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Frontiers in Catalysis Science and Engineering
Seminar Series

# Model Systems in Heterogeneous Catalysis at the Atomic Level


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**Friday, April 7, 2017**
**10:00am**
**EMSL Auditorium**

Thin single crystalline oxide films comprise perfect supports to grow nanoparticles of metals and other catalytically relevant materials. The model systems thus created can be thoroughly investigated with respect to structure and/or chemical activity applying techniques of surface science under ultrahigh vacuum conditions as well as the traditional techniques applied in catalysis to study chemical kinetics under ambient conditions. It is possible to image active sites at the metal nanoparticles, oxide interface and relate this directly to variations in the electronic structure.

While oxide films are prepared as single crystalline films in order to clearly report on structure-reactivity relationships, we have demonstrated for the case of a silica film that, both its crystalline as well as vitreous structure could be atomically resolved opening avenues to investigate heterogenized homogeneous catalysts, which are often based on amorphous silica supports.

U.S. DEPARTMENT OF ENERGY

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