

## X-ray diffractometer - Rigaku Smart lab

**Make :** Rigaku

**Model :** RigaKu Smart lab guidance

**Angular range:** 0.5° to 140° degree

**Source :** Copper (Rotating Anode)

**X-Ray Power :** 200ma,45KV(9kW)

**Detectors:** Scintillation counter (0D), D/tex(1D)  
HyPix-3000 (Hybrid Pixel Array Detector(2D))

**X-ray diffraction:** An analytical technique to identify the phase of a crystal sample and unit cell dimensions.

**Type of sample :** Powder, thin film

### Small-angle X-ray scattering

Small-angle X-ray scattering (SAXS) is a technique where the elastic scattering of X-rays by a sample which has inhomogeneities in the Nano meter range, is recorded at very low angles (**typically 0.1 - 10°**). This angular range contains information about the shape and size of macromolecules, characteristic distances of partially ordered materials, pore sizes, and other data. SAXS is capable of delivering structural information of macromolecules between 5 and 25 nm, of repeat distances in partially ordered systems up to 100 nm.

**Type of samples:** Powder, liquid, thin film.

### **Anton Paar HTK 16N High-Temperature Chamber**

High-temperature sample heating stage with strip heater for powder diffraction. Allows for very fast heating and ensures high sample position stability with heating strip pre-stressing.

**Temperature range: with Pt-strip: 25 °C to 1600 °C** in air, vacuum

with Ta and C-strip: **25 °C to 1600 °C** in vacuum Atmospheres: air, inert gas, vacuum( $10^{-4}$  mbar)

