

THE PETROLEUM INSTITUTE DISTINGUISHED SCHOLARS SEMINARS

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Thursday, November 13, 2008
1300 – 1400 Hours
Room 2225, Bu-Hasa Bldg.

Organomolybdenum Complexes and Their Application in Oxidation Catalysis

The first organomolybdenum(VI) oxides were described during the 1960ies and 1970ies. However, despite the fact that methyltrioxorhenium(VII) (MTO) is probably the best examined organometallic oxide known, many of its Mo congeners were not tested for any applications. Nevertheless, it is known that several organomolybdenum oxides, particularly those of formula $h^5-(C_5R_5)MoO_2Cl$ and $h^5-(C_5R_5)MoO_2R'$ are powerful epoxidation catalysts if applied together with *tert*-butylhydroperoxide (TBHP).

Olefin epoxidation is an industrially important reaction, both for bulk chemicals and for special applications, e. g. intermediates for pharmaceuticals. For the latter application, which is leading to highly value added products chiral catalysts are of great importance. The above described molybdenum catalysts are easily available from molybdenum carbonyl starting materials. The heterogenization of the molybdenum based catalysts on carrier materials and in ionic liquids has already been achieved and it is to be expected that a proper modification of the organic ligands will lead to applications in chiral catalysis in the near future.

Fritz E. Kühn studied chemistry at the Technische Universität München (TUM), Germany, where he received his Ph. D. under the direction of W. A. Herrmann in 1994. After working as a postdoctoral research associate in the group of F. A. Cotton (Texas A & M University, USA) 1995/96 He performed his Habilitation (Assistant Professorship) in Munich, starting 1996 to become "Privatdozent" in 2000. From June 2005 to March 2006 he replaced W. A. Herrmann on the Chair of Inorganic Chemistry of the TUM. In February 2006 he was appointed Principal Researcher (Associate Professor) in the fields of Catalysis and Organometallic Chemistry at the Instituto Tecnológico e Nuclear (ITN) in Sacavém, Portugal. In December 2006 he was appointed Professor of Molecular Catalysis at the TUM in Garching, Germany. In 2007 he additionally took over the Chair of Inorganic Chemistry at the TUM, to replace Prof. W. A. Herrmann, the latter being President of the University. F. E. Kühn is author or co-author of more than 200 scientific papers and patents and has received several scientific awards.

For further information on this seminar contact Dr. Ghada Bassioni at # 75201.