

Physics Colloquium Mainz

June 4, 2024 at 16 c.t.

Lecture room KPH,
Johann-Joachim-Becher-Weg 45, JGU

Topology, a well-established concept in mathematics, has nowadays become essential to describe condensed matter. At its core are chiral electron states on the bulk, surfaces and edges of the condensed matter systems, in which spin and momentum of the electrons are locked parallel or anti-parallel to each other. Magnetic and non-magnetic Weyl semimetals, for example, exhibit chiral bulk states that have enabled the realization of predictions from high energy and astrophysics involving the chiral quantum number, such as the chiral anomaly, the mixed axial-gravitational anomaly and axions. The potential for connecting chirality as a quantum number to other chiral phenomena across different areas of science, including the asymmetry of matter and antimatter and the homochirality of life, brings topological materials to the fore.

Topology and Chirality
Prof. Dr. Claudia Felser

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