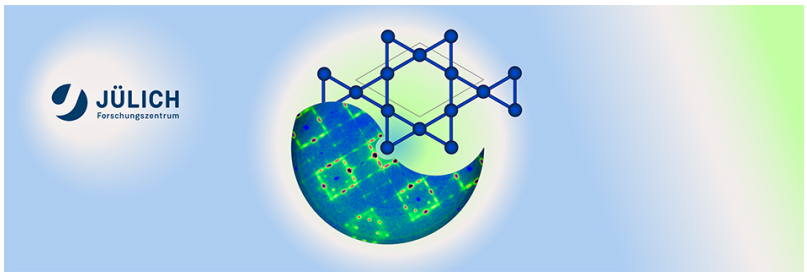

Beitrag ID: **92** Typ: **Talk**

Structural Chirality and Magnetic Properties in the Honeycomb Lattice Compound HoNi3Ga9

Donnerstag, 9. Oktober 2025 11:15 (15 Minuten)

Chiral magnetic materials are of great interest due to their potential to host noncollinear and non-coplanar spin textures, driven by the Dzyaloshinskii-Moriya (DM) interaction arising from the lack of inversion and mirror symmetry. These interactions, alongside crystal field effects and symmetric exchange, can stabilize exotic magnetic phases such as helical order and magnetic skyrmions, making them promising candidates for spintronic applications.

We report the successful growth of high-quality single crystals of the structurally chiral compound $HoNi_3Ga_9$, which crystallizes in a honeycomb lattice and exhibits **easy-plane magnetic anisotropy**. Magnetization measurements reveal an antiferromagnetic transition at 4.7 K and three distinct metamagnetic transitions at critical fields of 0.12 T, 1.35 T, and 2.70 T.

Neutron diffraction confirms a magnetic propagation vector of **(0, 0, 0.5)** in zero field and the presence of 180° magnetic domains. The interplay between Zeeman energy and DM interaction under applied magnetic fields is expected to give rise to topological spin textures, such as a **chiral soliton lattice (CSL)**. Further field-dependent neutron studies are planned to explore these phenomena.

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