

## GI-MS46-P14 | A NEW SINGLE CRYSTAL DIFFRACTOMETER AT BM20/ESRF

Hennig, Christoph (Helmholtz-Zentrum Dresden-Rossendorf e. V., Dresden, GER); Ikeda-Ohno, Atsushi (Helmholtz-Zentrum Dresden-Rossendorf, Dresden, GER); Radoske, Thomas (Helmholtz-Zentrum Dresden-Rossendorf, Dresden, GER); Scheinost, Andreas C. (Helmholtz-Zentrum Dresden-Rossendorf, Dresden, GER)

The Institute of Resource Ecology / Helmholtz-Zentrum Dresden-Rossendorf operates since 20 years the Rossendorf Beamline (ROBL/BM20) at the European Synchrotron Radiation Facility (ESRF) [1]. A new diffractometer for single crystal diffraction will be installed at the beamline until July 2020.

This diffractometer intends to fill the gap between small and large molecule crystallography. The photon flux of up to  $10^{12}$  photons/sec allow the structure determination of small single crystals. The analysis of complex intergrown crystals and electron density studies is possible. The energy range of 5-35 keV allows the use of anomalous dispersion. In-situ experiments will be supported.

This objective requires the combination of a large detector, precise sample position and sufficient space for additional equipment. The diffractometer consists of an adjustable granite table with a metal frame which carry a Pilatus3 X 2M detector. The detector can be tilted and the distance between sample and detector can be varied from 140 to 600 mm. Samples will be mounted on a kappa goniometer. A microscope will be placed in a distance 170 mm from the crystal, which allows to install a cryo cooler (80-400 K), a heater (up to 1200 K), and a Vortex X90 CUBE silicon drift detector with a FalconX1 processor to align small crystals. The fluorescence detector serves also to determine simultaneously oxidation states of metals with XANES spectroscopy. The data extraction with will be performed with CRYALIS.

[1] <http://www.esrf.eu/UsersAndScience/Experiments/CRG/BM20>