



JOHANNES GUTENBERG
UNIVERSITÄT MAINZ

Seminar: Hard Condensed Matter Theory

Room: Galileo room, 01-128 (Staudinger Weg 9)

Time: Tuesday, 23.05.2017, 14:00

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Skyrmions and topological charges in the helix

Magnetic skyrmions are whirls in the magnetization with an integer topological winding number. They are stabilized by exchange and Dzyaloshinskii-Moriya interaction at scales down to the nanometer regime and turn out to be highly stable and mobile. Due to these properties, they are often discussed as possible candidates for future memory devices. From a physics perspective they are particularly interesting since new properties emerge from the interplay of both energetic and topological contributions.

In my talk I will mainly focus on topological defects in the helix, which is another important phase that occurs in skyrmionic matter. It turns out that a special kind of domain wall structure can occur between helical phases with different orientations. The domain wall which connects the differently orientated helical phases, can appear as a sequence of topologically non-trivial disclinations and can be described within our phenomenological theory. Furthermore, skyrmions also occur as the most natural defects in the helical phase but they have different properties as their often-studied counterparts in the polarized phase.

All interested are cordially welcome!

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