

# Physikalisches Kolloquium

**Achim Rosch, Universität Köln**

**»Magnetic whirls, skyrmions and magnetic monopoles«**

*Einführung: J. Schmalian*

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Thermal fluctuations and spin-orbit interactions stabilize lattices of magnetic whirls, so-called skyrmions, in chiral magnets. Due to their topology, skyrmions are stable and couple very efficiently to tiny electric currents. The coupling arises from Berry phases and can be described by artificial "emergent" magnetic and electric fields, which have been observed in Hall experiments.

Using magnetic force microscopy, one can study how the magnetic structure is modified when skyrmions are destroyed in a phase transition which changes the topology of the magnetic texture. The transition is driven by singular point defects, which can be interpreted as emergent magnetic monopoles and antimonopoles, which are sources and sinks of the emergent magnetic field.

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**Freitag, 28.06.2013, 17 Uhr c.t.,**

**KIT, Campus Süd,**

**Otto-Lehmann-Hörsaal, Physik-Flachbau (Geb. 30.22).**

**Anschließend Nachsitzung im Gastdozentenhaus „Heinrich Hertz“**