

SPECIAL AMO PHYSICS SEMINAR

“Ultrafast control of Raman transitions: from CARS microscopy to molecular cooling”

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Abstract

Advances in laser technology stimulate the study of control of molecular dynamics. Applications are diverse and include the development of novel imaging techniques based on coherent anti-Stokes Raman scattering (CARS), which aims to reveal molecular specific structures. We will discuss novel methods in CARS microscopy which make use of femtosecond laser pulses in combination with quantum control methods. Another application is the implementation of an optical frequency comb for internal state cooling from Feshbach molecules. Optical frequency combs are being recognized as new and unique tools for high-resolution spectroscopic analysis as well as for controlling ultrafast phenomena in atomic and molecular physics. We will describe a theory of interaction of modulated optical frequency combs with ultracold gases aiming at creation of deeply bound ultracold polar molecules.

Thursday, October 14, 2010

2:00 p.m. IQSE 578

Mitchell Physics Building

**Texas A&M University
Institute for Quantum Science and Engineering**

(Coffee and cookies to be served 1:45 p.m.)