

# EINLADUNG

zum Vortrag  
von

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**Model Studies in Heterogeneous Catalysis and Energy Technology**

am

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## **Abstract:**

Cerium-oxide-based catalytic materials are among the most fascinating ones in environmental and energy technology, with applications ranging from exhaust catalysis via hydrogen production to fuel cell technology. Their surface nanostructure is the key to control and tune their surface reactivity. When used as supports for noble metal nanoparticles, it is the oxide nanostructure which controls the energetics of spillover and reverse spillover processes. But most importantly, the support nanostructure also controls the dispersion of the supported noble metal itself. In the ultimate limit, nanostructured ceria supports even allow the preparation thermally stable atomically-dispersed noble metal catalysts. Following a surface-science approach, we develop up a hierarchy of model systems for such catalytic materials. Using these models, detailed insights into their geometric and electronic structure, stability, adsorption properties, and reactivity are obtained from ultrahigh vacuum to realistic reaction conditions.

**FWF SFB F45 „Functional Oxide Surfaces and Interfaces (FOXSI)“**

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