

ENERGYPOLIS SEMINAR

15. 11. 2018, 10:30 – 11:30, ENERGYPOLIS Sion, 4th floor, ZEUZIER Seminar room

Liquid Organic Hydrogen Carriers (LOHCs) – Hydrogen storage in fuel-like manner

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Global logistics of renewable energy equivalents will create additional driving force towards a future hydrogen economy. However, the special nature of H₂ requires dedicated infrastructures and this has prevented so far its massive introduction to the energy sector.

Recent scientific and technological progress in handling hydrogen in chemically bound form as Liquid Organic Hydrogen Carrier (LOHC) supports the technological vision that a future hydrogen economy may work without handling large amounts of elemental hydrogen using the existing infrastructure for fuels. LOHC systems are composed of pairs of hydrogen-lean and hydrogen-rich organic compounds that store hydrogen by repeated, catalytic hydrogenation and dehydrogenation cycles.[1]

The presentation will highlight fundamental and applied aspects of LOHC hydrogenation and dehydrogenation catalysis and the related processes. It will focus on the development of optimized catalytic materials for LOHC hydrogenation/dehydrogenation, on LOHC charging with gas mixtures and on operational stability aspects gained from demonstration units. Application scenarios for stationary energy storage systems, hydrogen logistics and mobile applications will be discussed.

References:

[1] P. Preuster, C. Papp, P. Wasserscheid, *Acc. Chem. Res.* 2017, 50(1), 74-85.



CV: Prof. Peter Wasserscheid

4/1991 – 11/1995

Studies in Chemistry at RWTH Aachen, Germany

11/1995 – 5/1998

PhD thesis, RWTH Aachen with Willi Keim

04/1998 – 9/1998

Industrial Post-Doc, BP Chemicals, Sunbury, UK

10/1998 – 1/2003

Habilitation, Technical Chemistry, RWTH Aachen

Since 2003

Full professor at the Friedrich-Alexander-University Erlangen-Nuremberg (FAU), Germany, Institute of Chemical Reaction Engineering

Since 2014

In addition to position at FAU: Founding Director of the Helmholtz-Institute Erlangen-Nuremberg for Renewable Energy Production