

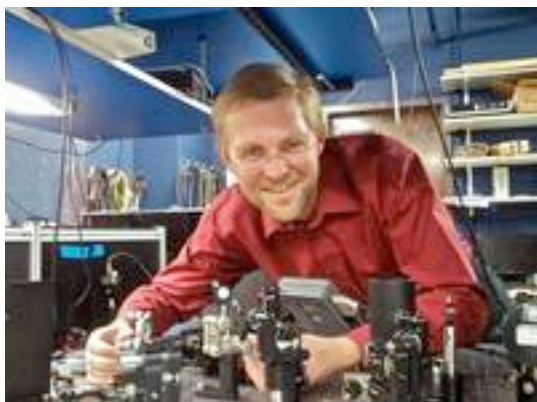
# Physical Chemistry Seminar

Tuesday,  
February 18, 2014

11:00 am

Room 1315  
Chemistry Building

## ***Ultrafast nano-optics: accessing structure, function, and dynamics of matter on its natural length and time scales***



Professor Markus Raschke

*Department of Physics & Chemistry  
University of Colorado at Boulder*

Host: Professor Marty Zanni

Structure, function, and dynamics of matter are the result of an intricate interplay of its elementary excitations defined on femtosecond time and mesoscopic nanometer length scales. This gives rise to often complex phase behavior in soft matter as well as quantum phases in correlated electron materials with competing atomic scale short-range as well as mesoscopic nano-scale interactions. I will discuss our developments and applications of new nano-optical spectroscopies to probe those interactions providing microscopic insight into otherwise difficult to probe processes in soft- and correlated matter. Our approach is based on the combination of plasmonic and optical antenna concepts with ultrafast and shaped laser pulses to achieve precise control of an optical excitation on the nanometer-femtosecond scale. I will introduce the enabling principles based on new regimes of near-field light-matter interaction in terms of impedance matching and control of a quantum system.

Refreshments will be available prior to the seminar at 10:45 a.m. outside room 1315

Graduate Students may meet with the speaker at 1:00 p.m. in Room 8335