Y-Fi™ OPA - Robust, Briefcase-Sized Tunable Ultrafast SWIR/MWIR Source

Fiber laser-amplifier system with integrated infrared OPA.

Computer-controlled tuning, hands-free operation

Applications

- Short-wave infrared (SWIR) supercontinuum generation
- Mid-wave infrared (MWIR) supercontinuum generation
- Three and Four photon excitation fluorescence microscopy
- Pump probe spectroscopy
- Tip-enhanced mid-wave infrared nanoscopy and nanospectroscopy
- Retina-safe coherent Raman scattering (simulated Raman scattering, coherent anti-Stokes Raman scattering, impulsive stimulated Raman scattering, etc.)

Features

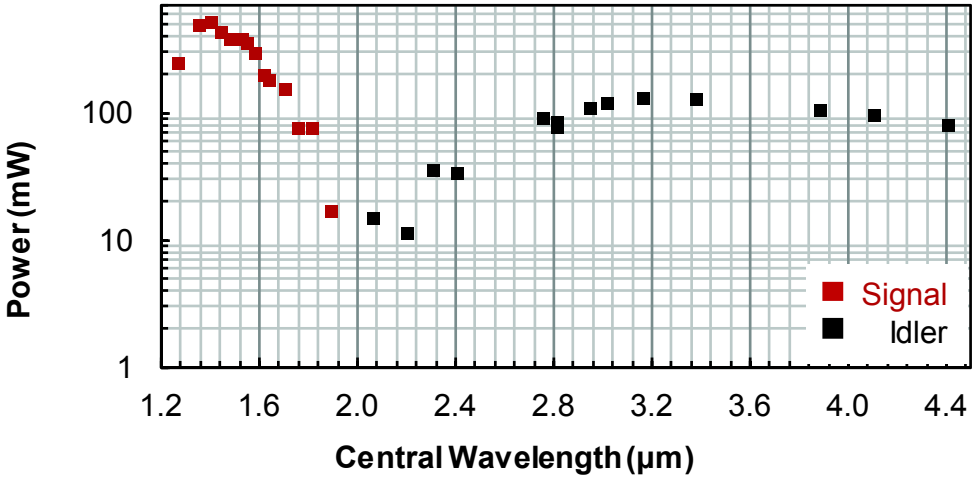
- Coherent white light seeded OPA
- Average power up to 400 mW in the Signal and 100 mW in the Idler
- <1.5% shot-to-shot pulse energy deviation in Signal
- Excellent beam quality: M^2 typically <1.4
- Residual 1 μm output available at separate port
- Intuitive control GUI including wavelength and pulse optimization
- Combination of clean (low pedestal) short pulses and high energy gives higher peak intensities to drive nonlinear optical processes
- Custom configurations available

The Y-Fi™ OPA is KMLabs' vertically integrated optical parametric amplifier pumped by a Y-Fi™ HP. The class-leading pulse duration of the 1035 nm centered Y-Fi™ HP results in both a stable, coherent white light seed source and exceptionally high conversion efficiency into the short-wave and mid-wave infrared.

Y-Fi™ OPA Unique Features

- Tunable repetition rate range of 1-2 MHz
- > 15% conversion efficiency into Signal and Idler
- Supports < 50 fs pulses
- Y-Fi™ HP output (1035nm, 3 μJ) also available, direct or residual after OPA
- Compact form factor: 12"x16"x5.5" optical head

Y-Fi™ OPA Tunability



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Y-Fi™ OPA Specifications

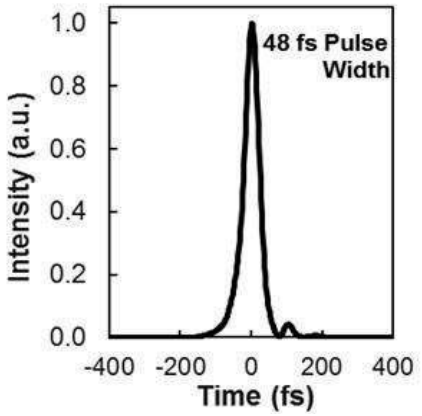
Parameter	Y-Fi OPA Signal	Y-Fi OPA Idler
Center Wavelength	1250 -1800 nm	2.4 – 4.4 µm
Pulse Width	< 50 fs bandwidth*	< 100 fs bandwidth*
Beam Quality	M^2 < 1.4**	Not specified
Average Power	> 0.4 W @ 1 MHz***	> 0.1 W @ 1 MHz***
Pulse Energy	>0.4 µJ @ 1 MHz***	>0.1 µJ @ 1 MHz***
Peak Power	> 3 MW supported	Not specified
Repetition Rate	1-2 MHz	1-2 MHz
Power Stability	<3% RMS over 12 hours after 30 min warm-up	<3% RMS over 12 hours after 30 min warm-up****
Pointing Stability	<20µrad RMS over 12 hours after 30 min warm-up**	Not specified

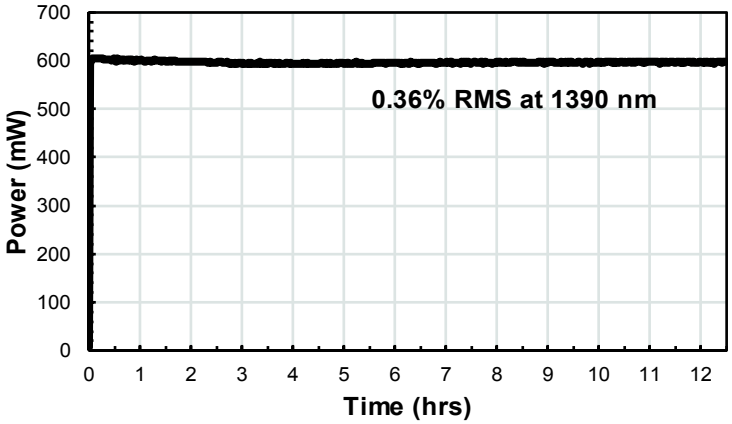
* At the tuning range minimum

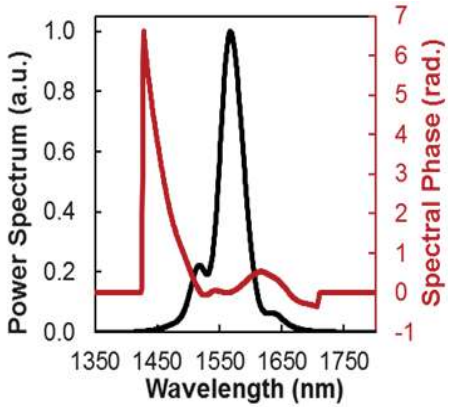
** Measurement performed on SHG of signal at tuning range maximum

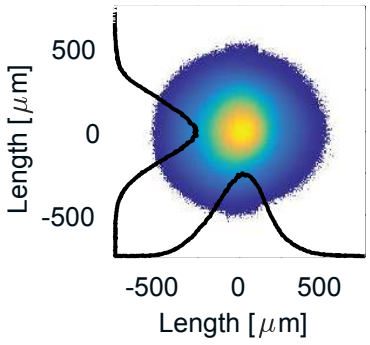
*** At the tuning range peak

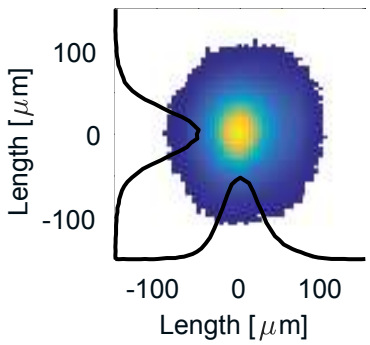
**** Typical performance











Y-Fi™ OPA Sample Data

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