

Characterisation of the SNIF Ion Source

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Measurements have been made of the extracted H⁻ current and co-extracted electron current from the SNIF negative ion source. The dependence of these currents on RF power, plasma insert bias voltage and source filling pressure have been measured. In all cases the ratio of co-extracted electron current to negative ion current is less than unity. During parameter scans data was collected using a high resolution spectrometer viewing the extraction region of the non-caesiated source in order to attempt to understand the low ratio of co-extracted electrons to negative ions.. Data was collected for the atomic Balmer series and in the molecular Fulcher range. A coronal model and a collisional radiative model have both been applied to this data to improve understanding of the conditions in the extraction region from calculated gas and electron temperatures. The results are presented here. Plans for further diagnostic improvements on SNIF are also discussed.

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Desired Presentation (pick one):

Poster

Topic (pick one):

H⁻ and D⁻ sources for fusion, accelerators and other applications

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