

SONDERSEMINAR MPQ/LMU

- am:** October 27, 2010
- Uhrzeit:** 11 Uhr s.t.
- spricht:** **Kiyotaka Aikawa, M. Sc.**
Ph.D. Student, Research Fellow
Department of Applied Physics, Inouye Lab.
School of Engineering, University of Kyoto
2-11-16 Yayoi, Bunkyo-ku
113-8656 Japan
- Thema:** **Coherent Optical Transfer of Ultracold Photoassociated Molecules into the Rovibrational Ground State**
- Ort:** **Max-Planck-Institut für Quantenoptik,**
Hans- Kopfermann-Str. 1, D-85748 Garching,
Seminarraum B 0.22

gez. Prof. T.W. Hänsch

Abstract

Ultracold molecules are of great interest for their promising applications in physics and chemistry, including precision measurements, quantum computing, and novel quantum phases. We report on the formation of a rovibrationally pure sample of ultracold $41\text{K}87\text{Rb}$ molecules from laser-cooled 41K and 87Rb atoms via photoassociation followed by a stimulated Raman adiabatic passage (STIRAP) transfer. The narrow linewidth of the intermediate excited state for STIRAP made the transfer efficient despite the large spatial size of the untrapped molecular cloud. The high repetition rate of the experiment makes our all-optical scheme ideal for high-precision spectroscopy over a wide range.