

## EINLADUNG

zum Vortrag von  
**Prof. Dr. Patrick Huber**  
Experimental Physics,  
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### Soft Matter in Hard Confinement: How molecular fluids arrange in and huddle through, mesoporous solids

am Dienstag, 5. Oktober 2010, um 17.00 Uhr

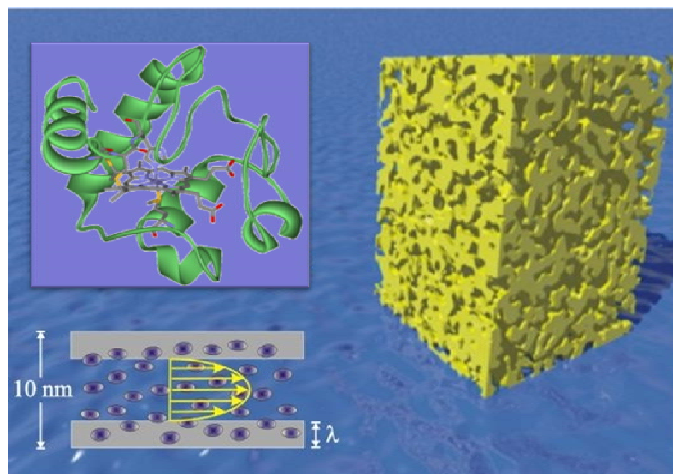
Ort: **Ernst-Mach-Hörsaal**, Fakultät für Physik, Universität Wien, **2. Stock**  
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5 - **bitte Hörsaal beachten**

*Barrierefreier Zugang: Boltzmannngasse 5, Lift, 2. Stock*

#### Abstract:

The properties of molecular assemblies confined in pores a few nanometers across play a dominant role in phenomena ranging from clay swelling, frost heave, oil recovery and catalysis, to colloidal stability, protein folding and transport in cells and tissues. Therefore the advent of tailorable nano- and mesoporous membranes, most prominently arrays of carbon nanotube bundles, of silicon, silica and alumina channels, has led to a growing interest in the equilibrium and non-equilibrium behavior of solids and liquids confined in such mesoporous environments.

In the first part of my talk I will present x-ray diffraction measurements on the crystallization and glass formation of molecular assemblies in monolithic porous silica and silicon as a function of the complexity of their basic building blocks (n-alkanes, n-alcohols, liquid crystals). The second part of my talk addresses dynamical phenomena in mesopores ranging from self-diffusion and liquid flow to pore translocation, as probed by neutron spin-echo spectroscopy, radiography and gravimetric imbibition experiments. Depending on the molecular species investigated (water, linear hydrocarbons, liquid crystals and proteins) a remarkable robustness of macroscopic concepts, however, also significant deviations from the bulk behavior are observable.



#### CHEMISCH-PHYSIKALISCHE GESELLSCHAFT

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Vorsitzender 2009/10: Ao.Univ.Prof. Dr. Wilfried Schranz, Nichtlineare Physik, Universität Wien