



PhD Position (m/f/d)

Sustainable transformation of biomass platform molecules to valuable C₁ building blocks by selective heterogeneous catalytic oxidation and amination

403-01/2020

The Leibniz Institute for Catalysis (LIKAT) with approx. 300 employees and guests is one of the leading European research institutions in the field of catalysis. LIKAT is a competent partner for the research and development of homogeneous and heterogeneous catalysts as well as catalytic processes and technologies. LIKAT's focus is on application-oriented basic research and applied research. Therefore, it cooperates with industrial companies and research institutes worldwide.

The research department „Catalytic In situ Studies“ offers a PhD position for three years in a new DFG-NSFC project.

Currently, most biomass transformation processes lead to a distribution of several C_n (n≥1) products which requires costly separation. The major aim of this project is to convert biomass-derived platform molecules by oxidative C-C cleavage selectively to simple C₁ molecules (HCHO or HCOOH) with a high potential as building blocks for chemical synthesis and/or energy storage. To this end, bifunctional supported Cu-based catalysts with different surface acid-base properties and different size of the active Cu sites will be developed. Furthermore, the one-pot conversion of the resulting C₁ molecules with methanol or dimethylamine to HCOOMe or DMF will be studied using catalysts that contain, besides Cu, a second metal known to catalyze C-O or C-N bond formation. The project is performed in collaboration with Prof. Feng Shi (Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences) and includes mutual annual research visits.

The major tasks of the PhD student working at LIKAT comprise comprehensive studies on structure-reactivity relationships including the application of various in situ/operando spectroscopic methods for identifying active sites and reaction mechanisms to derive rules for optimizing catalysts towards the formation of desired target products.

We offer a challenging PhD position in an international research group in an excellent environment at the LIKAT Rostock. This position with a working time of 26 hours per week is limited to 3 years. Place of work is Rostock. The salary is based on public service rates of Germany (EG 13).

LIKAT supports professional equality of women and men and so applications from women are most welcome. As women are underrepresented in this sector of LIKAT preference will be given to women with equal qualification. Disabled applicants with equal qualification and aptitude will be given preferential consideration

If you are interested, please send your application documents (in one pdf file with a maximum size of 25 MB) including certificates, CV, contact data of two referees and stating the reference number **403-01/2020** to bewerbungen@catalysis.de

For topic related questions, please contact Prof. Dr. Angelika Brückner, Head of Research Department “Catalytic In situ Studies“ (Angelika.brueckner@catalysis.de) or Phone:+49 (0)381 1281 244 directly.

Please note that application and travel costs cannot be reimbursed.