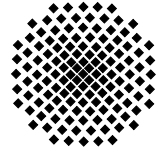


# Stuttgarter Physikalisches Kolloquium

Max-Planck-Institut für Festkörperforschung  
Max-Planck-Institut für Intelligente Systeme  
Fachbereich Physik, Universität Stuttgart

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Dienstag, 8. November 2016

17.15 Uhr

Hörsaal 2 D5

Stuttgarter Max-Planck-Institute, Heisenbergstraße 1, 70569 Stuttgart-Büsnau

## Whirls in magnets: from skyrmions to magnetic monopoles

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### Abstract

In magnets lacking inversion symmetry, topologically quantized magnetic whirls, so-called skyrmions, form due to spin-orbit interactions. Skyrmions are tiny, stable, couple extremely efficiently to electric currents and can be manipulated by small forces. They are, therefore, promising candidates for, e.g. future magnetic memories.

The coupling of skyrmions to electrons arises from Berry phases, which can efficiently be described by an artificial electromagnetic field. We investigate how emergent magnetic fields arise in experiments. The topology of skyrmion phase can be changed by singular magnetic defects which can be identified as emergent magnetic monopoles.