Seminar: Hard Condensed Matter Theory

JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Room: Galilei Raum, 01-128 (Staudinger Weg 9)
Time: May 16th, 2017 at 14:00

Peter Oppeneer

Department of Physics and Astronomy, *Materials Theory*
Box 516
751 20 UPPSALA, Sweden

Ultrafast magnetism: Recent theory developments

Ultrafast magnetism has become an area of intensive investigations, following the seminal discovery of ultrafast laser-induced demagnetization 20 years ago in Strasbourg. The fundamental mechanisms of ultrafast demagnetization have not unambiguously been uncovered and continue to be debated.

In this seminar I shall present recent theoretical work that aims to quantify how much spin-dissipation mechanisms such as Elliott-Yafet electron-phonon spin-flip scattering, ultrafast magnon generation and superdiffusive spin transport could contribute.

In addition, I shall discuss other recent theoretical contributions to the field, to mention, ab initio theory for all-optical switching, derivation of the Landau-Lifshitz-Gilbert equation from the fundamental Dirac equation, relativistic theory of spin-photon interaction, and recent theory to go beyond the two-temperature model for describing femtosecond laser-excitation of solids.

All interested are cordially welcome!
