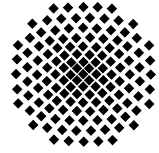


Stuttgarter Physikalisches Kolloquium

Max-Planck-Institut für Intelligente Systeme
Max-Planck-Institut für Festkörperforschung
Fachbereich Physik, Universität Stuttgart

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Dienstag, 26. Juni 2012

17.15 Uhr

Hörsaal 2 D5

Stuttgarter Max-Planck-Institute, Heisenbergstraße 1, 70569 Stuttgart-Büsnau

Gastgeber: Prof. Gisela Schütz, Max-Planck-Institut für Intelligente Systeme, Telefon: 0711 - 689-1950

Ultrafast optical control of magnetism

Martin Aeschlimann

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Abstract

Rapid progress in ultrafast X-ray science worldwide, both in high-harmonic and X-ray free electron laser sources, has paved the way for a completely new generation of experiments investigating ultrafast processes in all areas of science. Femtosecond and attosecond pulses are now available spanning the extreme ultraviolet and soft X-ray regions of the spectrum that are perfectly synchronized to a laser. The focus of our research is to explore ultrafast dynamics in materials at fundamental timescales where all elementary processes can be captured, even at the level of electrons.

In my talk, I will present results regarding the exchange of energy and angular momentum between electron phonon and spin system in different ferromagnetic systems after an intense fs-laser pulse excitation. Using femtosecond soft X-ray pulses we were able to investigate the breakdown of the magnetic coupling in heterogeneous magnetic materials on ultrafast timescales.