

# From single-molecule magnetism to magnetic molecular structures

Germar Hoffmann

Department of Physics, National TsingHua University, Hsinchu, Taiwan

## Abstract

The design of tailored molecular spin systems offers a unique way to create mono-disperse nanosystems. Such molecular nanosystems have well-, and predefined magnetic properties and can be combined with functionality for external spin processing. Whereas their usage in new kind of molecular spintronic devices promises a fundamentally novel approach for data storage and computation compared to a simple downscaling of conventional elements, the research into this field just started. Here, I will give an overview on the current status of my research, on the detection of the spin transport behavior through molecular systems [1], of single static [2] and dynamic [3] molecular spins, and approaches to develop new functional molecular spin systems [4].

- [1] J. Brede et al., *Phys. Rev. Lett.* 105, 066601 (2010).  
N. Atodiresei et al., *Phys. Rev. Lett.* 105, 066601 (2010).
- [2] J. Schwöbel et al., *Nat. Commun.* 3, 1953 (2012).
- [3] A. DiLullo et al., *ACS Nano Letters* 12, 3174 (2012).
- [4] Y. Fu et al., *ACS Nano Letters* 12, 3931 (2012).  
HH. Yang et al., *ACS Nano* 7, 2814 (2013).