MS24-P04 | MagStReX: Magnetic Structures through Resonant X-Ray Scattering

Bereciartua, Pablo J. (Deutsches Elektronen-Synchrotron (DESY), Hamburg, GER); Francoual, Sonia (Deutsches Elektronen-Synchrotron (DESY), Hamburg, GER); Mardegan, Jose R. L. (Deutsches Elektronen-Synchrotron (DESY), Hamburg, GER); Sears, Jennifer (Deutsches Elektronen-Synchrotron (DESY), Hamburg, GER); Rodríguez-Carvajal, Juan (Institut Laue Langevin, Grenoble, FRA); Picca, Frédéric-Emmanuel (Synchrotron SOLEIL, Gif-sur-Yvette, FRA)

Synchrotron radiation has succeeded in determining the magnetic structure of many different materials in a microscopic scale. If the energy of the incident beam is tuned to the absorption edge of one of the elements of the sample, a resonant effect appears with a significant enhancement of the diffracted signal. Resonant X-ray Magnetic Scattering (RXMS) technique is based on this principle, which makes possible to distinguish the magnetic ordering of atoms of different species [1]. RXMS also allows studying materials that are difficult to be studied by neutron diffraction due to large neutron absorption of some elements.

At beamline P09 of PETRA III (DESY) different types of experiments to study magnetic phases through RXMS are currently available, as well as other experimental resources [2]. However, the analysis of the collected data to determine the magnetic structure is complicated and there is no specific software dedicated to this technique. Here we present an ongoing project to develop the software called MagStReX (**Mag**netic **St**ructures through **Re**sonant **X**-ray Scattering), a program to facilitate the planning of a RXMS experiment, as well as to carry out the analysis of the data obtained in these experiments. An overview of the RXMS technique and the experiments mentioned above will be presented, together with the current status and the future development of MagStReX.

[1] C. Vettier, Eur. Phys. J. Special Topics 208, 3 (2012)
[2] J. Strempfer, S. Francoual, *et al.*, *J. Synchrotron Rad.* **20**, 541 (2013)