

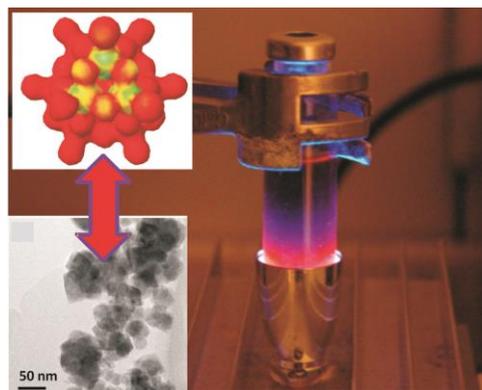
Institute of Energy Technology – Professorship of Renewable Energy Carriers***Invitation to a Seminar***

Date: Wednesday, October 24, 2012
Time: 16:00-17:00
Place: Maschinenlaboratorium ETH Zürich, ML-J25/26

Speaker: **Prof. Greta R. Patzke**
Institute of Inorganic Chemistry
University of Zurich
www.patzke.ch

Title: On the Way to Water Treatment and Oxidation

Abstract – Oxide nanomaterials and polyoxometalate (POM) clusters are emerging as key materials to secure urgent environmental and energy resources. We develop visible-light-driven oxide catalysts for wastewater treatment and water splitting with straightforward hydrothermal procedures, starting from abundant elements. The underlying mechanisms of the synthetic processes are further elucidated with in situ techniques in order to acquire information for technical scale-up and informed catalyst design. This comprehensive concept will be demonstrated for selected examples of Bi-based water treatment catalysts. For the challenging task of visible-light-driven chemical water oxidation, we pursue complementary approaches, i.e. heterogeneous oxide-based water oxidation catalysts (WOCs) and homogeneous POM-WOCs. The performance of Co/Mn-containing oxide and molecular WOCs will be compared. Pros and cons of molecular vs. solid state concepts will be discussed with special emphasis on the open question of catalytically active species. The seminar will be concluded with our current activities in the synthesis of CeO₂-based materials for thermochemical water splitting as a most promising and direct strategy towards clean solar energy.



The quest for WOCs: POMs vs. oxides.

Biosketch – Greta R. Patzke received her Diploma in 1997 and her PhD *summa cum laude* in 1999 from the University of Hannover. Her work on the synthesis, characterization and properties of mixed oxides was supported by the Studienstiftung des Deutschen Volkes. In 2000, she moved to ETH Zürich, working towards her Habilitation thesis including structural inorganic chemistry, nanomaterials synthesis and the systematic application and investigation of hydrothermal techniques (mentor: Prof. Reinhard Nesper). She received the Venia Legendi for Inorganic Chemistry from ETH Zürich in October 2006. Since summer 2007, Greta Patzke is Assistant Professor (Tenure Track) of Inorganic Chemistry at the University of Zürich, Switzerland, endowed with a Förderungsprofessur of the Swiss National Science Foundation. Her group is focused on the systematic development of oxide materials for environmental applications, especially photocatalysts and gas/humidity sensors.

