

**O 47: Invited Talk von Bergmann**

Time: Thursday 9:30–10:15

Location: H36

**Invited Talk**

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**Complex magnetic structures on the atomic scale revealed by spin-polarized STM** — ●KIRSTEN VON BERGMANN — Institut für Angewandte Physik, Universität Hamburg, Jungiusstr. 11, 20355 Hamburg

Magnetism in low-dimensions is a fascinating topic: Even in apparently simple systems –such as homoatomic monolayers– the nearest neighbor distance, the symmetry and the hybridization with the substrate can play a crucial role for the magnetic properties. This may lead to a variety of magnetic structures, from the ferromagnetic and antiferromagnetic state to much more complex spin structures.

Spin-polarized scanning tunneling microscopy (SP-STM) combines

magnetic sensitivity with high lateral resolution and therefore grants access to such complex magnetic order with unit cells on the nanometer scale. Different previously inconceivable magnetic structures are observed in pseudomorphic homoatomic *3d* monolayers on late *5d* transition metal substrates. For example a hexagonal Fe monolayer on Ir is found to exhibit a novel magnetic unit cell which is nearly square and consists of 15 atoms [1]. Furthermore such monolayers may form spin spirals, where the spin rotates from one atom to the next resulting again in a nanometer sized magnetic period. While in uniaxial systems only one propagation direction is found, in biaxial systems rotational domains of spin spirals are present.

[1] K. von Bergmann *et al.*, Phys. Rev. Lett. **96**, 167203 (2006).