



TRR 80 Seminar

Am Donnerstag, den 10. Februar um 17:15 Uhr
spricht

Prof. Dr. Stefan Heinze

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über das Thema

***Atomic-scale magnetic skyrmion lattice in an ultrathin film:
Real space observation and theoretical foundation***

Skyrmions are topologically protected field configurations with particle-like properties that play an important role in various fields of science. They have been predicted to occur also in bulk magnets and recently experimental evidence was given that they do exist depending on temperature and magnetic field. A very important ingredient for their occurrence is the Dzyaloshinskii-Moriya interaction (DMI) which was recently found to be strong also in ultrathin magnetic films on substrates with large spin-orbit coupling [1]. In these systems the DMI stabilizes spin-spirals with a unique rotational sense propagating along one direction of the surface [1,2]. Here, we go a step beyond and present an atomic-scale skyrmion lattice for a hexagonal Fe monolayer on the Ir(111) surface. We develop a spin-model based on density functional theory that explains the interplay of Heisenberg exchange, DM interaction and the four-spin exchange as the microscopic origin of this intriguing magnetic state. Experiments using spin-polarized scanning tunneling microscopy confirm the skyrmion lattice which is incommensurate with the underlying atomic lattice.

Gäste sind herzlich willkommen!

Der Vortrag findet im Hörsaal HS 3, Physik-Department,
Technische Universität München, Garching statt.

Gastgeber: Prof. Dr. Christian Pfleiderer
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