Levante Emerald fs
NIR to IR, femtosecond Generation

Overview

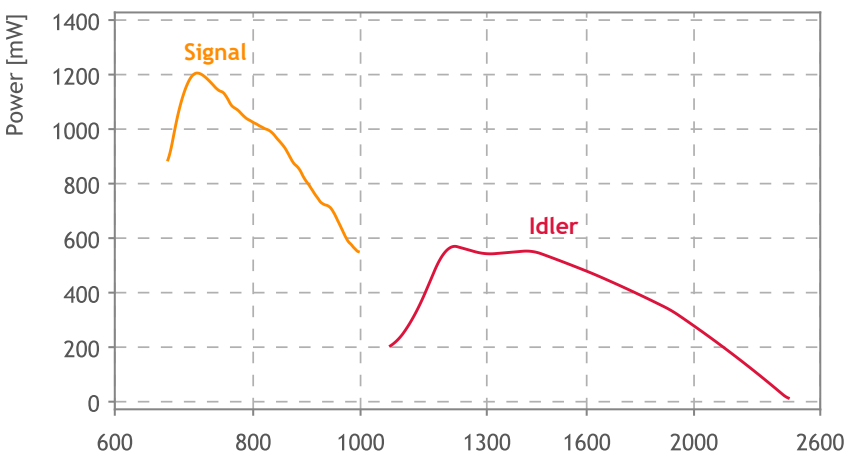
The Levante Emerald fs is a synchronously pumped, tunable OPO with high conversion efficiency, generating output wavelengths from 670 nm to 2200 nm. It is driven by green (SHG of 1 µm) mode-locked femtosecond lasers. It offers a user-adjustable bandwidth between 80 cm^{-1} and 160 cm^{-1}, along shot-noise-limited performance. Applications include broadband and spectral focusing CARS / SRS microscopy, multiphoton microscopy to nonlinear spectroscopy.

Systems can be further customized using pulse pickers (pulseSelect) to reduce the repetition rate, spectral slicers (pulseSlicer) for bandwidth reduction, optical delay lines (scanDelay) and dispersion compensators (femtoControl).

Example Configuration

Basic Configuration

Typical Tuning Curve



At a Glance

- Generates tunable NIR and IR pulses from a green femtosecond laser
- Tuning range: 670 nm – 2200 nm with several 100 mW output power
- Adjustable bandwidth between 80 cm^{-1} and 160 cm^{-1}
- Perfectly synchronized output pulses
- Integrated spectrometer
- Fully computer-controlled with automated wavelength tuning

Applications

- Broadband and spectral focusing CARS / SRS microscopy
- Multiphoton microscopy
- Nonlinear spectroscopy

Levante Emerald fs
Specifications

	Levante Emerald fs Signal	Levante Emerald fs Idler
Wavelength range	670 nm … 990 nm	1075 nm … 2200 nm
Power	500 mW at 800 nm	250 mW at 1250 nm
Bandwidth (FWHM)	80 cm^{-1} … 160 cm^{-1}	
Pulse width (FWHM)	~300 fs, compressible down to <100 fs	
Repetition rate	80 MHz (other on request)	
Output polarization	Horizontal	
Power stability (RMS)*	0.5%	
Spectral stability (RMS)*	0.01%	
Shot-Noise limited**	-162 dBc/Hz, >0.7 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

Example configuration pumped with Light Conversion FLINT 2.4 W, 515 nm

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