (0.60). m2= 10.81, 16.00,
sbe=5.90, 2.50 eV, sbe(mean) = 1.28 eV, rho = 1.62 g/cm**3
2.layer: z2 = 5 (0.80). 6 (0.20), m2= 10.81, 12.01
sbe=5.90. 7.40 eV, sbe(mean) =6.05 eV, rho= 2.28 g/cm**3
ef=2.10 eV, esb = 2.60 eV. ca=1.00. kk0=kk0r=2. kdeel=kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(B2O3) = 2,...10 Ä, dx(b4c) = 10000 Ä
program: trspvmc
only low fluence !
ne= 4, na= 1, n(dx(l))= 4

B (1.layer)

dx (Ä)	2	4	5	10
Eo (eV)				
150				3.25e-l
300				4.51e-l
1000				6.17e-l
3000	1.54e-l	5.26e-l	6.46e-l	5.74e-l

O (1.layer)

dx (Ä)	2	4	5	10
E_o (eV)				
150				4.13e-l
300				5.83e-l
1000				8.45e-l
3000	1.81e-l	6.73e-l	8.45e-l	8.23e-l

B (2.layer)

dx (Ä)	2	4	5	10
E_o (eV)				
300				7.12e-4
1000				1.05e-2
3000	1.22e-0	2.69e-l	1.71e-l	1.69e-2

C (2.layer)

dx (Ä)	2	4	5	10
Eo (eV)				
300				3.56e-4
1000				2.09e-3
3000	2.85e-l	5.75e-2	2.81e-2	2.11e-3

Sputtered energy of B2O3 on B4G by O
only low fluence !
ne= 4, na= 1, n(dx(l))= 4

B (1.layer)

dx (ä;	2	4	5	10
Ro (ev;				
150				5.82e-3
300				6.01e-3
1000				3.91e-3
3000	6.13e-4	1.37e-3	1.43e-3	2.45e-3

O (1.lay er)

dx (Ä)	2	4	5	10
Eo (eV)				
150				6.90e-3
300				6.66e-3
1000				5.05e-3
3000	8.13e-4	1.55e-3	2.02e-3	2.73e-3

B (2.layer)

dx (Ä)	2	4	5	10
Eo (eV)				
300				2.85e-5
1000				3.08e-4
3000	2.86e-3	1.68e-3	1.79e-3	6.18e-4

C (2.lay er)

dx (Ä)	2	4	5	10
E_o (eV)				
300				2.28e-5
1000				4.86e-5
3000	6.19e-4	2.60e-4	2.75e-4	2.78e-5

$O \rightarrow B_2O_3$ on B_4C

Particle reflection coefficient of O backscattered from B2O3 on B4C
zl = 8, ml = 16.00
1.layer: z2 = 5 (0.40), 8 (0.60), m2 = 10.81, 16.00,
sbe=5.90, 2.50 eV, sbe(mean) = 1.28 eV, rho = 1.62 g/cm**3
2.layer: z2= 5 (0.80), 6 (0.20), m2 = 10.81, 12.01
sbe=5.90, 7.40 eV, sbe(mean) =6.05 eV, rho= 2.28 g/cm**3
ef=2.10 eV, esb = 2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2 = 3, ipot=ipotr=l (KrC)
alpha=0.00, dx(B2O3)=2,...10 A, dx(b4c) = 10000 A
program: trspvmc
only low fluence !
ne= 4, na= 1, n(dx(l))= 2

dx (Å)	2	10
E_o (eV)		
150		4.65e-3
300		5.70e-3
1000		5.58e-3
3000	9.74e-4	4.22e-3

Energy reflection coefficient of O backscattered from B2O3 on B4C
only low fluence !
ne= 4, na= 1, n(dx(l))= 2

dx (Å)	2	10
E_o (eV)		
150		1.81e-4
300		1.77e-4
1000		3.88e-4
3000	5.03e-5	3.22e-4

Average depth (mean energy) in Å of O implanted in B2O3 on B4C
only low fluence !
ne= 4, na= 1, n(dx(l))= 4

dx (Å)	2	4	5	10
E_o (eV)				
150				1.08e4-l
300				1.59e + l
1000				3.32e + l
3000	7.38e + l	7.55e4-l	7.70e4-l	7.91e4-l

O -> $B(OH)_3$ on B

Sputtering yield of B(OH)s on B by O
zl = 8. ml= 16.00
1.layer: z2= 5 (0.14), 8 (0.43), 1 (0.43), m2= 10.81, 16.00, 1.01,
sbe=5.90, 2.50, 2.19 eV, rho = 0.85 g/cm**3
2.layer: z2= 5, m2= 10.81, sbe=5.90 eV, rho= 2.35 g/cm**3
ef=2.10 eV, esb=2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(bo3h3) = 10 Ä
program: trspvmc
only low fluence !
ne= 4. na= 1, n(dx(l))= 2

B (1.layer)

Eo (eV)	0°
100	3.61e-2
300	7.30e-2
1000	1.30e-l
3000	1.20e-l

O (1.layer)

Eo (eV)	0°
100	9.94e-2
300	2.17e-l
1000	3.15e-l
3000	3.63e-l

H (1.layer)

Bo (eV)	0°
100	1.12e-l
300	3.39e-l
1000	4.38e-l
3000	4.14e-l

B (2.layer)

Eo (eV)	0°
300	6.23e-3
1000	3.44e-2
3000	6.03e-2

Sputtered energy of B(OH)s on B by O
zl= 8, ml= 16.00
1.layer: z2= 5 (0.14), 8 (0.43), 1 (0.43), m2 = 10.81, 16.00, 1.01,
sbe=5.90, 2.50, 2.19 eV, rho=0.85 g/cm**3
2.layer: z2= 5, m2= 10.81, sbe=5.90 eV, rho = 2.35 g/cm**3
ef=2.10 eV, esb = 2.60 eV, ca=1.00, kk0=kk0r=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(bo3h3) = 10 Ä
program: trspvmc
only low fluence !
ne= 4, na= 1, n(dx(l))= 2

B (1.layer)

Eo (eV)	0°
100	9.75e-4
300	1.03e-3
1000	9.49e-4
3000	3.63e-4

O (1.layer)

Eo (eV)	0°
100	2.41e-3
300	2.86e-3
1000	1.97e-3
3000	1.45e-3

H (1.layer)

Eo (»V)	0°
100	2.32e-3
300	4.98e-3
1000	3.88e-3
3000	1.57e-3

B (2.layer)

Eo («V)	0°
300	1.35e-4
1000	5.24e-4
3000	5.83e-4

O -> $B(OH)_3$ on B

Particle reflection coefficient of O backscattered from B(OH)g on B
zl = 8, ml = 16.00
1.layer: z2= 5 (0.14). 8 (0.43), 1 (0.43), m2= 10.81, 16.00, 1.01,
sbe = 5.90, 2.50, 2.19 eV, rho = 0.85 g/cm**3
2.layer: z2= 5, m2= 10.81, sbe=5.90 eV, rho= 2.35 g/cm**3
ef=2.10 eV, esb=2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(bo3h 3) = 10 Å
program: trspvmc
only low fluence !
ne= 4, na= 1, n(dx(l)) = 2

Bo (eV)	0°
100	2.98e-3
300	4.89e-3
1000	1.64e-3
3000	2.44e-3

Energy reflection coefficient of O backscattered from B(OH)3 on B
only low fluence !
ne= 4, na= 1, n(dx(l))= 2

E_0 (eV)	0°
100	2.05e-4
300	1.90e-4
1000	9.73e-5
3000	2.47e-5

Average depth (mean range) in Å of O implanted in $B(OH)_3$ on B
only low fluence !
ne= 4, na= 1, n(dx(l))= 2

Eo (eV)	0°
100	1.24e+l
300	1.93e+l
1000	3.72e+l
3000	8.41e+l

O -> $B(OH)_3$ on B_4C

Sputtering yield of $B(OH)_3$ on B_4C by O
zl = 8, ml = 16.00
1.layer: z2= 5 (0.14), 8 (0.43), 1 (0.43), m2= 10.81, 16.00, 1.01,
sbe = 5.90. 2.50, 2.19 eV, sbe(mean) = 1.22 eV, rho = 0.85 g/cm**3
2.layer: z2= 5 (0.80), 6 (0.20), m2= 10.81, 12.01
sbe=5.90, 7.40 eV, sbe(mean) =6.05 eV, rho= 2.28 g/cm**3
ef=2.10 eV, esb=2.60 eV, ca=1.00, kk0=kk0r=2, kdeel=kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(B(OH)3)=2,...20 Ä, dx(b4c) = 10000 A
program: trspvmc
only low fluence !
ne= 4, na= 1, n(dx(l))= 7

B (1.layer)

dx (A)	2	3	4	5	7	10	20
Eo (eV)							
150	1.77e-2	3.96e-2	5.60e-2	5.22e-2	6.69e-2	5.97e-2	
300	2.43e-2	5.45e-2	8.59e-2	9.47e-2	8.11e-2	9.56e-2	9.65e-2
1000	3.02e-2	7.44e-2	1.12e-l	1.20e-l	1.34e-l	1.23e-l	1.46e-l
3000		6.87e-2	1.06e-l	1.34e-l			

O (1.layer)

dx (A)	2	3	4	5	7	10	20
Eo (eV)							
150	4.20e-2	1.04e-l	1.51e-l	1.55e-l	1.74e-l	1.51e-l	
300	5.91e-2	1.41e-l	2.43e-l	2.43e-l	2.24e-l	2.53e-l	2.38e-l
1000	9.46e-2	1.99e-l	3.28e-l	3.96e-l	3.79e-l	3.20e-l	3.66e-l
3000		2.04e-l	2.97e-l	3.98e-l			

H (1.layer)

dx (A)	2	3	4	5	7	10	20
Bo (eV)							
150	7.50e-2	1.07e-l	1.34e-l	1.48e-l	1.98e-l	1.85e-l	
300	9.25e-2	1.42e-l	1.88e-l	2.03e-l	2.77e-l	3.35e-l	3.53e-l
1000	1.30e-l	1.75e-l	2.45e-l	2.88e-l	3.74e-l	4.04e-l	5.92e-l
3000		2.02e-l	2.54e-l	2.89e-l			

B (2.layer)

dx (A)	2	3	4	5	7	10	20
E_o (eV)							
150	4.25e-l	2.62e-l	1.12e-l	3.15e-2	6.55e-3	2.60e-4	
300	6.67e-l	4.45e-l	1.87e-l	7.50e-2	2.21e-2	3.25e-3	
1000	1.00e-0	6.82e-l	3.39e-l	1.75e-l	8.22e-2	2.71e-2	2.95e-3
3000		6.97e-l	3.15e-l	1.86e-l			

C (2.layer)

dx (A)	2	3	4	5	7	10	20
E_o (eV)							
150	1.10e-l	5.99e-2	2.73e-2	9.58e-3			
300	1.69e-l	1.07e-l	4.28e-2	1.38e-2	5.64e-3		
1000	2.39e-l	1.92e-l	7.56e-2	2.93e-2	1.61e-2	2.85e-3	1.48e-3
3000		1.72e-l	8.03e-2	4.25e-2			

O -> $B(OH)_3$ on B_4C

Sputtered energy of B(OH)g on B4C by O
zl = 8. ml = 16.00
1.layer: z2 = 5 (0.14). 8 (0.43), 1 (0.43). m2 = 10.81. 16.00. 1.01.
sbe = 5.90, 2.50; 2.19 eV, sbe(mean) = 1.22 eV. rho = 0.85 g/cm**3
2.layer: z2 = 5 (0.80), 6 (0.20), m2 = 10.81, 12.01
sbe=5.90, 7.40 eV, sbe(mean) =6.05 eV, rho= 2.28 g/cm**3
ef=2.10 eV, esb = 2.60 eV, ca=1.00, kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(B(OH)3)=2,...20 Ä, dx(b4c) = 10000 Ä
program: trspvmc
only low fluence. 1
ne= 4, na= 1, n(dx(l))= 7

B (1.layer)

dx (Ä)	2	3	4	5	7	10	20
E_0 (eV)							
150	3.88e-4	7.36e-4	9.02e-4	7.81e-4	1.26e-3	1.22e-3	
300	3.49e-4	6.59e-4	1.02e-3	1.10e-3	9.92e-4	1.28e-3	1.46e-3
1000	2.33e-4	4.75e-4	4.33e-4	6.64e-4	6.69e-4	8.80e-4	9.68e-4
3000		1.60e-4	1.90e-4	2.24e-4			

O (1.layer)

dx (Ä)	2	3	4	5	7	10	20
E_0 (eV)							
150	9.14e-4	1.98e-3	2.57e-3	2.72e-3	3.10e-3	2.74e-3	
300	9.37e-4	1.73e-3	2.52e-3	2.30e-3	2.54e-3	3.34e-3	3.10e-3
1000	7.48e-4	1.19e-3	1.42e-3	1.75e-3	2.18e-3	1.95e-3	2.80e-3
3000		4.04e-4	8.04e-4	7.25e-4			

H (1.layer)

dx (Ä)	2	3	4	5	7	10	20
Eo (eV)							
150	1.60e-3	2.20e-3	2.62e-3	2.84e-3	3.72e-3	3.28e-3	
300	1.64e-3	2.15e-3	2.82e-3	3.10e-3	3.85e-3	5.33e-3	4.91e-3
1000	1.30e-3	1.62e-3	1.89e-3	2.29e-3	2.44e-3	3.52e-3	5.15e-3
3000		1.16e-3	1.02e-3	9.40e-4			

B (2.layer)

dx (Ä)	2	3	4	5	7	10	20
E_0 (eV)							
150	5.27e-3	3.07e-3	1.22e-3	4.12e-4	1.42e-4	4.65e-6	
300	4.90e-3	3.28e-3	1.52e-3	7.48e-4	3.54e-4	4.00e-5	
1000	3.79e-3	2.31e-3	1.67e-3	1.26e-3	1.17e-3	2.87e-4	9.37e-5
3000		1.35e-3	8.06e-4	1.43e-3			

C (2.layer)

dx (Ä)	2	3	4	5	7	10	20
Eq (eV)							
100	1.25e-3	6.85e-4	3.05e-4	1.23e-4			
300	1.17e-3	6.81e-4	2.51e-4	1.18e-4	6.86e-5		
1000	7.81e-4	6.70e-4	3.01e-4	3.08e-4	2.14e-4	8.77e-5	6.54e-5
3000		2.51e-4	1.74e-4	1.56e-4			

O -> $B(OH)_3$ on B_4C

Particle reflection coefficient of O backscattered from B(OH) 3 on B4C
zl = 8. ml= 16.00
1.layer: z2= 5 (0.14). 8 (0.43), 1 (0.43). m2= 10.81. 16.00, 1.01,
sbe = 5.90, 2.50, 2.19 eV, sb e(mean) = 1.22 eV, rho = 0.85 g/cm**3
2.layer: z2= 5 (0.80), 6 (0.20), m2= 10.81, 12.01
sbe=5.90, 7.40 eV, sbe(mean) =6.05 eV, rho= 2.28 g/cm**3
ef=2.10 eV, esb=2.60 eV, ca=1.00. kk0=kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(B(OH)3)=2,...20 A, dx(b4c) = 10000 A
program: trspvmc
only low fluence !
ne= 3, na= 1, n(dx(l))= 7

dx (A)	2	3	4	5	7	10	20
B_o (eV)							
150	7.97e-4	1.40e-3	1.62e-3	1.85e-3	2.07e-3	3.11e-3	
300	1.30e-3	1.63e-3	1.70e-3	3.73e-3	3.08e-3	5.10e-3	3.95e-3
1000					1.61e-3	2.14e-3	1.48e-3

Energy reflection coefficient of O backscattered from B(OH) 3 on B4C
only low fluence !
ne= 3, na= 1, n(dx(l))= 7

dx (A)	2	3	4	5	7	10	20
Bo (eV)							
150	4.63e-5	5.57e-5	8.40e-5	5.51e-5	8.93e-5	1.43e-4	
300	5.85e-5	8.70e-5	4.52e-5	1.66e-4	1.93e-4	2.40e-4	1.91e-4
1000					3.41e-5	3.28e-5	4.23e-5

Average depth (mean range) in Ä of O implanted in B(OH) 3 on B4C
only low fluence !
ne= 4, na= 1, n(dx(l))= 7

dx (A)	2	3	4	5	7	10	20
E_o (eV)							
150	9.48e+0	9.91e + 0	1.06e+l	1.15e + l	1.28e + l	1.45e+l	
300	1.44e + l	1.48effl	1.55e + l	1.64e + l	1.76e + l	1.94e + l	2.53e+l
1000	3.36e + l	3.28effl	3.27e+l	3.45effl	3.59e + l	3.77e-H	4.36e+l
3000		7.56e+l	7.72e + l	7.86e+l			

O -> O on W0 $_3$

Sputtering yield of O on WO 3 by O
zl = 8. ml = 16.00
layer 1: z2= 8. m2= 16.00, sbe=2.60 eV. rho = 1.14 g/cm**3
layer 2: z2 = 74 (0.25). 8 (0.75), m2=183.85, 16.00, dx = 10000 A, sbe = 6.28, 6.28 eV, rho=6.47 g/cm**3
ef=2.50 eV. esb=2.60 eV, ca=1.00, kk0 = kk0r=2, kdeel = kdee2=3, ipot=ipotr=l (KrC)
program: trspvmc
only low fluence !
ne= 3, na= 1, n(dx(l)= 2

O (1.lay er)

dx (Å)	1	5
B$_o$ (eV)		
1000	8.71e-2	6.85e-l

W (2.lay er)

dx (Å)	1	5
E$_o$ (eV)		
1000	8.29e-2	4.30e-2

O (2.layer)

dx (Å)	1	5
B$_o$ (eV)		
1000	8.72e-l	2.98e-l

Sputtered energy of O on WO$_3$ by O
only low fluence !
ne= 3, na= 1, n(dx(l)= 2

O (1.layer)

dx (Å)	1	5
Bo (eV)		
1000	2.72e-3	9.07e-3

W (2.layer)

dx (Å)	1	5
Bq (eV)		
1000	7.57e-4	4.28e-4

O (2.layer)

dx (X)	1	5
E$_o$ (eV)		
1000	2.06e-2	1.00e-2

Particle reflection coefficient of O backscattered from O on WO 3
only low fluence !
ne= 3, na= 1, n(dx(l)= 2

dx (Å)	1	5
Bo (eV)		
1000	7.87e-2	7.51e-2

Energy reflection coefficient of O backscattered from O on WO 3
only low fluence !
ne= 3, na= 1, n(dx(l)= 2

dx (Å)	1	5
B$_o$ (eV)		
1000	2.27e-2	1.74e-2

Average depth (mean range) in Ä of O implanted in O on WO 3
only low fluence !
ne= 3, na= 1, n(dx(l)= 2

dx (Å)	1	5
Bo (eV)		
1000	3.44e + l	3.47e+l

O -> WO_3 on W

Sputtering yield of WO 3 on W by O
zl = 8, ml = 16.00
1.layer: z2 = 74 (0.25), 8 (0.75), m2=183.85, 16.00, sbe = 6.28, 6.28 eV, rho = 6.47 g/cm**3
2.layer: zl= 74, m2=183.85, sbe = 8.68 eV, rho = 19.30 g/cm**3
ef=2.50 eV, esb=2.60 eV, ca=1.00, kkO=kkOr=2. kdeel = kdee2=3, ipot=ipotr=l (KrC)
alpha=0.00, dx(l) =thickness of 1.layer
program: trspvmc
only low fluence. !
ne= 9, na= 1, n(dx) = 3

W (1.layer)

dx (Ä)	10	15	25
E_o (eV)			
50			7.71e-5
100		1.74e-3	1.66e-3
200	8.86e-3		
300	1.88e-2		
500	4.09e-2	2.93e-2	2.00e-2
1000	8.79e-2	6.40e-2	6.Ole-2
2000	1.36e-l		
5000	1.38e-l	1.46e-2	
6000	1.80e-l		

O (1.layer)

dx (A)	10	15	25
E_o (eV)			
50			3.99e-2
100		1.19e-l	1.19e~l
200	2.67e-l		
300	3.85e-l		
500	5.57e-l	4.87e-l	4.02e-l
1000	7. 14e-l	6.78e-l	6.25e-l
2000	7.94e-l		
5000	7.04e-l	9.04e-l	
6000	7.09e-l		

W (2.layer)

dx (A)	10
E_o (eV)	
200	6.19e-6
300	3.09e-4
500	1.63e-3
1000	8.24e-3
2000	2.54e-2
5000	5.53e-2
6000	6.77e-2

Sputtered energy of WO 3 on W by O
only low fluence !
ne= 9, na= 1, n(dx)= 3

W (1.layer)

dx (Ä)	10	15	25
Eo (eV)			
50			2.75e-6
100		7.97e-5	9.25e-5
200	3.52e-4		
300	6.02e-4		
500	l.lle-3	8.38e-4	5.71e-4
1000	1.76e-3	1.03e-3	1.22e-3
2000	1.99e-3		
5000	1.28e-3	1.50e-3	
6000	1.56e-3		

O (1.layer)

dx (A)	10	15	25
E_o (eV)			
50			6.29e-3
100		1.37e-2	1.36e-2
200	2.14e-2		
300	2.69e-2		
500	3.25e-2	2.57e-2	2.24e-2
1000	3.54e-2	2.71e-2	2.37e-2
2000	2.71e-2		
5000	1.59e-2	1.92e-2	
6000	1.25e-2		

W (2.layer)

dx (A)	10
Eq (eV)	
200	7.37e-8
300	4.94e-6
500	2.70e-5
1000	7.52e-5
2000	3.90e-4
5000	8.52e-4
6000	8.79e-4

O >WO_3 on W

Particle reflection coefficient of O backscattered from WO3 on W
zl = 8, ml = 16.00
1.layer: z2=74 (0.25), 8 (0.75). m2=183.85, 16.00, sbe=6.28. 6.28 eV. rho=6.47 g/cm**3
2.layer: zl= 74. m2=183.85. sbe = 8.68 eV. rho = 19.30 g/cm**3
ef=2.50 eV. esb=2.60 eV, ca=1.00. kk0=kk0r=2. kdeel=kdee2=3. ipot=ipotr=l (KrC)
alpha=0.00, dx(l) =thickness of 1.layer
program: trspvmc
only low fluence !
ne= 9, na= 1, n(dx)= 3

dx (A)	10	15	25
E_0 (eV)			
50			1.33e-l
100		1.31e-l	1.31e-l
200	1.47e-l		
300	1.71e-l		
500	2.15e-l	1.47e-l	1.19e-l
1000	2.67e-l	1.95e-l	1.27e-l
2000	3.14e-l		
5000	3.12e-l	3.03e-l	
6000	3.01e-l		

Energy reflection coefficient of O backscattered from WO 3 on W
only low fluence !
ne= 9, na= 1. n(dx)= 3

dx (A)	10	15	25
Eo (eV)			
50			5.30e-2
100		4.84e-2	4.90e-2
200	4.71e-2		
300	5.07e-2		
500	5.95e-2	4.16e-2	4.Ole-2
1000	8.66e-2	5.62e-2	3.80e-2
2000	1.08e-l		
5000	1.14e-l	1.09e-l	
6000	1.13e-l		

Average depth (mean range) in Ä of O implanted in WO 3 on W
only low fluence !
ne= 9, na= 1. n(dx)= 3

<table>
<tr><th>dx (A)</th><th>10</th><th>15</th><th>25</th></tr>
<tr><td>E o (eV)</td><td></td><td></td><td></td></tr>
<tr><td>50</td><td></td><td></td><td>5.30e-|-0</td></tr>
<tr><td>100</td><td></td><td>8.10e4-0</td><td>8.17e+0</td></tr>
<tr><td>200</td><td>l.lle+1</td><td></td><td></td></tr>
<tr><td>300</td><td>1.41e + l</td><td></td><td></td></tr>
<tr><td>500</td><td>1.92e + l</td><td>1.86e4-l</td><td>2.01e4-l</td></tr>
<tr><td>1000</td><td>2.86e+l</td><td>2.82e-|-l</td><td>2.96e-f-l</td></tr>
<tr><td>2000</td><td>4.75e+l</td><td></td><td></td></tr>
<tr><td>5000</td><td>8.05e+l</td><td>7.63e+l</td><td></td></tr>
<tr><td>6000</td><td>9.80e+l</td><td></td><td></td></tr>
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