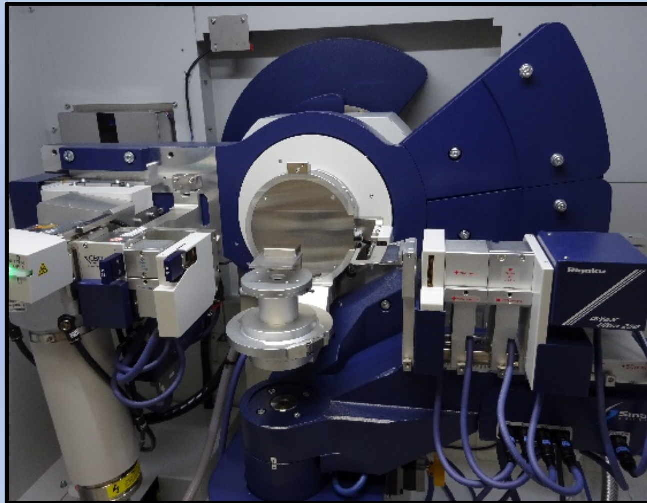
Rigaku SmartLab X-ray Diffraction System

Description

X-ray diffraction is a nondestructive characterization technique that uses x-rays to investigate the structure of matter. It can be used to determine chemical composition, crystal structure, crystallite size, strain, preferred orientation, and layer thickness. The XRD system at UTSI can be used with powders, bulk samples, thin films, and liquids. Special software can be used to identify or “fingerprint” unknown materials.

Features

- High-Resolution Vertical θ/θ Goniometer
- User-Selectable Parallel Beam and Bragg-Brentano Optical Configurations for Asymmetric and Symmetric Scanning Geometries
- Ge 220×2 Bounce Incident Beam Monochromator for Single Crystal Thin Films
- High Precision Z-Stage for Horizontal Sample Measurement
- 20mm XY Direct Contact Stage for XY Mapping
- Small Angle X-ray Scattering (SAXS) Attachment
- Ultra Small Angle X-Ray Scattering (USAXS) Attachment
- High Temperature Attachment (1500 °C Maximum Temperature)
- Capillary Attachment for Air-Sensitive Samples
- BioLogic Model SP-50 Single Channel Potentiostat and Coin Cell Holder for Simultaneous Electrochemical Characterization
- Numerous Sample Holders: Low Background, Zero Background, Airtight, etc.



Available Techniques:

- Powder Diffraction (Focusing Beam)
- Powder Diffraction (Parallel Beam)
- Small Angle X-Ray Scattering (SAXS)
- Thin Film Diffraction (In-Plane)
- Thin Film Diffraction (High-Resolution)
- Thin Film Diffraction (Glancing Incidence)
- X-Ray Reflectometry
- In-Plane Diffraction
- Rietveld Analysis
- Reciprocal Space Maps for Film Epitaxy, Thickness, Lattice Tilt, And Crystal Perfection
- Texture/Pole Figures