AKjDPG 1: Tutorial: Careers in Science (joint session AKjDPG/TUT)

Sunday 16:00–17:15 HSZ 02

Tutorial AKjDPG 1.1 Sun 16:00 HSZ 02
Careers in science: "To boldly go where no one has gone before" — •Manfred Fiebig

SYAS 1: Attosecond and Coherent Spins: New Frontiers

Ultrafast magnetism, attosecond lasers and methods using x-ray pulses to explore structural dynamics are reaching new limits. This session is dedicated to new developments and recent major recent milestones, from hard x-ray bunches to attosecond pulses, breaking new frontiers and time records, towards the observation to study coherent spin processes. This phenomena is originating from coherent charge transfer, driven by a few cycle laser pulse, and is relevant for all materials and interfaces, from semiconductors, metals to molecules. Examples for these systems will be demonstrated.

Monday 15:00–17:45 HSZ 02

Invited Talk SYAS 1.1 Mon 15:00 HSZ 02
Ultrafast Coherent Spin-Lattice Interactions in Ferromagnets — •Steven L. Johnson

Invited Talk SYAS 1.2 Mon 15:30 HSZ 02
Ab-initio treatment of ultrafast spin-dynamics — •Sangeeta Sharma

Invited Talk SYAS 1.3 Mon 16:00 HSZ 02
Light-wave driven Spin Dynamics — •Martin Schultze

15 min. break.

Invited Talk SYAS 1.4 Mon 16:45 HSZ 02
All-coherent subcycle switching of spins by THz near fields — •Christoph Lange

Invited Talk SYAS 1.5 Mon 17:15 HSZ 02
Ultrafast optically-induced spin transfer in ferromagnetic alloys — •Stefan Mathias

SYCL 1: Curvilinear Condensed Matter

Physical properties of living but also synthetic systems in condensed and soft matter are determined by the interplay between the physical order parameters, geometry and topology. Specifically to condensed matter, spin textures, static and dynamic responses become sensitive to bends and twists in physical space. In this respect, curvature effects emerged as a novel tool in various areas of physics to tailor electromagnetic properties and responses relying on geometrical deformations. Until recently, the impact of a curvature on electronic and magnetic properties of solids was mainly studied theoretically. The remarkable development in nanotechnology, e.g. preparation of high-quality extended thin films and nanowires as well as the potential to arbitrarily reshape those architectures after their fabrication, has enabled first experimental insights into the fundamental properties of 3D shaped semiconducting, superconducting, and magnetic nanoarchitectures. The investigation of physical effects governing the responses of curved nanoobjects to electric and magnetic fields has become a general trend in multiple disciplines, including electronics, photonics, plasmonics and magnetics. Considering the rapid development of the field, it is the purpose of this symposium to push the emergent topic of curvature-induced effects in condensed matter systems to a matured independent research direction in the modern condensed matter physics.

Friday 09:30–12:15 HSZ 02

Invited Talk SYCL 1.1 Fri 9:30 HSZ 02
Topology and transport in nanostructures with curved geometries — •Carmine Ortix

Invited Talk SYCL 1.2 Fri 10:00 HSZ 02
Properties of domain walls and skyrmions in curved ferromagnets. — •Volodymyr Kravchuk

Invited Talk SYCL 1.3 Fri 10:30 HSZ 02
3D Mesoscopic Magnetic Architectures: Fabrication, Actuation & Imaging — •Laura Heyderman

15 min. break.

Invited Talk SYCL 1.4 Fri 11:15 HSZ 02
3D nanostructures for superconductivity and magnetism — •Oleksandr Dobrovolskiy

Invited Talk SYCL 1.5 Fri 11:45 HSZ 02
Effect of Curvature on Topological Defects in Chiral Condensed and Soft Matter — •Avadh Saxena