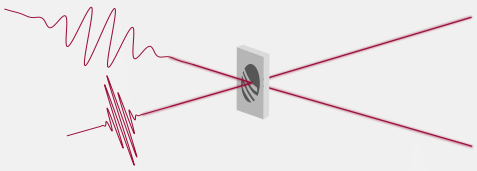
Yb-60-OPA-XUV beamline

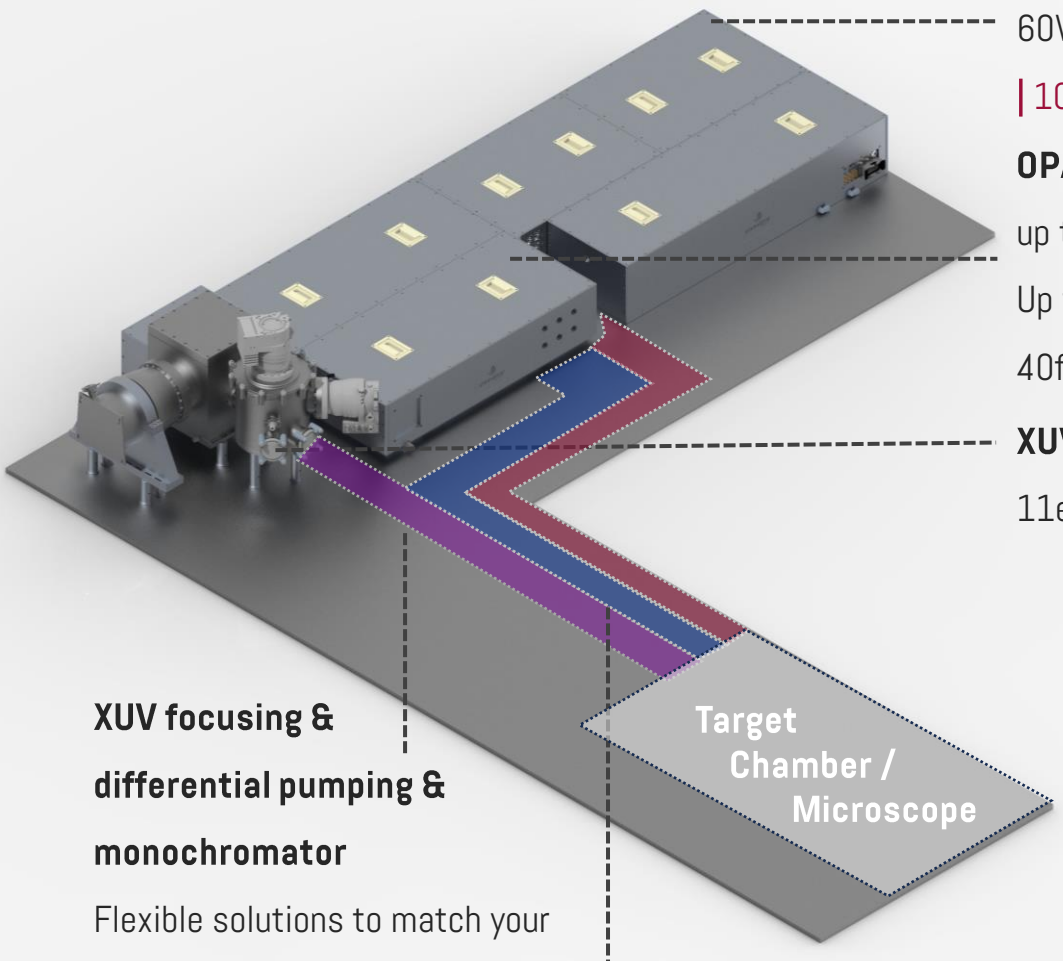
A tool for ultrafast pump-probe science

Member of the TRUMPF Group



We pump & probe, you do the science!

Active Fiber Systems GmbH (AFS) offers an array of high-power femtosecond lasers, including entire pump-probe femtosecond beamlines. Our customers can harness these cutting-edge tools to explore a wide range of pump-probe experiments, shedding light on ultrafast dynamics in materials and paving the way for groundbreaking discoveries.



Ytterbium-60 driver laser

60W | 200µJ | 300kHz | 250fs | 1030nm

OPA

up to 10µJ | 300 – 950nm

Up to 5µJ | 1100nm – 2500nm

40fs - 200fs

XUV generation

11eV (110nm) – 150eV (8.3nm)

XUV focusing & differential pumping & monochromator

Flexible solutions to match your target chamber

Further specs

- Includes any necessary delay line to match the temporal offset between both arms
- Can optionally include entire beam path for XUV and OPA beams up to target chamber including optical translation stage for scanning

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Ytterbium-60 driver laser: 60W* | 200µJ* | 250fs | 1030nm

*stronger lasers up to 2kW, 20mJ possible on demand

Customizable XUV output	
Photon energy	20eV ... >150eV
Wavelength	60nm ... <8.5nm
Photon flux	$>10^{12}$ ... 10^{7} Photons/s/harmonic
Average power per harmonic	up to 10mW (depending on harmonic)
Repetition rate	50kHz to 300kHz (higher rep-rates possible, depending on detailed requirements on the OPA & XUV)
Pulse duration	<10fs ... 100fs
Spectral bandwidth	<20meV ... 1eV
Focus diameter (FWHM) & workin distance	Fleixlbe configurations possible <50µm ... >200µm & 500mm to 1500mm
Vacuum connections	typically KF-40, can be adapted to customer preferences
Additional features	Turnkey reliability, high stability, all parameters software-controlled

Infrared output	
Central wavelength	approx. 1030 nm
Repetition rate	50kHz to 300kHz (higher rep-rates possible, depending on detailed requirements on the OPA & XUV)
Pulse energy	up to 150 µJ
Average power	up to 45 W
Pulse duration	<250 fs or <40fs (post-compressed)
Polarization	linear
Beam quality	close to diffraction-limited, $M^2 < 1.25$
RIN slow (average power)	<0.5% RMS [1/ (8 hours - 1 Hz]
RIN fast (pulse energy)	<0.5% RMS [1 Hz - $f_{rep}/2$]

OR

Integrated tunable OPA output	
Wavelength tuning range	300nm...2500nm
Pulse repetition rate	50kHz to 300kHz (higher rep-rates possible, depending on detailed requirements on the OPA & XUV)
Pulse energy	>10µJ energy at peak
Pulse durations	20fs...300fs, depending on preferences and wavelength
Polarization	linear

Further specs	
Temporal delay	Outputs include necessary delay lines to match both arms temporally to ~cm offsets
Options	Entire beam path into target chamber, translation stage to scan between pump & probe signals, design of interface between our chambers and target chamber, full integration of ARPES, PEM, TOF, etc. possible on request