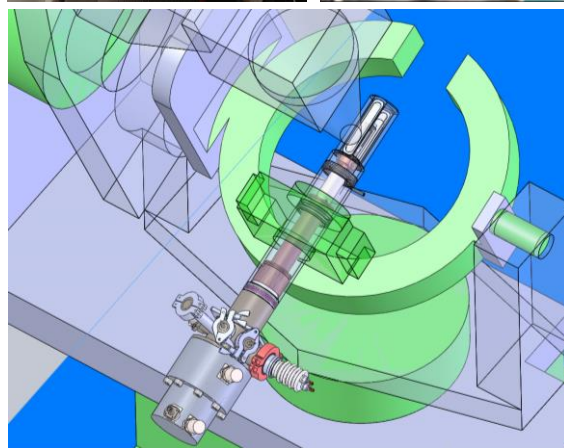


Abstract: The presented instrumentation, as part of the modular sample environment suite of the KMC-2 beamline at the BESSY-II synchrotron, will offer unique possibilities to explore new and existing materials in terms of novel potential applications in fields of complex sensor systems and smart membrane technologies for energy-efficient separation processes. Especially materials showing photo- and electro-switching will be a central subject of investigation.

Cryostat and in-situ gas adsorption cell

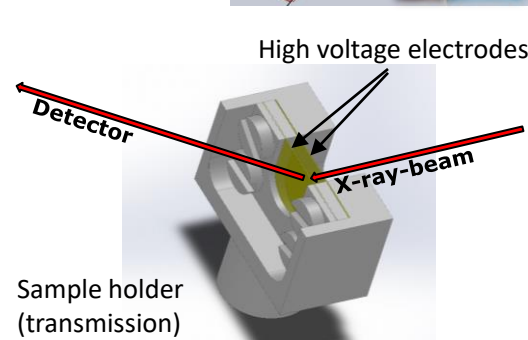
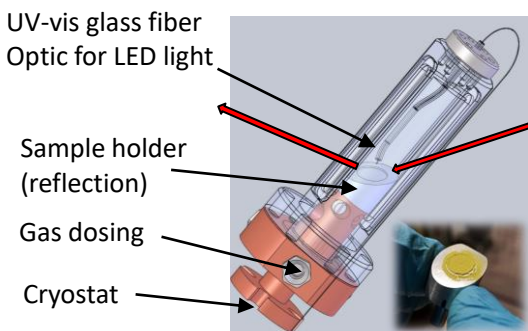
- Closed cycle cryostat CH204 (COLD EDGE Technologies) with 800K interface
- Gas adsorption cell up to 120 KPa @ 10–320K
- 40 μm Kapton x-ray transmission windows



- Operable in a Huber-Goniometer in Bragg-Brentano Geometry for PXRD @ 8keV

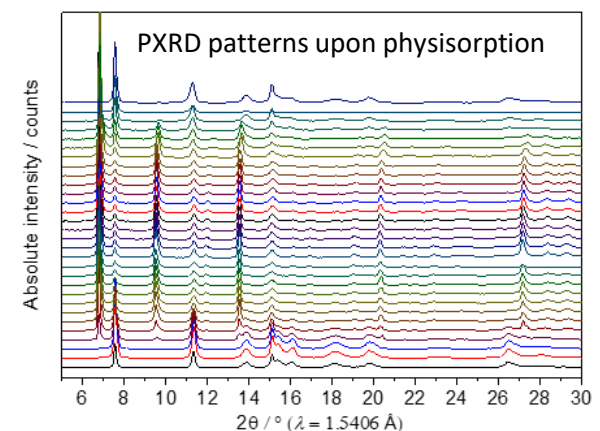
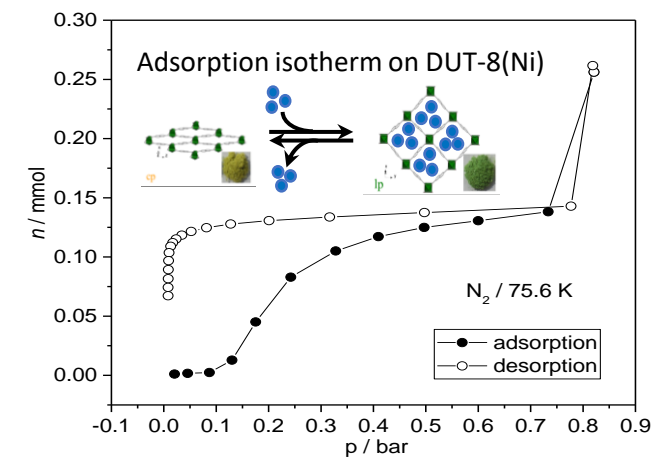
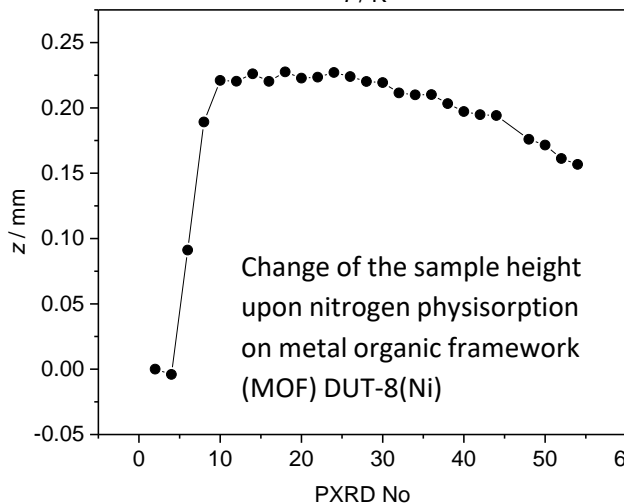
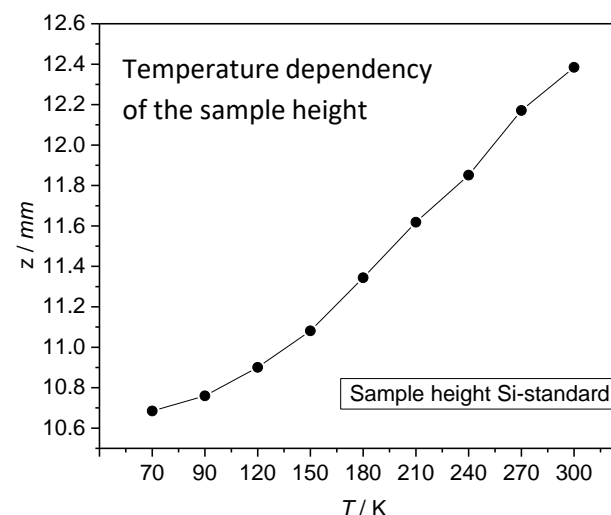
Electromagnetic stimulation options

- UV-vis-NIR light stimuli $\lambda = 300 - 2000$ nm



- Electric field stimuli $E = 0 - 1000$ V/mm

First in-situ gas adsorption experiments combined with PXRD at KMC-2 beamline of BESSY-II



Acknowledgement
Authors thank BMBF for financial support (Project 05K190D2)