

EINLADUNG

zu den Kolloquien des Instituts für Technische Chemie und Polymerchemie, des Helmholtz-Kollegs Energie-Relevante Katalyse sowie der Freunde der Chemischen Technik Karlsruhe e.V. im Sommersemester 2019. Die Kolloquien finden statt:

freitags, um 14.30 Uhr im Hörsaal 006, Gebäude 11.21

18.10.2019 Prof. Dr. Canan Karakaya, Colorado School of Mines, Golden, CO, USA

“Catalytic gas-to-liquid technologies: Detailed chemical kinetics as a tool for process intensification”

Sondertermin:

Di, 28.01.2020, 13:00 Uhr, Geb. 11.21, HS006

Prof. Dr. Miguel A Banares; CSIC-Instituto de Catalisis, Madrid, Spain:

“The operando methodology to understand structure-activity relationships in catalytic oxidation reactions”

**Die Dozenten
des Instituts für Technische Chemie
und Polymerchemie**

EINLADUNG

zu einem gemeinsamen Kolloquium des Instituts für Technische Chemie und Polymerchemie, des Helmholtz-Kollegs Energie-Relevante Katalyse sowie der Freunde der Chemischen Technik Karlsruhe e.V.

Prof. Dr. Canan Karakaya

Colorado School of Mines, Golden, CO, USA

Catalytic gas-to-liquid technologies: Detailed chemical kinetics as a tool for process intensification

Dr. Karakaya is currently a Research Assistant Professor at Colorado School of Mines, Mechanical Engineering Department. She earned her PhD degree in Technical Chemistry and Polymer Chemistry Department at Karlsruhe Institute of Technology in Germany under the supervision of Prof. Olaf Deutschmann in December, 2012. Her PhD thesis focused on developing heterogeneous reaction mechanisms for reforming of methane and propane over Rh catalysts.

After completing her PhD degree, Dr. Karakaya accepted a Postdoctoral fellowship in February 2013, at Colorado School of Mines and worked under the supervision of Prof. Robert J. Kee. Since January 2016, she is working as a Research Assistant Prof at CSM. Her research focuses on fuel conversion technologies broadly on catalytic gas-to-liquid technologies. Her research topics include heterogeneous catalysis and catalytic applications such as methane reforming technologies, methane dehydroaromatization, oxidative coupling of methane, ammonia synthesis, membrane coupled catalytic reactors, supercritical fluid applications, micro and macro kinetic modeling of catalytically reactive flow, SiC-epi growth with CVD. Dr. Karakaya's talk will address her current efforts on bridging fundamental catalytic science and developing commercial scale GTL technologies with the emphasis of process intensification. She will summarize her recent research on methane dehydroaromatization, bi-functional Ni/BZY catalysts, oxidative coupling of methane and ammonia synthesis.

A specific focus will be on reviewing the state-of-the-art in catalytic processes to convert methane (a major component of natural gas) to more valuable hydrocarbons as fuels or chemicals by exploring the alternative technologies.

Because of methane's chemical stability, all practical processes require elevated temperature (e.g., $T > 700^\circ\text{C}$) and catalysts to activate the methane. Some approaches are mature and widely practiced at the commercial scale (e.g., steam reforming and Fischer-Tropsch synthesis). Others are emerging, based on laboratory-scale experimentation (e.g., methane dehydroaromatization). In all cases, the present talk is concerned with aspects of developing catalytic processes and chemical kinetics for process intensification, seeking chemical methods and reactor implementations that can improve overall performance.

Zeit/Ort Freitag, 18.10.2019, 14.30 Uhr in Hörsaal 006, Gebäude 11.21, KIT Campus Süd
Engesserstr. 20, 76131 Karlsruhe

Sprache: Englisch

Organisation:

Prof. Rainer Suntz (rainer.suntz@kit.edu), Prof. Olaf Deutschmann (deutschmann@kit.edu)