

## **EINLADUNG**

zum Vortrag  
von

**Prof. Dr. Yehiam Prior**

Department of Chemical Physics, Weizmann Institute of Science,  
Rehovot, Israel

### **Molecular Alignment by Ultrashort Pulses**

am

**Dienstag, 13. Dezember 2011, um 17:30 Uhr**

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,  
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

*Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals*

#### **Abstract:**

Control over the alignment of molecules in the gas phase provides an additional degree of freedom for selective manipulation of individual species in mixtures. Intense, femtosecond pulses of laser light induce in the molecules a dipole moment, which in turn interacts with the laser field and causes the molecules to rotate towards the direction of the laser electric field. Transient alignment results, which then disappears and revives periodically.

In this talk I will review the general topic of laser induced alignment of small molecules, introduce and discuss the concept of revival of alignment, and demonstrate how ultrafast transient alignment can be utilized for specific addressing of molecules in a mixture. Unidirectional molecular rotations will be discussed and shown to lead to the breaking of symmetry in an isotropic medium.

---

#### **CHEMISCH-PHYSIKALISCHE GESELLSCHAFT**

c/o Universität Wien, Fakultät für Physik, 1090 Wien, Strudlhofgasse 4/Boltzmannngasse 5, Austria  
Tel.: +43-(0)1-4277/51108 - Fax: ++43-(0)1-4277 9511 - E-Mail: [Christl.Langstadlinger@univie.ac.at](mailto:Christl.Langstadlinger@univie.ac.at)  
<http://www.cpg.univie.ac.at>

Konto: Bank Austria Nr. 08644408000 - BLZ 12000 - IBAN: AT22 1100 0086 4440 8000 - BIC: BKAUATWW  
Vorsitzender 2011/12: Univ.Prof.Dr. Günther Rupprechter, Institut für Materialchemie, Technische Universität Wien