

## 第46回触媒化学融合研究センター講演会

### “Supported Ionic Liquid Phase (SILP) Catalysis”

< 講師 >

Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU),  
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日時: 2017年 5月 23日(火) 16時から17時15分

場所: 産総研第5事業所 第2本館 第4会議室(5-2 6603室)

#### < 講演概要 >

Novel Supported Ionic Liquid Phase (SILP) materials consist of an ionic liquid, dispersed as a thin film on the inner surface of a highly porous solid material. By dissolving homogeneous transition metal complexes in the ionic liquid film, the SILP concept allows tailor making of solid materials with definite properties and a controlled chemical reactivity. Since the ionic liquid is dispersed on the inner surface of the support, a dry solid material is obtained. These materials can be handled like classical heterogeneous catalysts and are highly attractive for large scale applications. Due to the extremely low vapor pressure of ionic liquids, the SILP concept is especially suited for continuous gas-phase reactions. No leaching of ionic liquid and catalyst can occur via the gas-phase and the SILP catalyst remains intact under steady state conditions for more than 1000 hours time on stream. Since the catalyst is retained inside the reactor, only products and non-converted substrates leave the reactor, thus simplifying the downstream processing significantly.

In this contribution, the latest developments from our research with SILP catalyst materials for syngas applications are presented, including the hydroformylation of short alkenes using diphosphite modified rhodium catalysts, hydroaminomethylation of alkenes as a very atom-efficient and elegant synthesis route to aliphatic amines as well as the ultra-low temperature water gas shift (ULT-WGS) reaction.