

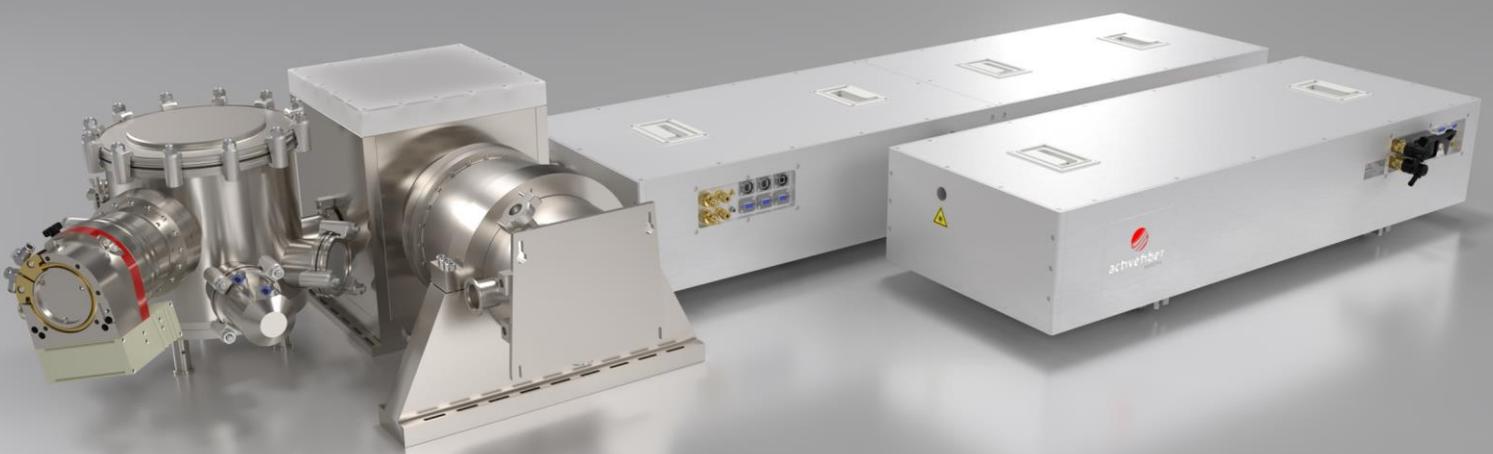
HIGH-FLUX **XUV** BEAMLINES

Sources of short-wavelength radiation, such as synchrotrons or free-electron lasers, have already enabled numerous applications and will facilitate more seminal studies. Furthermore, sources of coherent extreme ultraviolet to soft x-ray radiation via high-harmonic generation (HHG) of ultrashort-pulse lasers have gained significant attention in the last years due to their enormous potential to address a plethora of applications in a cost-effective and table-top format. Therefore, they constitute a complementary source to large-scale facilities.

The photon-flux values obtained by fiber-laser-driven HHG sources can be considered the highest of all laser systems for photon energies between 20eV – 150 eV.

AFS ultrafast fiber lasers are ideal high-harmonic drivers. These turnkey HHG beamlines can address several applications in the EUV to X-ray spectral region such as:

- Photoelectron spectroscopy
- Coherent diffractive imaging – CDI (nanoscopy)
- Attosecond science



MORE INFORMATION

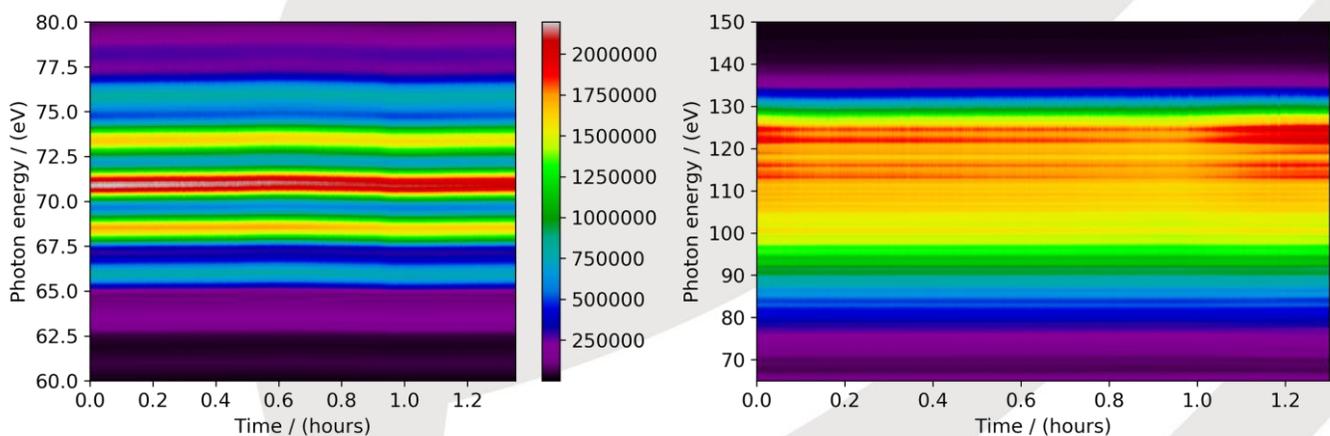
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HIGH-FLUX XUV BEAMLINES

	Accessible parameter ranges	Possible Addon Modules
Photon energy	20eV ... >150eV	Monochromization: Pick the harmonic you want. Can be adjustable to pick multiple different lines
Wavelength	60nm ... <8.5nm	
Photon flux per harmonic	up to 10^{15} Photons/s/harmonic (depending on harmonic)	Dual color driver: Generate harmonics with multiple driving laser wavelengths (e.g. 1030nm & 515nm) at the same time or switch between both drivers during an experiment on the same optical path
Average power per harmonic	up to 10mW (depending on harmonic)	
Repetition rate	flexible, up to 10 MHz	Focusing: Our radiation has an excellent beam quality and can be focussed as tightly as needed. Down to a few μm have been realized.
Pulse duration	Shorter than pulse duration of input laser pulse i.e. <30fs (or shorter)	
Spectral bandwidth	can remain close to the transform limit with flexible bandwidths (i.e. down to <10meV)	Differential pumping Target chambers often have strict requirements on the pressure. We can use the focusing section of the beamline to reduce the pressure down to 10^9mbar or less
Beam profile	Gaussian	
Dimensions of HHG chamber	80cm \times 40cm \times 40cm	Spectrometer Since it is always helpful to know the exact spectrum during your experiments, we offer integrated modules to measure the spectrum, even simultaneously to your experiment, if desired.
Vacuum connections	typically KF-40, can be adapted to customer preferences	
Additional features	Turnkey reliability, high stability, all parameters software-controlled	

The specs above show all our capabilities. Please inquiry for detailed specifications tailored to your application.



Exemplary long-term measurements for harmonic spectra centered around 70eV (left) and 120eV (right).