at a liquid interface [7-9] using grazing-incidence SAXS will be illustrated.

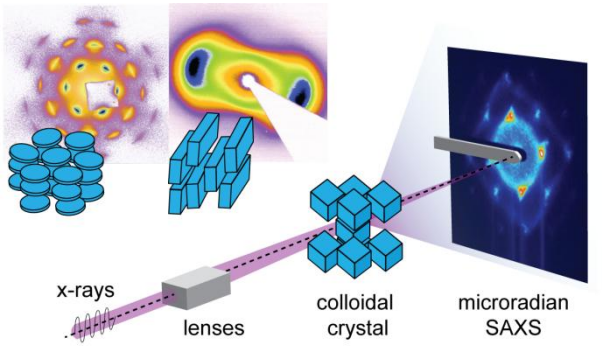

Figure 1. Schematic principle of microradian x-ray diffraction setup and examples of diffraction patterns measured in (from left to right) columnar crystals of colloidal gibbsite platelets, biaxial nematic phace of goethite boards, and crystals of hematite colloidal superballs (=cubes with rounded esges).

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[1] A.V. Petukhov *et al.*, *Curr. Opin. Coll. & Interf. Sci*. **20** (2015) 272.
[2] J.-M. Meijer, PhD thesis, Utrecht University, 2015; J.-M. Meijer *et al.*, to be published.
[3] J.-M. Meijer *et al.*, *Soft Matter* **9** (2013) 10729.
[4] A. Pal *et al.*, *Angew. Chem. Int. Ed.* **54** (2015) 1803.
[5] A.V. Petukhov *et al.*, *Phys. Rev. Lett.* **95** (2005) 077801.
[6] E. van den Pol *et al.*, *Phys. Rev. Lett.* **103** (2009) 258301.
[7] F. Pietra *et al.*, *Nano Letters* **12** (2012) 5515.
[8] M.P. Boneschanscher *et al.*, *Science* **344** (2014) 1377.
[9] W. van der Stam *et al.*, *Nano Letters* **16** (2016) 2608.

L-08 **Session B, Tuesday, 14.06., 9^{40} - 10^{20}**

Molecular single-ion magnets: Harnessing molecule-surface interactions

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Single-molecule magnets (SMMs) [1,2] are molecular complexes containing transition metal or lanthanide ions, which exhibit slow relaxation of their magnetization. SMMs and their mononuclear counterparts, molecular single-ion magnets (SIMs) [3,4] are attractive building blocks for potential molecular spintronics and quantum information processing devices. One route toward construction of such devices is the deposition of SMMs and SIMs on flat surfaces [4–6].

In this contribution I will show several examples of such molecule-inorganic hybrid structures studied by low-temperature, high-field x-ray magnetic circular dichroism (XMCD) as well as by scanning tunneling microscopy (STM). I will point out possible caveats that can occur when SMMs and SIMs are removed from their native molecular crystal environment and put into the hostile environment of an inorganic surface. I will highlight the importance of the molecule-surface interaction for the magnetic properties of the surface deposited molecules. Furthermore, I will demonstrate that by careful choice of the surface a significant improvement of the magnetic properties compared to the bulk molecular crystal can be achieved.

[1] D. Gatteschi, R. Sessoli, J. Villain, *Molecular Nanomagnets* (Oxford University Press, 2006).
[2] R. Sessoli, D. Gatteschi, A. Caneschi, M. A. Novak, *Nature* **365** (1993) 141.
[3] S.-D. Jiang, B.-W. Wang, S. Gao, *Molecular Nanomagnets and Related Phenomena* (Springer, Berlin, Heidelberg 2014), pp. 111–141.
[4] J. Dreiser, *J. Phys. Condens. Matter* **27** (2015) 183203.
[5] N. Domingo, E. Bellido, D. Ruiz-Molina, *Chem. Soc. Rev.* **41** (2011) 258.
[6] A. Cornia, M. Mannini, *Molecular Nanomagnets and Related Phenomena* (Springer, Berlin, Heidelberg 2014), pp. 293–330.