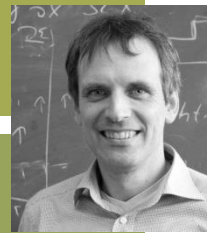




# PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik  
der Johann Wolfgang Goethe-Universität Frankfurt

Mittwoch, den 09.12.2015, 16 Uhr c.t.  
Großer Hörsaal, Raum \_0.111,  
Max-von-Laue-Str. 1



**Prof. Achim Rosch**  
Institut for Theoretical Physics  
University of Cologne  
Germany

## *"Whirls in magnets: from skyrmions to magnetic monopoles"*

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 the topology of skyrmion phase can be changed by singular magnetic defects which can be identified as emergent magnetic monopoles.

Die Dozenten der Physik

local host: Prof. Peter Kopietz, [pk@itp.uni-frankfurt.de](mailto:pk@itp.uni-frankfurt.de)