FAKULTÄT FÜR CHEMIE

universität wien

Einladung zum Vortrag von

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„Development of advanced porous materials based on layered zeolites and surfactant-assisted synthesis methodologies”

Porous solids with well-defined molecular structures containing uniform channels with nanometer size across, which are called molecular sieves and are best exemplified by zeolites, have shown exceptional catalytic and sorption properties. They have found widespread use in many industrial processes for the conversion of hydrocarbons and selective separations. One of the most fruitful strategies for the synthesis of new molecular sieve materials has relied on addition of polar organic compounds to the oxide-based synthesis mixture as 'structure directing agents' (SDAs) promoting generation of new framework structures. Two new unexpected branches of development emerged from this effort in the 1990s – ordered mesoporous materials (OMM) obtained with surfactants acting as supramolecular SDAs and layered zeolites. The latter consist of thin layers, up to about 3 nm thick, which can produce various structures by different packing and post-synthesis modifications. The mesoporous materials were discovered while attempting to prepare a pillared derivative from the surprising layered precursor to zeolite MWW (MCM-22). They also showed great diversity of structures mimicking various liquid crystal phases with pore sizes adjustable from 2-10 nm and later up to 30 nm. Both branches have been developing in parallel but often intertwined and can be argued to have facilitated the expansion of Metal organic frameworks, MOFs. A recent example of the surfactant- layered zeolite 'synergism' has been the preparation by design of a layered form of zeolite MFI, the second most important and profitable zeolite. The talk will highlight evolution of both areas up to the present including some of the important issues that are yet to be solved and can lead to more promising accomplishments.

Freitag, 26. Mai 2017, 15:00 Uhr
Seminarraum 2
Währinger Straße 42, 1090 Wien

Wolfgang Kautek – Institut für Physikalische Chemie
Freddy Kleitz, Klaus Richter, Hans Flandorfer –
Institut für Anorganische Chemie – funktionelle Materialien

Bernhard Keppler Dekan	Lothar Brecker Vizedekan	Veronika Somoza Vizedekanin