

## Vortragsankündigung

17. September 2018, 15:00 s.t.

Seminarraum I (JAK2AOG1.33), Jakob-Haringer-Straße 2a

### Prof. Ryan M. Richards

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## Nanostructured materials with unique catalytic properties.

The preparation of nanoscale materials is one of the most exciting areas of modern science and is at the forefront of the quest for a sustainable future. The field of nanotechnology has generated a great deal of interest primarily because on this size scale numerous new and potentially useful properties have been observed. These size dependent properties include melting point, specific heat, surface reactivities, catalytic, magnetic, and optical properties. In particular, the Richards' group is working on new synthetic methods to control the size, shape and composition of nanoscale materials and applying them in systems integral to alternative energy technologies, pharmaceuticals, biomass upgrading, batteries, petrochemicals and environmental cleanup. Recently, the Richards' research group has developed techniques to produce a number of new nanoscale materials that have demonstrated unique catalytic activities through controlled faceting as well as novel intercalation strategies that impart robustness. Here, an overview of the recent highlights regarding these materials and their application in catalytic applications will be presented.

Biosketch: Ryan Richards is a Professor of Chemistry and Associate Vice President for Research at the Colorado School of Mines and holds a joint appointment at the National Renewable Energy Laboratory both in Golden, Colorado USA. Prof. Richards received his BS from Michigan State University, BS Central Michigan University and Phd from Kansas State University (advisor Kenneth Klabunde). During his Phd studies he was a visiting scientist at the Borekov Institute of Catalysis in Novosibirsk, Russian. From 2000-2002 he was Max Planck Fellow at the Max Planck Institute fuer Kohlenforschung in Muelheim, Germany. In 2002 Ryan joined the International University of Bremen (later changed to Jacobs University Bremen) where he was promoted to associate professor before moving to Mines in 2007. The Richards group has made a broad range of contributions to the field of inorganic nanoscience in the areas of nanoparticle preparations (metal and metal oxides), in situ spectroscopy, porous materials and catalysis. Prof. Richards has published more than 140 papers, 7 patents and has served as editor/co-editor of 3 nanoscience books. He has received numerous awards throughout his career including being selected as a **Fellow of the American Chemical Society** and 2016 ACS Colorado Section Research Award. Prof. Richards has been elected by his peers into numerous positions including: Co-Chair of 2017 NAM of the North American Catalysis Society (the largest catalysis conference in North America); 2011 ACS Chair of Nanoscience; 2012 Chair Colorado Section of ACS; and ACS Nanoscience Programming Chair 2011-2015.