## X-Ray Diffraction (XRD) for Powder / Thin Film

## Rigaku SmartLab SE, Japan

Central Labs, Syed Babar Ali School of Engineering, LUMS

2θ Range	Rates for Academia (Rs. per sample)	Rates for Industry (Rs. per sample)	Technical Details	Applications
10° to 80°	6000	12000	Standard range, covers most key reflections.	Phase identification, lattice parameter calculations, bulk analysis.
80° to 160°	6000	1 2000	Extended high-angle range, studying small interplanar spacings (d).	High-resolution structural studies, advanced materials, complex lattices.
10° to 160°	12000	24000	Comprehensive range for complete material characterization. 2	Thin films, multilayers, bulk samples, and high-precision studies.

Powder = The quantity (volume) required for Powder Samples = 80mm<sup>3</sup> to 200mm<sup>3</sup>

Thin Film = It must have a plane surface.

## X-Ray Reflectivity Measurements (XRR) of Thin Film

## Rigaku SmartLab SE, Japan

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2θ Range	Rates for Academia (Rs. per sample)	Rates for Industry (Rs. per sample)	Technical Details	Applications
0° to 10°	20000	40000	Parameters Required for Measurement and	XRR measurements and analyses for single or multilayer thin films, delivering precise data on <b>thickness</b> , <b>density</b> , <b>and surface/interface roughness</b> with high accuracy.