

RUHR-UNIVERSITÄT BOCHUM
Fakultät für Chemie und Biochemie



RUB

Interdisciplinary Lecture Series Gemeinsames Kolloquium – Wintersemester 2012/13

In Cooperation with RESOLV



Thursday, 20.12.2012
17:15 hrs, Lecture Hall HNC 30

Prof. Dr. Johannes A. Lercher

TU München, Department of Chemistry and CRC, Garching, Germany
Pacific Northwest National Laboratory, Inst. for Int. Catalysis, Richland,
WA, USA

Elementary steps of catalytic conversions in water

Abstract: The high reactivity of lignocellulose constituents requires conducting not only the hydrodeoxygenation, but also reactions to cleave and form C-C bonds in water. The lecture describes the elementary steps of the metal catalyzed hydrogenation/dehydrogenation, decarboxylation as well as C-O bond hydrogenolysis and the acid catalyzed dehydration and alkylation reactions. The state of a noble (Pd) and a base metal (Ni) and its influence on the interaction with the reactants will be compared under reaction conditions using in situ X-ray absorption and IR spectroscopy in order to better understand the nature of the catalytically active sites and their potential degradation. Acid base reactions of light alcohols, but also of cyclohexanol and phenol in zeolites will be described in the presence and absence of water. We will discuss how the competition of molecules and water for acid sites influences rates and selectivities inducing positive and negative effects for the targeted catalytic reactions.

Gäste sind herzlich willkommen – Guests are most welcome!

gez. M. Wark
GSCB

gez. W. Sander
Dekan

gez. M. Muhler
GDCh