



Contribution ID: 221

Type: **Poster**

Advanced gas atmosphere options at the BESSY II beamline KMC-2

Tuesday, 18 September 2018 17:15 (15 minutes)

At the Berlin synchrotron BESSY II, beamline KMC-2 provides two permanent stations with intensity stabilized radiation in the energy range of 4-14 keV: "XANES" for EXAFS and XRF, and "DIFFRACTION", a multi-purpose six-circle goniometer. A wide range of sample environments is available for both stations [1]. Of particular interest is a suit of systems for controlled gas atmosphere:

Low pressure (< 130 kPa) volumetric gas adsorption is possible with the multi-purpose gas rig CGA-GH11 or, for *in-situ* sorption isotherm measurements, with a fully automated BELSORP gas dosing system. Alternatively, CGA-GH7 is an automated continuous gas flow and pressure control system for pressures up to 30 MPa.

CCR-XRD, a GM closed-cycle cryocooler equipped with a high temperature stage covers temperatures 15-450 K and controlled gas atmospheres from vacuum up to 150 kPa. Both transmission or reflection at the sample are possible.

For small samples or precarious gases, in continuous flow or static atmosphere up to 10 MPa, several glass capillary setups are available. Dedicated temperature environments cover a range 20-700 K, preventing moisture condensation and temperature inhomogeneities, while allowing sample rotation for enhanced particle statistic.

A new system for humidity control is currently under development in cooperation with TU Dresden.

All systems are available to users of KMC-2 @ BESSY II.

[1] www.helmholtz-berlin.de/user/experimental-infrastructure/sample-environment/se-at-bessy/

Primary author: Dr TÖBBENS, Daniel M. (Helmholtz-Zentrum Berlin für Materialien und Energie)

Co-authors: SCHUCK, Götz (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); WALLACHER, Dirk (Helmholtz-Zentrum Berlin für Materialien und Energie); Mr GRIMM, Nico (Helmholtz-Zentrum Berlin für Materialien und Energie); Prof. SCHORR, Susan (Helmholtz-Zentrum Berlin für Materialien und Energie & Institut für Geologische Wissenschaften, Freie Universität Berlin)

Presenter: Dr TÖBBENS, Daniel M. (Helmholtz-Zentrum Berlin für Materialien und Energie)

Session Classification: Poster session 2

Track Classification: P1 Instrumentation and methods