

Ultrahigh Energy Resolution Resonant Inelastic Soft X-ray Scattering (RIXS)

Electronic properties and magnetism research by RIXS for the solid materials such as high-temperature superconductors, semiconductors, and multiferroics materials

Beamline properties

- Resonant Inelastic X-ray Scattering (RIXS) in soft X-ray regions is available with the world's highest energy resolution

Method

- Resonant Inelastic Soft X-ray Scattering (RIXS)

Beamline information

Polarization (Energy range)	Linear horizontal and vertical (250–2000 eV) Left and right circular (250–1500 eV)
Beam size at sample position	20–800 μm (V) \times 1 μm (H)
Beam flux at the sample position	$>10^{10}$ photons/s/ μm (V)

2D-RIXS Spectrometer

Energy range	450~1000 eV
Total energy resolution ($E/\Delta E$)	<ul style="list-style-type: none"> ○ high-resolution mode ~40,000@532.5 eV ~31,000@930 eV ○ ultrahigh resolution mode ~55,000@532.5 eV ~50,000@930 eV
Scattering angle of spectrometer	$30^\circ \leq 2\theta \leq 150^\circ$
Sample holder	Scienta Omicron type
Sample Temperature (use liquid He)	~30 K
Measurement time per spectrum	~1h (high-resolution mode) ~5h (ultra-high-resolution mode)
Energy range of a RIXS spectrum	~10 eV
Spectrometer field of view	120 μm

2D-RIXS Spectrometer

Multiple RIXS spectra are measured simultaneously by imaging and position-resolving the incident X-ray energy in the vertical direction and by spectroscopy of the scattered X-ray emission energy in the horizontal direction.

