

Symposium Curvilinear condensed matter (SYCL)

jointly organized by
the Magnetism Division (MA),
the Chemical and Polymer Physics Division (CPP), and
the Surface Science Division (O)

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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.

Overview of Invited Talks and Sessions

(Lecture hall HSZ 02)

Invited Talks

SYCL 1.1	Fri	9:30–10:00	HSZ 02	Topology and transport in nanostructures with curved geometries — •CARMINE ORTIX
SYCL 1.2	Fri	10:00–10:30	HSZ 02	Properties of domain walls and skyrmions in curved ferromagnets. — •VOLODYMYR KRAVCHUK
SYCL 1.3	Fri	10:30–11:00	HSZ 02	3D Mesoscopic Magnetic Architectures: Fabrication, Actuation & Imaging — •LAURA HEYDERMAN
SYCL 1.4	Fri	11:15–11:45	HSZ 02	3D nanostructures for superconductivity and magnetism — •OLEKSANDR DOBROVOLSKIY
SYCL 1.5	Fri	11:45–12:15	HSZ 02	Effect of Curvature on Topological Defects in Chiral Condensed and Soft Matter — •AVADH SAXENA

Sessions

SYCL 1.1–1.5	Fri	9:30–12:15	HSZ 02	Curvilinear Condensed Matter
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