



**Monday, July 13<sup>th</sup> 2015 - 15:00**  
**CFEL, Bldg. 99, SR III, EG 080**

## Michael Sentef

Max Planck Institute for the Structure and Dynamics of Matter,  
Theory Department

## Theory of light-enhanced phonon-mediated superconductivity

In this talk, I will discuss our recent preprint (arXiv:1505.07575), in which we investigate the dynamics of a superconductor driven via a temporal change of the electronic hopping, which mimicks the effect of a resonant THz light pulse transiently modifying the lattice through nonlinear phonon coupling. The induced increase of the density of states near the Fermi-level leads to an enhancement of superconductivity. We provide a time- and momentum-resolved view on the interplay of slow order parameter dynamics and fast single-particle scattering. The importance of electron-phonon coupling for the rapid enhancement and the efficient thermalization of superconductivity is demonstrated.

Host: Andrea Cavalleri

