



Universität
Basel

Swiss Nanoscience Institute



Project P1502 Investigating Individual Multiferroic and Oxidic Nanoparticles

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We propose to develop a novel experimental approach to study size-dependent magnetic phase transitions in individual nanoparticles in a large temperature window ranging from 1000 K down to 0.5 K. This will be achieved by complementing X-ray photoemission electron microscopy (X-PEEM) (1000 K – 100 K) at the SLS at PSI with cantilever magnetometry (CM) (100 K – 0.5 K) in the Poggio Lab at University of Basel. For these investigations we will make use of recently developed substrates, which are highly versatile and compatible with X-PEEM, CM as well as with a large range of complementary microscopy techniques for structural characterization. Using this unique approach we aim to shed light on size-dependent ordering phenomena in multiferroic and oxidic nanoparticle systems and to establish a powerful platform for investigations on a variety of nanometer-scale magnetic materials.