
X-ray Diffraction (XRD) X-ray Reflectivity (XRR)



innovations
for high
performance
microelectronics

Technische Parameter

X-Ray Diffractometer

RIGAKU SmartLab (9 kW rotating anode, Cu) 18 kW Rotating Anode X-ray Generator with Dmax 1500 und Triple-Crystal Diffr.

SmartLab

Variable X-Ray optics, Bragg-Brentano and parallel beam with crystal collimator and analyzer (2Θ : 0 – 130°, Φ - and χ -Rotation, "in-plane"-Option, 1100°C-Temperofen

Dmax1500

XRR from 0° to about 10° 2Θ

XRD im wide angle range up to 105° 2Θ

Triple-Crystal Diffractometer

Ge-400 2x Channel-cut collimator

Angle range $\Delta\Theta$: ± 3600 arcsec

Step width: 0.01 arcsec



Application areas

- XRR measurements of smooth layer systems determination of layer thickness, roughness, and density (thickness range: 1 – 500 nm)XRD
- XRD measurements for phase analysis, in-situ high-temperature studies
- HR-XRD measurements of single crystals with epitaxial layer structures (e.g. Si_{1-x}G_x) or implantation layers, determination of layer thickness, strain, and content of dopants
- Pole figure and in-plane measurements
- Rocking curve and reflectivity curve simulation and fitting program RCRefSimW 1.09

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