



Contribution ID: 69 Contribution code: Chair: Felix Buettner

Type: Oral

Soft X-ray Transmission Holography at ESRF

Friday, 10 October 2025 09:50 (25 minutes)

The soft X-ray beamline at ESRF (ID32) provides X-rays in the energy range 400 eV –1800 eV to perform polarization dependent spectroscopic studies of magnetic and electronic properties of matter, with the main end-stations specialized in X-ray Resonant Inelastic Scattering (RIXS) and X-ray Magnetic Circular Dichroism (XMCD) measurements. In addition, a small side-station located in the experimental room designed to host specific and/or user end-stations is dedicated to transmission holography experiments on magnetic samples, with time-resolved and 3D magnetic holo-tomography capabilities.

The end-station is equipped with a fast scientific grade fully in-vacuum sCMOS camera from Axis Photonique (developed by synchrotron SOLEIL), provides a 0.4 T magnetic field along the beam direction and a combination of sample rotations and translations enabling a variety of holographic measurements to be performed. Examples on studies of magnetic vortices, Landau domain wall structures and 3d magnetic tomo-holography together with a detailed description of the experimental setup will be given.

The Extremely Brilliant Source (ESRF upgrade phase 2) has boosted the partial degree of coherence of the ID32 source by a factor 10, approaching 50%, satisfactorily preserved throughout the numerous beamline optical elements. The examples listed above will illustrate how challenging coherent scattering experiments on magnetic materials can be better (or more easily) performed on a beamline optimized for magnetism rather than coherence.

Primary authors: YAKHOU-HARRIS, Flora (ESRF); BEUTIER, Guillaume (Univ Grenoble Alpes - SIMaP); BROOKES, Nicholas (ESRF); VAN DER LAAN, Gerrit (Diamond Light Source)

Presenter: YAKHOU-HARRIS, Flora (ESRF)

Session Classification: Talks Friday Morning