

OPO-X fs

UV to IR, femtosecond Generation (Ti:Sa Pumped)

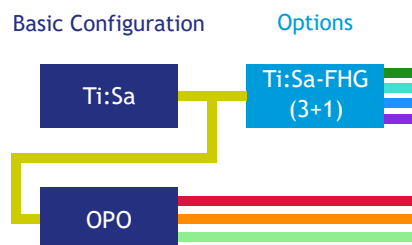
Overview



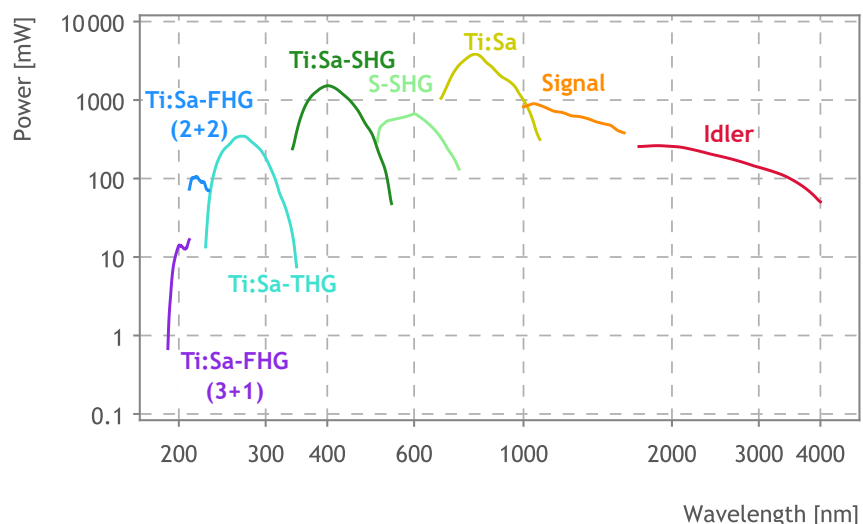
The OPO-X fs is a synchronously pumped, tunable OPO with high conversion efficiency in the IR-range, generating output from 1000 nm to 4 μm . It is driven by mode-locked femtosecond Ti:Sa lasers and its design allows independent wavelength tuning of the Ti:Sa laser and OPO. Intracavity second-harmonic generation (SHG) within the OPO enables efficient conversion into the VIS-range.

Combined with harmonic generators for the Ti:Sa laser extending down to the 4th harmonic, the systems can be configured from 190 nm to 4 μm , providing 200 fs pulses and shot-noise-limited performance. If the Ti:Sa pump laser is convertible between femtosecond and picosecond operation, this flexibility is also available for the OPO-X.

Example Configuration



Typical Tuning Curve



At a Glance

- Extends range of fs-Ti:Sa lasers from 190 nm to 4 μm
- Independent Ti:Sa and OPO wavelength tuning
- Intracavity OPO SHG for efficient conv. into VIS-range
- 200 fs pulse width, convertible to picosecond
- Shot-noise-limited performance
- Perfectly synchronized output pulses
- Automated wavelength tuning

Applications

- Nonlinear and time-resolved spectroscopy
- Multiphoton microscopy
- Pump-probe experiments

OPO Systeme Specifications



Main Parameters		Ti:Sa FHG (3+1)	Ti:Sa FHG (2+2)	Ti:Sa THG	Ti:Sa SHG	OPO-X fs Signal SHG	Chameleon Ull***	OPO-X fs Signal	OPO-X fs Idler
Wavelength range		190 nm ... 210 nm	210 nm ... 230 nm	227 nm ... 360 nm	340 nm ... 540 nm	505 nm ... 740 nm	680 nm ... 1080 nm	1000 nm ... 1600 nm	1750 nm ... 4000 nm
Power		10 mW at 200 nm	80 mW at 220 nm	350 mW at 266 nm	1.4 W at 400 nm	500 mW at 600 nm	3.5 W at 800 nm	650 mW at 1100 nm	150 mW at 2000 nm
Pulse width (FWHM)		typ. 200 fs			140 fs		typ. 200 fs		
Time-Bandwidth product		-			0.6		0.6		
Repetition rate		80 MHz							
Output polarization		Horizontal	Horizontal	Horizontal	Vertical	Vertical	Horizontal	Horizontal	Horizontal
Power stability (RMS)*		0.5%							
Spectral stability (RMS)*		0.01%							
Shot-Noise limited**		-162 dBC/Hz, >1 MHz							

* At the specified wavelength for power measurement, expressed as normalized root mean square deviation (NRMSD), with power lock enabled, under stable environmental conditions.

** -162 dBC - limit of the measurement setup used

*** Chameleon specification please refer to the Coherent data sheet

Pump laser: Above example configuration with Coherent Chameleon Ultra II Ti:Sa laser

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