Oddělení fotochemie, spektroskopie a iontové chemie
a Oddělení teoretické chemie
ÚFCH JH AV ČR
Česká společnost chemická, OS chemická fyzika

srdečně zvou všechny zájemce na **mimořádný seminář zahraničního hosta**, na kterém promluví:

Hanns-Christoph Nägerl

(Institut für Experimental physik und Zentrum für Quantenphysik, Universität Innsbruck, Austria)

na téma

"Quantum Gas of Deeply Bound Ground State Molecules"

Abstract:
Molecular cooling techniques face the hurdle of dissipating translational as well as internal energy in the presence of a rich electronic, vibrational, and rotational energy spectrum. In our experiment, we create a translationally ultracold, dense quantum gas of molecules bound by more than 1000 wave numbers in the electronic ground state. Specifically, we stimulate a two-photon transfer of molecules associated on a Feshbach resonance from a Bose-Einstein condensate of cesium atoms. In the process, the initial loose, long-range electrostatic bond of the Feshbach molecule is coherently transformed into a tight chemical bond. We demonstrate coherence of the transfer in a Ramsey-type experiment and show that the molecular sample is not heated during the transfer. Our results show that the preparation of a quantum gas of molecules in specific rovibrational states is possible and that the creation of a Bose-Einstein condensate of molecules in their rovibronic ground state is within reach.

Seminář se koná v pondělí, **21. září 2009 v 14:00** hodin v **místnosti č. 108** Ústavu fyzikální chemie Jaroslava Heyrovského AV ČR, Dolejškova 3, Praha 8 – Kobylisy.

Jiří Pittner **Ondřej Votava**