BL-3B 24m Spherical Grating Monochromator (SGM)

This beamline was designed for the purpose of providing VUV-SX photons with high flux and medium resolution.

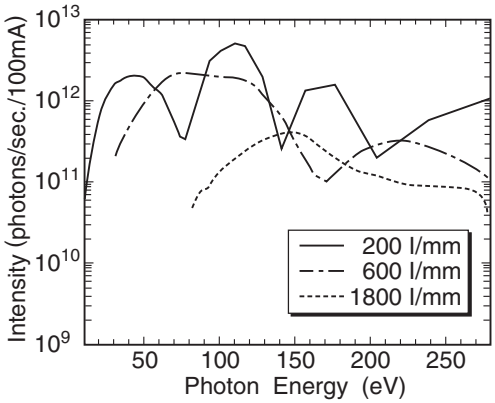

Fig. 1. Photon flux of the monochoromatized light from the 24m SGM monochromator.

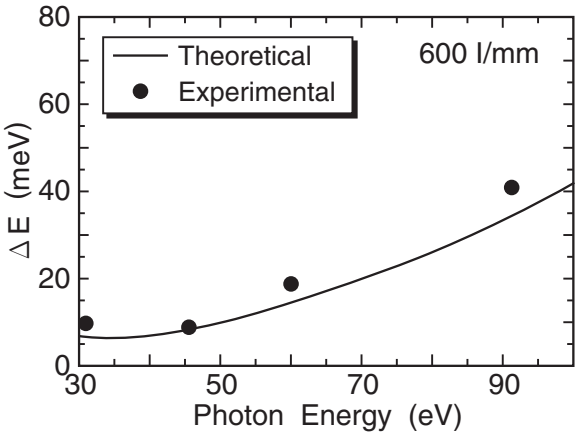

Fig. 2. Comparison of theoretical resolution (solid line) and the resolution estimated from the absorption spectra of rare gases (black dots).

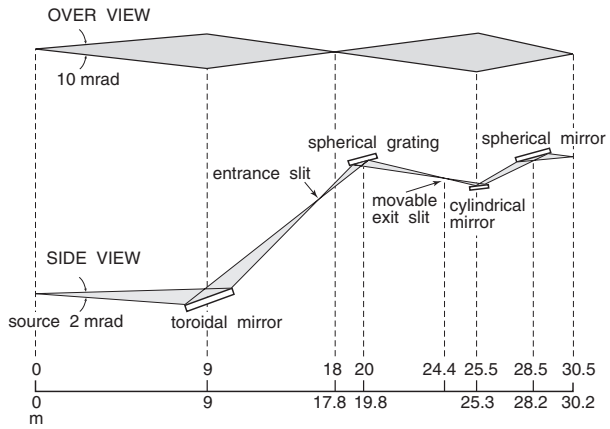

Fig. 3 Schematic diagram of the optical configuration

Area of Research

• Gas phase atomic and molecular photoionization studies by photoion and photoelectron measurements.
• Angle resolved photoelectron spectroscopy of surfaces and thin films.

Light Source

Type Bending magnet

Photons at Sample

Photon energy range: 10 ~ 300 eV, with three laminar type gratings.
1800 l/mm: 85 ~ 300 eV
600 l/mm: 27 ~ 150 eV
200 l/mm: 10 ~ 30 eV
Beam spot size: Less than 2mm (vertical), approx. 2mm (horizontal).
Resolution: $E/\Delta E = 2000 \sim 5000$
Photon flux (500m slit width):
1800 l/mm: 6×10^{11} photons/sec/100mA(max.)
600 l/mm: 3×10^{12} photons/sec/100mA(max.)
200 l/mm: 3×10^{12} photons/sec/100mA(max.)

Facilities in Experimental Station

1. Data acquisition system (MCS measurements, PHA measurements with ADC, as well as GATE and LIST mode measurements with photon energy scan are possible).
2. Laser system (Single-mode ring dye/Ti-sapphire laser and Ar ion pump laser).
3. Ion time-of-flight measurement chamber with a high temperature oven for metallic vapour experiments

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References

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