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MagStREXS: Magnetic Structures Through Resonant Elastic X-ray Scattering

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Resonant Elastic X-ray Scattering (REXS) is a powerful technique successfully employed to investigate a wide range of phenomena both in solids and thin films, including different charge, spin, and orbital orderings [1, 2]. In particular, REXS has proven to be a valuable method for the determination of magnetic structures, becoming a suitable complement to neutron techniques. However, the analysis of diffraction data collected in REXS experiments is, in general, very intricate and the lack of any tool to facilitate these calculations hinders the use of this technique by the non-specialists in the field.
MagStREXS is a crystallographic computing program aimed to ease the analysis of REXS diffraction data for the study of magnetic structures. This software is based on both theoretical concepts and computing tools developed in the context of magnetic crystallography [3, 4], applying them to the analysis of data collected with the different experimental possibilities available in the REXS technique. Being under active development at beamline P09 (PETRA III, DESY), a beta version of MagStREXS is available on DESY computing platform for the users to analyse their data.
In this presentation, the fundamental equations implemented in MagStRES will be discussed, together with the main features available in the software. Finally, some examples of magnetic structures determined with this software will be presented to illustrate the main capabilities available in the current version.

REFERENCES
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