

PHAROS - XUUS-5 - Arterium Imaging Spectrometer Beamline Test Results



Key Results

- EUV photon energy in the range of **18 to 62 eV** pumped by 1030nm fundamental wavelength.
- Bright harmonics with narrow linewidths pumped at up to **100 kHz** repetition rate.
- High total EUV photon flux measured at diode up to 5×10^{11} photons/sec after IR rejector and filter, and at source up to 4×10^{12} photons/sec with the photon energy of up to 45eV.
- EUV photon flux of 1.1×10^{13} photons/sec at source at 21.7eV when pumped with the second harmonic at 515nm.
- Driven with ~ 200 fs pulses, the EUV pulses are suitable for a range of time resolved spectroscopies.
- The resulting source configuration is extremely simple, compact, versatile, and commercially available.

HHG Performance

	Ar	Kr	Xe
Rep Rate (kHz)	20	20	50
Pulse Energy (mJ)	1.0	1.0	0.4
Harmonic of 1030nm	35	29	19
Photon Energy (ev)	42	35	23
Flux At Source (phot/sec)	4.7×10^{11}	7.9×10^{11}	3.9×10^{12}

Representative flux measurements with Al₂O₃ diode for all harmonics and calculated to source based on 80% rejector reflectivity and 17-27% filter transmission. Single harmonics range from 10-50% of total flux.

HHG spectra

