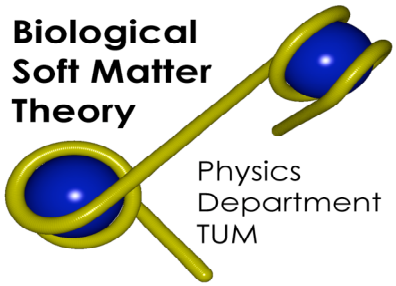

"Soft-Matter Seminar"

Prof. Robin Coté

Physics Department
University of Connecticut, Storrs

"Ultracold polar molecules: forming, trapping, cooling, and using them".

Abstract:

Ultracold molecules, and in particular polar molecules, are a new playground to study fundamental phenomena such as ultracold chemistry, detection of the electron dipole moment, or the behavior of degenerate gases with dipolar forces. This talk will focus on ultracold polar molecules. Their formation into deep bound levels of the singlet or triplet electronic ground states via photoassociation will be discussed. Because of their permanent dipole moment, one-photon stimulated formation directly from the continuum is possible. Comparison of the formation routes using one and two-photon processes, as well as the effect of Feshbach resonances on the formation rate, will be given. In addition, the use of evanescent-wave mirrors as controllable microtraps will be explored; such devices could trap and cool molecules. Finally, a promising new application of polar molecules to quantum information processing will be outlined.

Freitag, den 24.11.2006
14:00 s.t
B 0.22 des MPQ s

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