

Levante IR fs

UV to MIR, femtosecond Generation (1 μm Pumped)

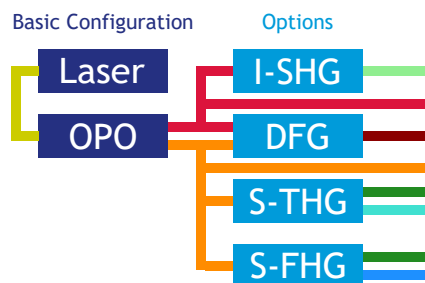
Overview



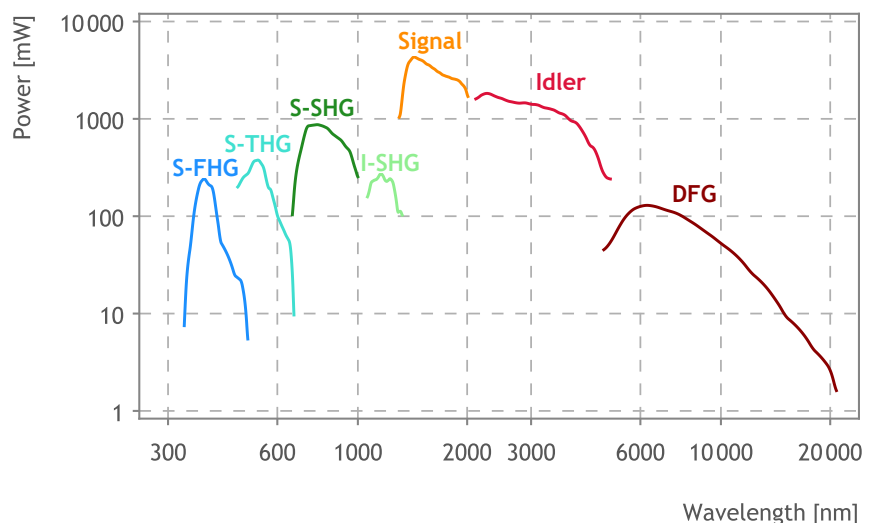
The Levante IR fs is a synchronously pumped, tunable OPO delivering Watt-level Signal and Idler output power across 1300 nm to 5 μm range. With optional harmonic generators for the Signal and Idler down to the 4th harmonic, and Difference Frequency Generation DFG between Signal and Idler, systems are configurable from 325 nm to 20 μm .

The OPO is driven by a 1 μm mode-locked femtosecond laser and provides 150 fs pulses with 100 cm^{-1} bandwidth as well as shot-noise-limited performance. Applications include nonlinear and time-resolved spectroscopy, sSNOM, and multiphoton microscopy.

Example Configuration



Typical Tuning Curve



At a Glance

- Pumped by mode-locked 1 μm fs lasers
- Configurable from 325 nm to 20 μm
- 150 fs and 100 cm^{-1} bandwidth
- Watt-level output power for OPO-Signal and Idler
- Shot-noise-limited performance
- Perfectly synchronized output pulses
- Automated wavelength tuning

Applications

- Nonlinear and time-resolved spectroscopy
- Multiphoton microscopy
- sSNOM (scattering-type Scanning Near-field Optical Microscopy)

OPO Systeme

Specifications



Main Parameters	Signal FHG (2+2)	Signal THG	Signal SHG	Idler SHG	Levante IR fs OPO Signal	Levante IR fs OPO Idler	DFG
Wavelength range	330 nm ... 500 nm	470 nm ... 660 nm	650 nm ... 1005 nm	1065 nm ... 1350 nm	1300 nm ... 2010 nm	2130 nm ... 4850 nm	4.8 μm ... $>20 \mu\text{m}$
Power	typ. 200 mW at 400 nm	280 mW at 500 nm	650 mW at 750 nm	170 mW at 1200 nm	3.2 W at 1500 nm	1.3 W at 2500 nm	120 mW at 6 μm 40 mW at 10 μm 8 mW at 15 μm 1.5 mW at 20 μm
Bandwidth (FWHM)				$\sim 100 \text{ cm}^{-1}$			$\sim 125 \text{ cm}^{-1}$
Pulse width (FWHM)				150 fs			
Time-Bandwidth product				0.5			
Repetition rate				80 MHz $\pm$ 0.5 MHz			
Output polarization	Horizontal	Horizontal	Vertical	Vertical	Horizontal	Horizontal	Horizontal
Power stability (RMS)*				0.5%			
Spectral stability (RMS)*				0.01%			
Shot-Noise limited**				-162 dBc/Hz , $> 700 \text{ kHz}$			

* 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

Pump laser: Above example configuration with Light Conversion FLINT 12 W, 1030 nm

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