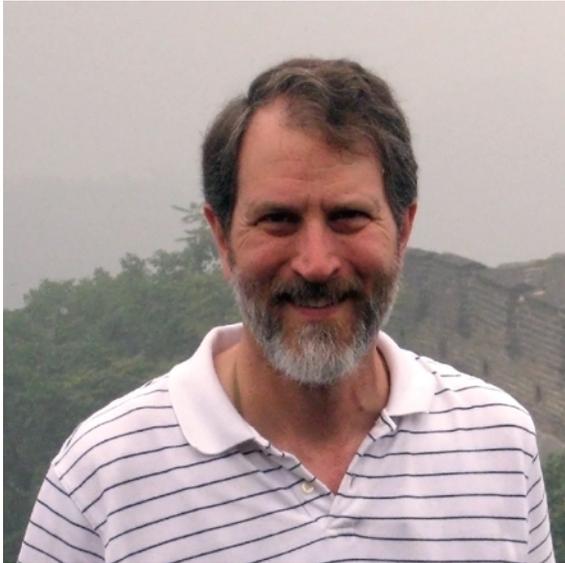


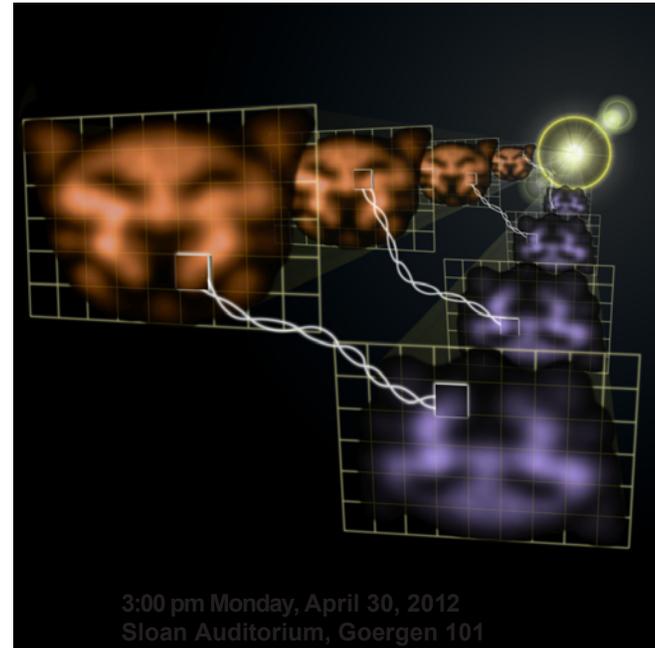
Manipulating Classical and Quantum Images with Four-Wave Mixing



Dr. Paul Lett

**NIST Gaithersburg, JQI U. Maryland
BS Marquette, PhD Physics, Rochester**

I will discuss our work in the area of “quantum imaging,” using four-wave mixing to generate and manipulate images. In particular, I will discuss the phase-insensitive and phase-sensitive optical amplifiers for images that we have constructed.



**3:00 pm Monday, April 30, 2012
Sloan Auditorium, Goergen 101
Refreshments served**

Manipulating Classical and Quantum Images with Four-Wave Mixing

Dr. Paul Lett

NIST Gaithersburg and Joint Quantum Institute, University of Maryland

Abstract: I will discuss our work in the area of “quantum imaging,” using four-wave mixing to generate and manipulate images. I will discuss how we can generate quantum-correlated images and use these to gain an advantage in various detection and metrology tasks. In particular, I will discuss the phase-insensitive and phase-sensitive optical amplifiers for images that we have constructed, as well as our work on optical memories for these images. Our goal is to be able to generate and manipulate quantum information in the form of images (parallel qubits) and to demonstrate a quantum memory for such images.

Biography: Paul Lett was born in Milwaukee, Wisconsin. He received a B.S. in physics and mathematics from Marquette University, and a Ph.D. in physics from the University of Rochester. In 1986 he moved to the U.S. National Institute of Standards and Technology (NIST; at the time the National Bureau of Standards) in the group of William D. Phillips. Since that time he has been involved in fundamental laser cooling and trapping experiments with neutral atoms and in the development of the technique of ultracold photoassociation spectroscopy. His present research projects include the study of sodium spinor Bose-Einstein condensates and 4-wave mixing in alkali vapors to generate non-classical light. Since 2008 he has been a NIST Fellow. Since 2006 he has also been a Fellow and Adjunct Professor of Physics in the Joint Quantum Institute, NIST/University of Maryland, College Park, MD.