

REAL CATALYSIS OVER SINGLE CRYSTALLINE MODEL OXIDE FILMS. **R. Schlögl**, W. Weiss,
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The progress in surface science has made it possible to investigate complex technical reactions with *in-situ* analytical methods using model systems which comprise the complexity of technical catalysts. A solid surface is considered as a model when its structure and reactivity is known. These informations were aquired with a series of binary and potassium containing ternary iron oxide films. Such systems are used technically for the dehydrogenation of ethylbenzene to styrene. The description of synthesis, growth modes and surface terminations will be followed by a discussion of the reactant chemisorption at surfaces with controlled defect properties. It occurs that both phase and defect state are critical for the catalytic function. Based on additional spectroscopic and catalytic experiments a mode of action of the systems will be discussed which takes into account all known facts from the macrokinetic analysis of the technical process.