

highLIGHT

HIGH-RESOLUTION FLAT-FIELD XUV SPECTROMETER



Pembroke Instruments, LLC
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Features

Highest spectral resolution

- flat-field spectrometer for the 1 to 100nm spectral range
- best-in-class spectral resolution combined with user-friendly flat-field configuration
- unique combination of extremely high spectral resolution, wide spectral coverage, and an excellent signal-to-noise ratio

Highest efficiency

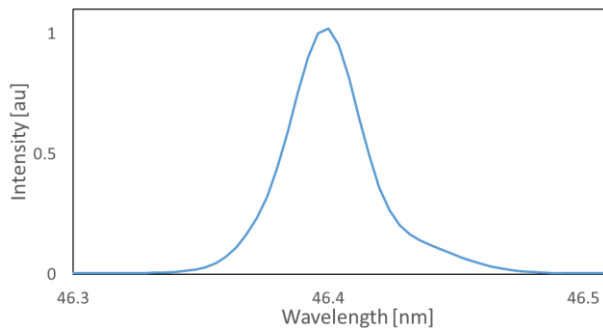
- no-slit design: no need for an alignment-sensitive narrow entrance slit
- ~20x more light collection than standard spectrometers, resulting in a proportional improvement of the signal-to-noise

Accuracy and efficiency

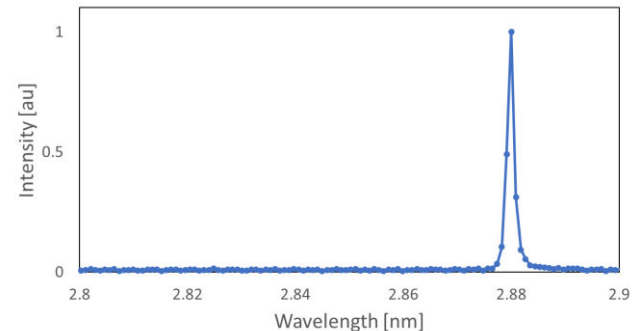
- absolute grating position monitoring for maintaining grating alignment
- highly efficient aberration-corrected flat-field grating
- convenient control by software

Customization

- every spectrometer is built-to-order



High-resolution spectroscopy of a high harmonic source with highLIGHT XUV. The 11th harmonic of a frequency-doubled 1 μ m-wavelength fiber laser is generated in Argon and filtered with Al foil. The FWHM is 5.7 pixels of the CCD camera (13 μ m pixel size), resulting in a resolving power of 1340. (data courtesy of Dr. J. Rothhardt, Fraunhofer Institute for Applied Optics and Precision Engineering)



Emission spectroscopy measurement of nitrogen line at 2.88nm (430eV, transition 1s₂-1s₂p) with highLIGHT SXR+. The FWHM is 1.7 pixels of the CCD camera (13 μ m pixel size), resulting in a resolving power of 1890. The detector-limited resolving power is 3290. (data courtesy of Dr. K. Mann, Laser-Laboratorium Göttingen)

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Specifications

Topology	aberration-corrected flat-field spectrometer		
Wavelength range	1-100nm		
Source distance	flexible		
Detector	CCD or MCP/CMOS		
Operating pressure	10^{-6}mbar (UHV version available)		
No-slit technology	yes		
Entrance slit	optional		
Grating positioning	motorized closed-loop		
Spectral filter insertion unit	yes		
Control interfaces	USB or Ethernet		
Software	Windows UI and Labview/VB/C/C++ SDK		
Customizable	fully customizable		
Options	non-magnetic, rotated geometry, etc		
	SXR+	SXR	XUV
Wavelength range	1-5nm	1-20nm	5-100nm
Dispersion	0.06nm/mm	0.1-0.2nm/mm	0.2-0.7nm/mm
Resolution	<math><0.001</math>nm at 3nm	<math><0.005</math>nm at 10nm	<math><0.02</math>nm at 60nm