O 64: Laureate of the Gaede Prize 2024

Time: Wednesday 17:30–18:00 Location: MA 004

Prize Talk O 64.1 Wed 17:30 MA 004

Molecular spin switches on surfaces — •Manuel Gruber — University of Duisburg-Essen, Duisburg, Germany — Laureate of the Gaede-Prize 2024

Magnetic molecules on surfaces have attracted considerable interest, in particular, in view of potential (quantum) technological applications. The ligands around the metal center essentially determine the electronic configuration of the ion, which is closely interconnected with the electronic, optical, and *magnetic* properties of the molecule. Molecules with multiple stable ligands configurations are particularly interesting as they exhibit a palette of physical properties.

We will report on different strategies to controllably modify the magnetic properties of molecules. Spin-crossover complexes exhibit two stable configurations with different ligand-field strengths. We will present the local and remote reversible spin-state switching of such complexes on a metal surface via electron injection [1]. For a second class of system, a ligand is displaced relative to the metal center to change the symmetry of the ligand field, and thereby the spin [2]. In a last example, the orbital moment of a dinuclear complexes is modified by addressing the peripheral ligands [3].

[1] Johannsen *et al.*, ACS Nano **15**, 11770 (2021), [2] Köbke *et al.*, Nat. Nanotechnol. 15, 18 (2020), [3]*Li *et al.*, ACS Nano **17**, 10608 (2023)