European XFEL Theory Seminar

Thursday, 8th of February 2018, 17:00

Campus Schenefeld, main building (XHQ) room E1.172

Rui Emanuel Ferreira da Silva

Max Born Institute for Nonlinear Optics and short Pulse Spectroscopy, Berlin

High harmonic spectroscopy of ultrafast many-body dynamics in strongly correlated systems

This work brings together two topics that, until now, have been the focus of intense but non-overlapping research efforts. The first concerns high harmonic generation in solids, which occurs when intense light field excites highly non-equilibrium electronic response in a semiconductor or a dielectric. The second concerns many-body dynamics in strongly correlated systems such as the Mott insulator. Here we show that high harmonic generation can be used to time-resolve ultrafast many-body dynamics associated with optically driven phase transition, with accuracy far exceeding one cycle of the driving light field. Our work paves the way for time-resolving highly non-equilibrium many body dynamics in strongly correlated systems, with few femtosecond accuracy.

Host:Evgeny Gorelov