

All metal sealed Spectrometer
designed & manufactured by
McPherson to provide optimum capability
with specially designed grating from Shimadzu.

Ideal wavelength range 5 to 20-nm ideal
for EUVL source development and analysis.

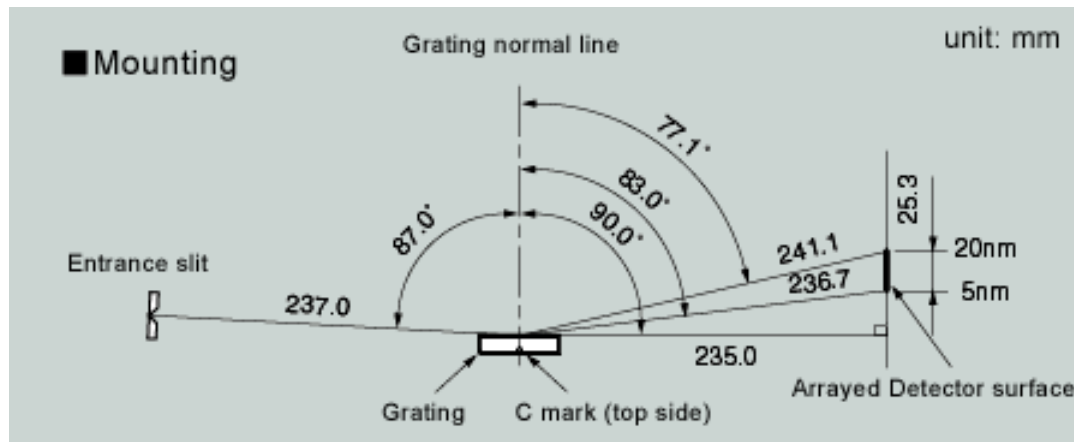
Flat Field Spectrometers for EUVL Source development

Flat field spectrometers are used for:

- EUV light source development & diagnostics
- Monitoring EUV light source operation
- Characterizing material interaction with EUV light sources

Advantages of flat field type gratings

- Simple optical configuration
- Fit to Arrayed detectors
- Simplified instrumentation

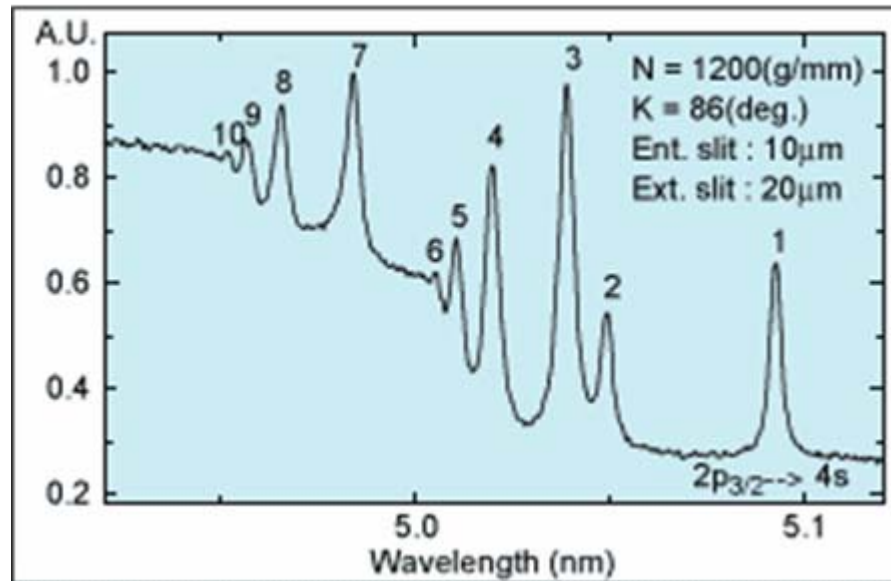


Laminar type VLSG produced by Shimadzu is ideal for EUVL source

- High resolution
- High efficiency
- High order diffraction suppression
- Low stray light and ghost
- Master type - High performance
- Replica type – Low cost

Merit of laminar type VLSG < High resolution >

- Aspherical wave front exposure method to correct Astigmatic aberration

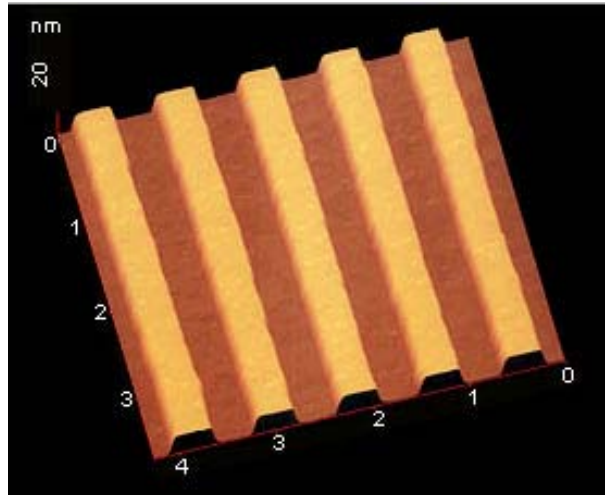


Measurement for Absorption Spectrum of Argon

Merit of laminar type VLSG

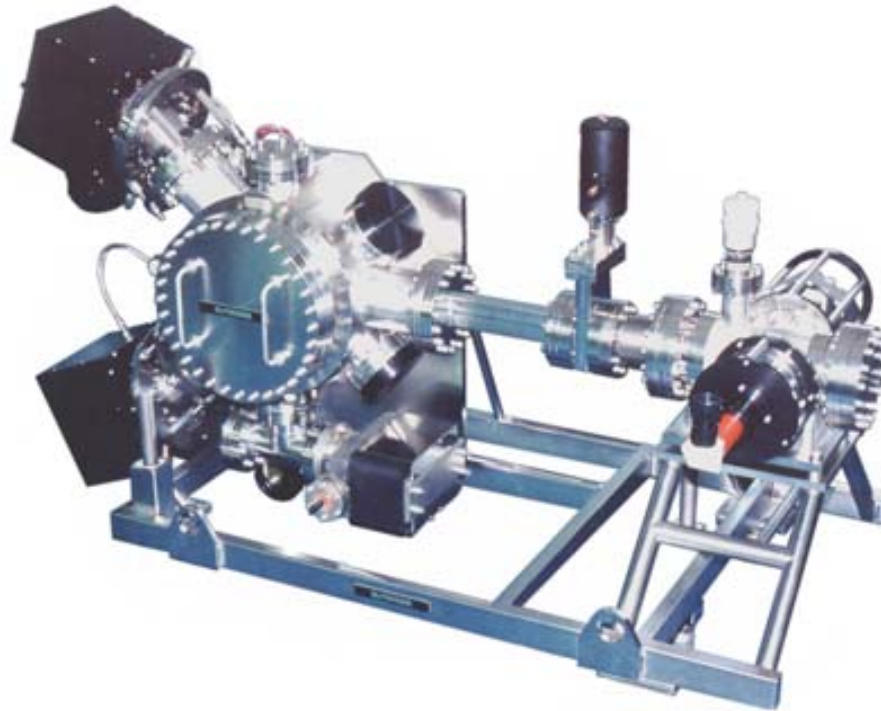
<High Efficiency, Low Stray light>

- Smooth surface by optimized ion beam etching technology.
- Suppression of high-order diffraction by laminar type grooves configuration.
- Low stray light and ghost by holographic recording.



AFM Image

UHV McPherson Spectrometer



Ultra high vacuum McPherson Model 251MX with dual adjustable detector output, entrance gate valve and laser targeting assembly.

Advantages of Spectrometer

- Precision adjustable slit (5 to 1000-microns)
- Adjustable baffle for best grating illumination
- In vacuum grating adjustment & indexing
- Mount holds up to two gratings for series or parallel detection
- In vacuum adjustable zero order baffle
- In vacuum adjustable detector mount to optimized focus across planar detector

Detectors well suited to Spectrometer

Planar, multi channel detectors:

- Windowless back illuminated CCD detectors. CCD detectors allow spectroscopy and ‘imaging’ spectroscopy experiments.
- Microchannel plate intensifiers with CCD/PDA, provides nanosecond gating, time resolution, plasma evolution, etc.

The Flat Field Spectrometer has a detector mount that aligns the position & angle of the detector with the spectrum. The instrument provides peak capability.

Conclusion

An ideal spectrometer for use in the EUVL wavelength region is described. The Spectrometer is designed & manufactured by McPherson. It provides optimum capability with specially designed grating from Shimadzu.

New, cost effective flat field gratings from Shimadzu allow McPherson to deliver an instrument with simple optical system, good efficiency and spectral resolution. The geometry allows use of high sensitivity CCD detectors for direct detection. Microchannel plate intensifiers can be employed for systems requiring gating / time resolution.

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