



STANFORD INSTITUTE FOR MATERIALS & ENERGY SCIENCES
THE DIVISION OF MATERIALS SCIENCE AT SLAC

A Joint Institute of SLAC
and Stanford University

SEMINAR

FRIDAY, FEBRUARY 12, 2016, 11:00AM
BUILDING 40, ROOM 195, SLAC

MICHAEL SENTEF

MAX PLANCK INSTITUTE FOR THE STRUCTURE AND DYNAMICS OF MATTER, HAMBURG, GERMANY

HOST: PATRICK S. KIRCHMANN

DRIVING ORDER: THEORY OF ULTRAFAST DYNAMICS IN SUPERCONDUCTORS

Understanding the collective motion of electrons in solids and their interplay with lattice vibrations is a central goal of condensed matter physics. Time-domain spectroscopies with tailored laser pulses offer novel ways to manipulate emergent ordering phenomena in superconductors or charge-density waves. Here I will show recent progress in the theoretical description of ultrafast dynamics in superconductors. Motivated by experiments that control electrons via resonant driving of the crystal lattice, I will show how light-enhanced superconductivity plays out in the time domain. In the second part, I will show preliminary results regarding laser control of competing superconducting and charge-density wave states.

