Hanse Chemistry Symposium 2019
Joint Symposium ‘Future Trends in Sustainable Catalysis’ LIKAT / UK Catalysis Hub

Changing industrial production of chemicals and materials from polluting stoichiometric methods to sustainable catalytic production based on renewable feedstocks is a tremendous challenge.

The Leibniz Institute for Catalysis, LIKAT Rostock and the UK Catalysis Hub are joining forces to address this problem. The envisaged long-term collaboration will start with a symposium about present challenges and future solutions in this exciting field.

LIKAT is one of the largest publicly-funded research institutes in Europe in the area of applied catalysis. Its areas of expertise are arranged both according to the various methods employed and according to the materials being studied. The main objectives of LIKAT's scientific projects range from the acquisition of new knowledge in catalysis research (and its applications) to technical utilisation of such new knowledge. The strategic goals of LIKAT are to define and shape the development of relevant catalysis research for areas of economic activity which hold potential for the future, and also to put into effect new catalysis-based applications in these areas.

The UK Catalysis Hub is Consoritum of British universities involved in Catalysis research lead by Cardiff, Bath and Manchester. UK catalytic science currently has a strong presence, but there is a need for UK industrial activity to shift towards new innovative areas posing major challenges for the future. In light of these challenges the UK Catalysis Hub has evolved in a leading institution, both nationally and internationally, in the field and acts to coordinate, promote and advance the UK catalysis research portfolio, with a strong emphasis on effective use of the world-leading facilities on the RAL campus.

Thursday 16th May in the LIKAT (HRO, Albert-Einstein-Str. 29a, R 1.311)

Session 1
Chair: Matthias Beller

09:00 Chris Hardacre, University of Manchester; Hydrogen production using photocatalytic and non-thermal plasma catalytic methods

09:45 Volker Brüser, INP Greifswald; Conversion of CO₂ and hydrocarbons to value-added chemicals using plasma-assisted catalysis

10:15 Evgenii Kondratenko, LIKAT Rostock; Active sites, design and performance of supported VOₓ-based and bulk ZrO₂-based catalysts for alkane dehydrogenation

10:45 Coffee break
Session 2  
Chair: Graham Hutchings

11:15  
Jan von Langermann, University of Rostock; Integration of Separation Techniques into Biocatalytic Processes for the Synthesis of Enantiopure Compounds

11:45  
Sebastian Wohlrab, LIKAT Rostock; Methane conversion beyond traditional routes

12:30  
Lunch and poster session

Session 3  
Chair: Ralf Ludwig

14:00  
Andy Marr, Queens University Belfast; Catalysis in Soft Matter: Entrapping homogeneous catalysts, acids and bases in ionic liquid gels

14:30  
Amanda Jarvis, University of Edinburgh; Artificial metalloenzymes for chemical synthesis

15:00  
Ulrich Hintermair, University of Bath; Mechanistic Insight into Homogeneous Catalysis from Multi-Nuclear High Resolution FlowNMR Spectroscopy

15:30  
Coffee break

Session 4  
Chair: Michael Lalk

16:00  
Haijun Jiao, LIKAT Rostock; Computational Understanding into Hydrogenation and Dehydrogenation Reaction Catalyzed by Well-Defined PNP Pincer Complexes

16:30  
Marta Falkowska, University College London; Total Neutron Scattering integrated with NMR to Study Heterogeneous Catalysis

17:00  
Esteban Mejia, LIKAT Rostock; Persistent Radical Cations as Catalysts for Aerobic Oxidative Amine Coupling Reactions

17:30  
Matt Davidson, University of Bath; Development of highly active, selective and robust initiators for industrial production of polylactide, PLA

18:15  
Dinner
Friday 17th May in the LIKAT (HRO, Albert-Einstein-Str. 29a, R 1.311)

Session 5  Chair: Adrian Mulholland

09:00  Matthias Höhne, University of Greifswald; Identification, optimization and creation of novel enzymes for synthesizing chiral building blocks

09:45  Arun Chutia, University of Lincoln; The local electronic properties of Cu, Au and CuAu clusters on the CeO$_2$(110) surface

10:15  Christoph Kubis, LIKAT Rostock; In situ spectroscopy and applied chemometrics for the study of kinetic and mechanistic aspects of alkene hydroformylation

10:45  Coffee break

Session 6  Chair: Paul Kamer

11:15  Paul Webb, University of St Andrews; Crystallite size effects in catalysis: Does the metal-support interface play a role?

11:45  Christian Hering-Junghans, LIKAT Rostock; Preparation and Reactivity of Bulky Pyridinediphosphaalkene Ligands

12:15  Jennifer Strunk, LIKAT Rostock; Photocatalytic CO$_2$ Reduction: Where to go from here?

13:00  End