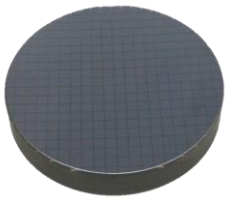
Crystal analyser

Crystal Analysers are optical devices for X-rays consisting of a thin single-crystal wafer bonded onto a shaped glass surface. The adhesion is performed with epoxy glue or by anodic bonding and the wafers are principally made from Si or Ge.
Through a combination of Bragg diffraction and focusing , these crystals permit very precise measurement of X-ray energies for spectroscopic applications such as *X-ray Raman Spectroscopy (XRS), Resonant Inelastic X-ray Scattering (RIXS), Inelastic X-ray Scattering (IXS) and Emission Spectroscopy (ES).*

The ESRF's Crystal Analyser Laboratory (CAL) manufactures three families of spherical analysers and one of cylindrical analysers. These analysers allow many experimental conditions in term of energy resolution, intensity and collected solid angle.

Characteristics

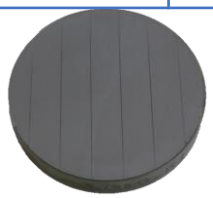
Bent analyser



Bent-diced analyser

Diced analyser

Energy Resolution	~ eV	< 0.5 eV	~ meV
Adhesion	Anodic bonding	Anodic bonding	Epoxy glued
Wafer thickness	(Si) 150 ÷ 500 µm	(Si) 150 ÷ 500 µm , index = 2 x 2 mm^2	(Si & Ge) 3mm , pixel = 1 x 1 mm^2
Curvature radius	1m & 2m	1m & 2m	1m, 2m & 6.5m
Dimension	Ø 100 mm	Ø 100 mm	Ø 100 mm



Bent-striped analyser

Cylindrically bent (Von Hamos)

Energy Resolution	~ eV	~ eV
Adhesion	Anodic bonding	Anodic bonding
Wafer thickness	(Si) 150 ÷ 500 µm , stripes = 15 mm width	(Si) 150 ÷ 200 µm
Curvature radius	0.5m	0.25m, 0.5m & 1m
Dimension	Ø 100 mm	84 mm x 25 mm 110 x 30 mm