**X-PEEM studies**

F. Nolting\(^1\) and A. Kleibert\(^1,\ldots\)

\(^1\)Swiss Light Source, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland, frithjof.nolting@psi.ch

**Summary**
Nanomagnets and magnetic heterostructures form the basis for engineering the magnetic properties for application and fundamental research. Using recent results taken with the Elmitec PEEM at the SIM beamline [1] the technique and its possibilities will be explained.

**Magnetic Nanoparticles**
Reducing the size of magnetic particles changes their behaviour drastically and it is not a trivial issue to build a consistent picture of the transition to the single domain state, in particular for supported particle.

**Figure 1:** (a), (b) Elemental and magnetic contrast images of the nanoparticles. (c) Size distribution of the ferromagnetic and superparamagnetic particles (adapted from [2]).

**Artificial Multiferroic Systems**
Artificial multiferroic systems, in which novel properties emerge from the elastic coupling between piezoelectric and magnetostrictive phases.

**Acknowledgments**
We acknowledge the.

**References**