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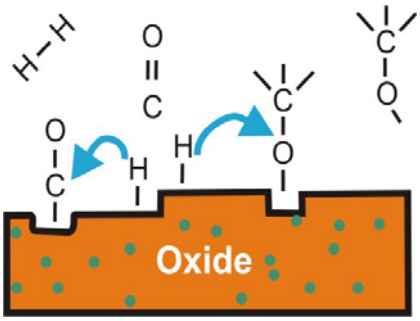

SFB 558
„Metall-Substrat-Wechselwirkungen in der heterogenen Katalyse“

Einladung
zum Vortrag von

Prof. Dr. Shirley Chiang
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(Gast von Prof. Wöll)

“Structures and Phase Transitions of Metals on Ge(111) by LEEM and STM”

We have recently used both low energy electron microscopy (LEEM) and scanning tunneling microscopy (STM) to study the structures and surface phase transitions for Pb, Ag, and Au adsorbed on Ge(111). Our LEEM results show that the (√3x√3)R30°-β ⇔ (1x1) phase transition on Pb/Ge(111), even though it is first-order, is characterized by the thermal fluctuations of well-defined domains throughout the coexistence region (170-190°C). We have used LEEM to follow the phase transformation in real time and to explore the phase diagram of the system. For Ag on Ge(111), STM data show regions with several different known structures, the (4x4) with 0.375 ML coverage, the (√3x√3)R30° structure with 1ML coverage, and small regions of (3x1) structure. LEEM videos show that the (4x4) phase grows with a high dependency on surface steps and faceting of the surface as the phase grows from the steps. Although LEEM images show a disordered phase with no contrast near the desorption temperature, both the (4x4) and (√3x√3)R30° phases recondense on the surface when it is cooled. For Au on Ge(111), both STM and LEEM data show the expected Stranski-Krastanov growth mode with small islands of Au nucleating near step edges at low coverage. LEEM data also show hopping of 3D sub-micron sized islands at 400ºC and phase fluctuations at the boundaries of regions of different structures of Au on Ge(111) at 620ºC.

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Zeit:	**14 c.t.**
Ort:	**HNC 5/99**

Gäste sind herzlich willkommen.