



Advertisement of a PhD vacancy

at the department “Catalyst Discovery and Reaction Engineering” at the Leibniz
Institute for Catalysis at the University of Rostock

404-01/2017

The Leibniz Institute for Catalysis at the University of Rostock (LIKAT) is one of the leading European publicly-funded institutes focusing on the research and development of homogeneous and heterogeneous catalysts, as well as of catalytic processes and technologies. LIKAT conducts projects of application-oriented basic research and applied research and cooperates with industrial companies and research institutes worldwide.

The offered vacancy is in the frame of a project funded by DFG. This project will deal with development of environmentally friendly and cost-efficient catalysts based on bulk materials (ZrO_2 and TiO_2) for non-oxidative dehydrogenation of propane and isobutane. In comparison with typical supported catalysts, lattice defects on the surface of the bulk material are the catalytically active sites. They are coordinatively unsaturated metal cations ($Me_{CUS} = Zr$ or Ti). The main fundamental questions to be answered are the effects of the host oxide (ZrO_2 vs. TiO_2) and the metal oxide promoter (e.g. K_2O , La_2O_3 , or CeO_2) in the host oxides on (i) formation of surface Me_{CUS} and (ii) the activity, on-stream stability and particularly selectivity of such catalysts. In order to reach the project aims, the following experimental and theoretical methods will be applied: i) continuous-flow fixed-bed reactors operating in parallel, ii) transient techniques (Temporal Analysis of Products Reactor, Switch tests with spatial- and time-resolved in-situ catalyst characterization by UV-vis spectroscopy), iii) standard characterization methods (XPS, XRD, BET, Raman, and IR spectroscopy), and iv) kinetic modeling of steady-state and transient experiments.

We are looking for motivated researches having a diploma degree or a master's degree in chemical engineering or chemistry with a strong background in synthetic inorganic chemistry, physical chemistry and/or heterogeneous catalysis. The candidate should be committed to research and have proficiency in written and spoken English. It would also be appreciable if the applicant were familiar with gas chromatographic and mass spectroscopic analysis and had good computer skills (MS Office, Origin) preferably including programming (Fortran, Python). Women are encouraged to apply.

We offer a challenging PhD position in an international research group in an excellent environment at the LIKAT Rostock. The position with a working time of 26 hour per week is available from now on and is limited to 3 years. The salary is based on public service rates of the German states (EG13 TV-L, 65%).

Highly motivated applicants are kindly asked to submit their application letter together with a detailed CV and a copy of the masters/diploma certificate with reference “Dehydrogenation” as an e-mail (in one pdf file) stating the reference number **404-01/2017** to evgenii.kondratenko@catalysis.de.

The application deadline is the **31st of October 2017**. LIKAT support professional equality of women and men and so applications from women are most welcome. Because in this sector of LIKAT women are underrepresented preference will be given to women with equal qualification.