Titel: "Microspectroscopy of Nano-oxides with Soft X-rays"

Abstract: Soft X-ray microscopy is a powerful tool for the characterisation of materials due to the ability to probe chemical, magnetic and ferroelectric properties. Ptychography is a scanning coherent diffractive imaging method that can achieve sub-10 nm spatial resolutions and has recently been extended to the soft X-ray regime. The technique works in transmission and provides unprecedented insight into the ferroic domain structures in nanoparticles or thin films [1-3]. The application of ptychography for the imaging of ferroic order in numerous oxides such as freestanding thin films of multiferroic BiFeO3 [1,2] will be presented.

[1] T. A. Butcher et al., Advanced Materials 36 (2024), https://doi.org/10.1002/adma.202311157

[2] T. A. Butcher et al., Physical Review Applied 23, L011002 (2025), https://doi.org/10.1103/PhysRevApplied.23.L011002

[3] T. A. Butcher et al., Physical Review B 111, L220409, https://doi.org/10.1103/2y4r-my27