

X-ray diffraction laboratory

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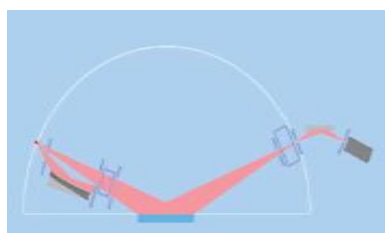
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X-ray diffractometer Ultima IV, type II, Rigaku

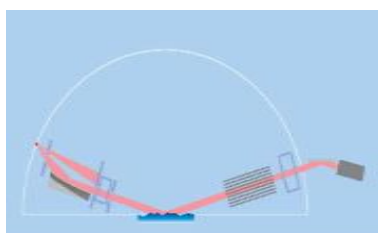
X-ray powder diffractometer makes possible polycrystalline crystal structure materials investigations in the large-scale temperature range using divergent and parallel beam geometry.

Applications:

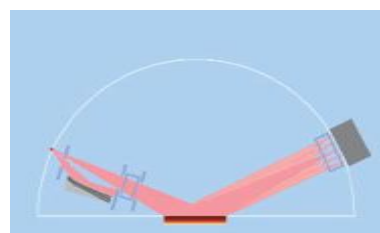
- Qualitative and quantitative phase analysis
- Precise determination of lattice parameters
- Analyse of the shape of diffraction profiles
- Crystal structure parameters refinement by the Rietveld method
- Measurements can be performed in large-scale temperature region (-180°C - 1200°C) in the air, controlled atmosphere and/or vacuum
- High temperature oven-chamber enables performing measurements up to 1200°C
- Low temperature oven-chamber enables performing measurement in the temperature region from -180°C up to 450 °C.



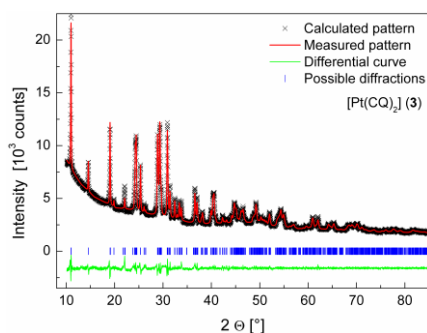
Powder diffractometry, divergent beam geometry, point detector



Powder diffractometry, parallel beam geometry, point detector



Powder diffractometry, linear (rapid) detector



The Rietveld refinement of the crystal structure

X-ray diffractometer Ultima IV, type III, Rigaku

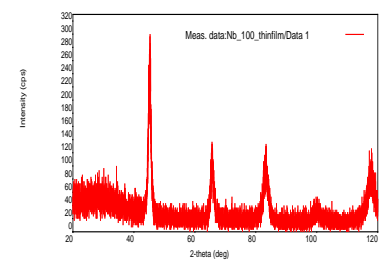
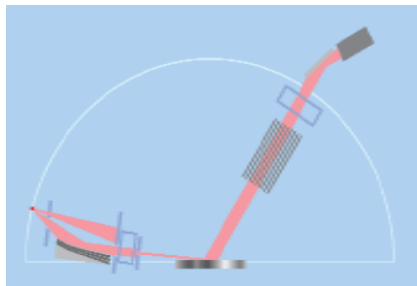
X-ray powder diffractometer enables investigations of the crystal structure of surfaces and thin films

Applications:

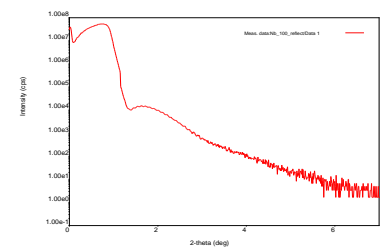
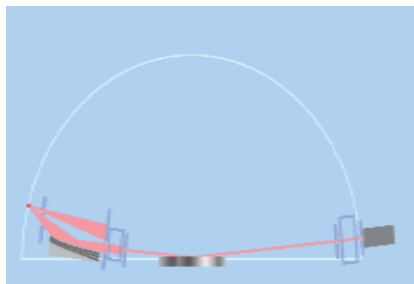
- X-ray diffraction in symmetrical alignment
- X-ray diffraction in asymmetrical alignment
- X-ray reflectometry
- In-plane diffraction
- Preferred orientation examination
- Reciprocal space mapping
- Small angle scattering



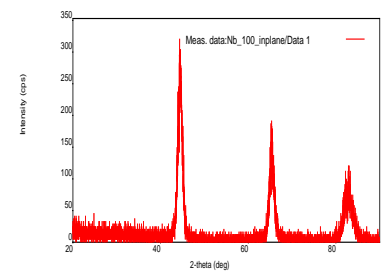
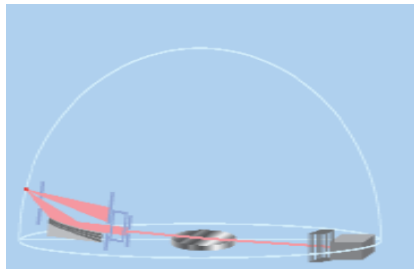
X-ray diffraction in asymmetrical alignment



X-ray reflectometry



In-plane diffraction



X-ray diffractometer D/MAX Rapid II, Rigaku

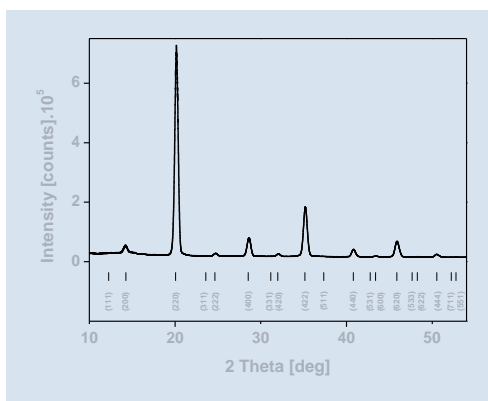
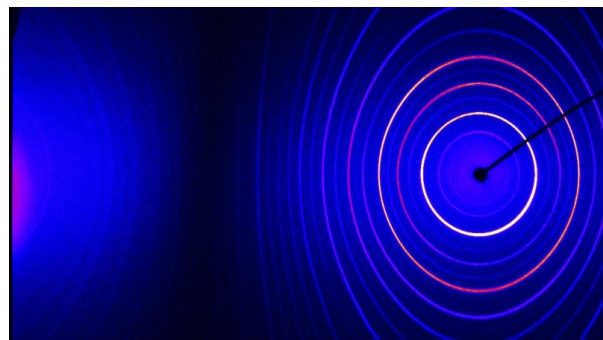
Investigation of crystal structure of polycrystalline materials in the large range of crystallites size and microdiffraction .

Properties

- Image-Plate 2D detector covering the angular range of 210° in the direction of the axis perpendicular to the incident beam direction (ω) and -45° to $+45^\circ$ in the direction perpendicular to the axis ω
- IP detector dimensions 470 mm x 256 mm
- Detector to sample distance 127.4 mm.
- Size of detector pixel 100 μm x 100 μm

Applications

- Microdiffraction
- Powder diffraction on small quantities of sample
- Preferred orientation examination



2D diffraction image and the one dimensional transformed dependence of the diffracted intensity as a function of 2θ