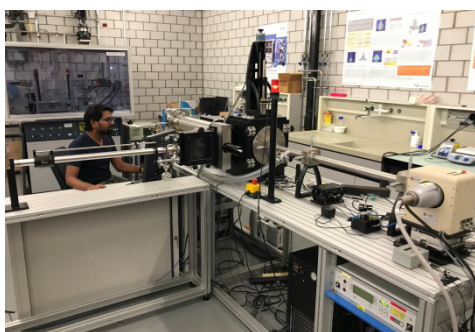
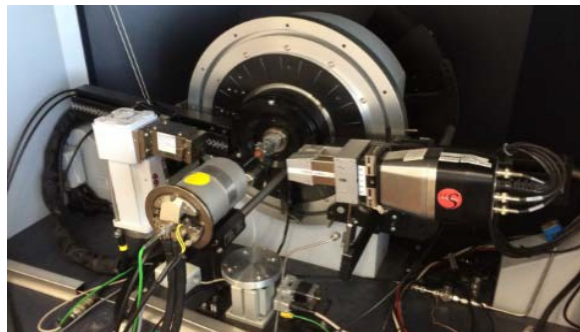


X-ray diffraction and scattering: equipment at the Center for X-ray Analytics (1)

Instrument	XRD Bruker DaVinci D8 Discovery	STOE IPDS II	STOE IPDS 2T	PANalytical X'Pert Powder
Picture				
Type	X-Ray Reflectometry (XRR), High-Resolution X-Ray Diffraction (HRXRD), Reciprocal Space Mapping (RSM), Grazing Incidence Diffraction (GID), In-Plane Grazing Incidence Diffraction (IP- GID), Grazing-Incidence Small Angle X-ray Scat- tering (GISAXS)	Diffraction in Transmission	Diffraction in Transmission	Powder X-Ray Diffraction (XRD), high temperature and reactive gases are possible. Bragg-Brentano setup or focussed beam (Göbel mirror) for capillaries.
X-ray source	Cu ($\lambda = 1.5406 \text{ \AA}$ Cu $K\alpha$)	Mo ($\lambda = 0.71073 \text{ \AA}$ Mo $K\alpha$)	Ag ($\lambda = 0.5608 \text{ \AA}$ Mo $K\alpha$)	Cu ($\lambda = 1.5406 \text{ \AA}$ Cu $K\alpha$)
Probed Area	Depends on source configuration line or point focus	300–800 μm	300–800 μm	20 mm $\times$ 0.1-6 mm
Max 2θ	150°	77°	137° by turning the goniometer around Θ	150°
Detector	Double detector arm with PATHFINDER and LYNXEYE detector	Diameter Image Plate (active area) 340mm 40 – 200 mm (automatically set)	Diameter Image Plate (active area) 340mm with 40 – 200 mm sample to detector distance (automatically set)	PIXcel 1D
Sample dimensions and weight	Thin films, Semiconductors, Bulk, and powder	single crystals, or powders in capillaries, fibers	Single crystals, or powders in capillaries, fibers	Powders in flat holders (2 cm diameter; 1 mm depth) Powders in capillaries Small bulk specimens (45 mm diameter, 7 mm thickness)

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X-ray diffraction and scattering: equipment at the Center for X-ray Analytics (2)

Instrument	Bruker NANOSTAR U (SAXS/WAXD)	MOLMET	XRD Bruker D8
Picture			
Type	Diffraction in transmission. Stages: tensile stage (5N, 600N), heating stage (room temp. to 300°C), PHI stage, tilt stage. Grazing-Incidence Small Angle and Wide Angle X-ray Scattering (GISAXS/GIWAXS). Sample chamber evacuated (normal setup), but can also be held at normal pressure.	Operational in transmission and reflection modes; Simultaneous SAXS/WAXD: a 2D gas detector at large SDDs and image plate at short SDDs; Linkam stages for temperature control $-30 < T < 150$;	Powder X-Ray Diffraction (XRD), high temperature and reactive gases are possible. Parallel beam setup.
X-ray source	Cu ($\lambda = 1.5419$ Å Cu K α). Microfocus X-ray source, MONTELO optics (Goebel mirror) with 2-pin collimation system. Beamstops: various diameters and shapes ($\varnothing$ 2 to 5 mm for SAXS and WAXD, rectangular for GISAXS)	Cu ($\lambda = 1.5419$ Å Cu K α) radiation with Osmic confocal Max-Flux, 3-pinhole setup with various size pinholes; equipped with diode-loaded beam stop	Cu ($\lambda = 1.5406$ Å Cu K α)
Probed Area	Depends on pinhole size. Pinhole diameters currently available: 300 μ m and 550 μ m.	Depending of the mode of operation and detector used; Accessible d-spacing 0.2 Å to 100 nm	20 mm $\times$ 0.1-6 mm
Max 2 θ	Sample-to-detector distance can vary from 4.5 to 147 cm, with max 2 θ from 39° to 2.6°.	Sample-to-detector distance can vary depending on detector type (image plate or 2D gas detector)) providing Maximum 2 θ of 60°	150°
Detector	VÅNTEC-2000 Xe-based gaseous avalanche detector. Active area: 14 cm $\times$ 14 cm, 2048 $\times$ 2048 pixels, pixel size 68 μ m $\times$ 68 μ m.	Molecular Metrology-Rigaku gas wire detector; 120 mm in diameter of detector area of 1024 $\times$ 1024 pixels; Pixel size=120 μ m	Vantec-1 PSD
Sample dimensions and weight	Sample chamber dimension is spacious enough for designing new sample holders; Various sample holders are available for fibers, films, liquids, gels and powders.	Sample chamber dimension is spacious enough for designing new sample holders; Various sample holders are available for fibers, films, liquids, gels and powders.	Powders in flat holders (2 cm diameter; 1 mm depth) Powders in capillaries Small bulk specimens (45 mm diameter, 7 mm thickness)

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