Stuttgarter Physikalisches Kolloquium

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

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Dienstag, 5. November 2013 | **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

Nano-small and Femto-fast: Dynamic Magnetic Objects seen by X-Ray Holography

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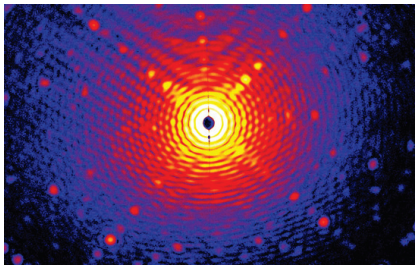
Abstract

Due to the small wavelength, imaging with X-rays allows to resolve structure on the nanometer scale. In addition, resonant scattering enables us to use special contrast mechanisms for image formation, e.g. in order to see the magnetic structures. Finally, the recent and rapid development of X-ray lasers has made ultrashort and coherent X-ray pulses available, which are nevertheless intense enough to allow for the study of ultrafast dynamic phenomena. As X-ray holography benefits from the coherence and brightness of these pulses, it is an ideal tool for the study of nanosecond to femtosecond dynamics on nanometer lengthscales.
Recent developments in this field are presented. In addition to explaining basic concepts and methods of X-ray holography, the focus is on the study of the nanomagnetic objects on different time scales, including e.g. the gyration behavior of magnetic skyrmions and spatial effects in ultrafast light-induced demagnetization.



Hologram encoding the magnetization state of a bit patterned magnetic data storage medium