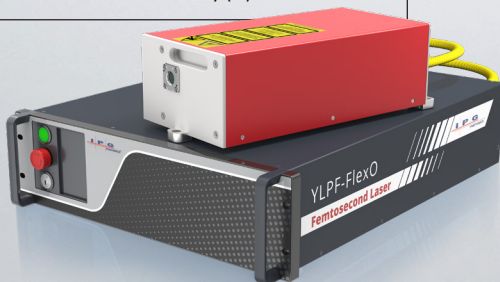
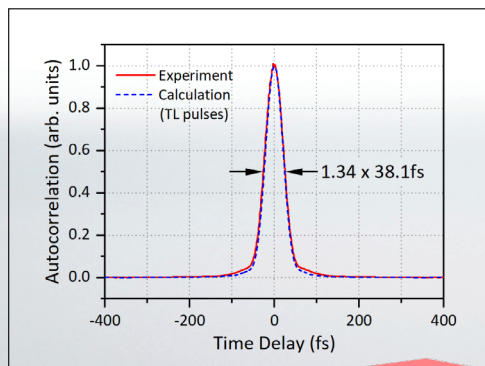
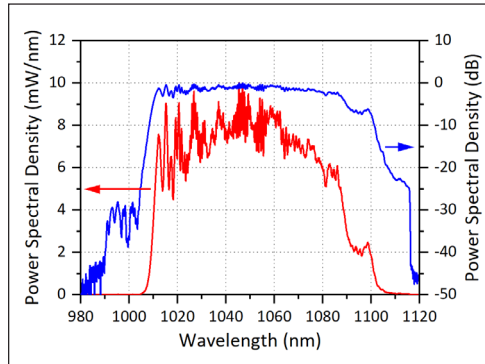


YLPF-FLEXO

Femtosecond Laser with Programmable Pulse Shaper



BUILT-IN PULSE CHARACTERIZATION AND DISPERSION COMPENSATION

FEATURES



- ▶ Pulse Duration from sub-40 fs to 4 ps
- ▶ Peak Power > 1 MW
- ▶ Programmable Pulse Shape : Transform limited or Shaped Pulses on Demand
- ▶ Push-button Dispersion Compensation



APPLICATIONS

- ▶ Bio-imaging & Nonlinear Microscopy
- ▶ Multiphoton Polymerization & 3D Printing
- ▶ Ultrafast Spectroscopy
- ▶ Terahertz Generation
- ▶ Optogenetics
- ▶ Coherent Control

IPG Photonics' **YLPF-FlexO** femtosecond laser offers unprecedented flexibility in tailoring laser pulse parameters to applications. The laser system incorporates IPG's proprietary pulse shaping technology that enables users to generate desired temporal pulse shapes - from the shortest, near-transform-limited pulse to a variety of optical waveforms.

With YLPF-FlexO laser, one can have pulses as short as sub-40 fs, with >50 nJ per pulse and >1 MW peak power right at the target. The user can stretch those pulses by up to two orders of magnitude (up to $\pm 30,000$ fs² of linear chirp) or shape them into a multi-pulse sequence by encoding more sophisticated spectral phase and amplitude profiles.

The ability to change the laser pulse shape and IPG highly reliable fiber architecture make this femtosecond laser a perfect tool for a wide range of scientific, biomedical, and advanced applications.

YLPF-FlexO

Femtosecond Laser with Programmable Pulse Shaper

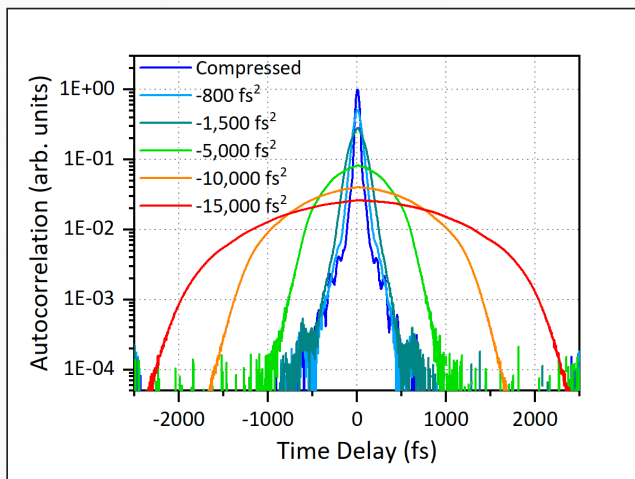
Specifications	YLPF - FlexO - 50
Central Wavelength*, nm	1055±15
Spectral Width*, nm	>80, typ. 95
Average Power, mW	>550
Pulse Energy, nJ	>50
Repetition Rate, MHz	11± 0.5
Temporal Pulse Shape	Programmable
Programmable Device	2D LCOS Spatial Light Modulator
Pulse Control Variables**	Phase and amplitude*
Transform Limited Pulse Duration (FWHM), fs	<50, typ. sub-40
Programmable Time Range***, ps>	>6
PolarizationL	inear, 100:1
Beam Quality	M ² < 1.2
Beam Diameter****, mm	3±0.3

*The central wavelength and width are determined at -10dB level.

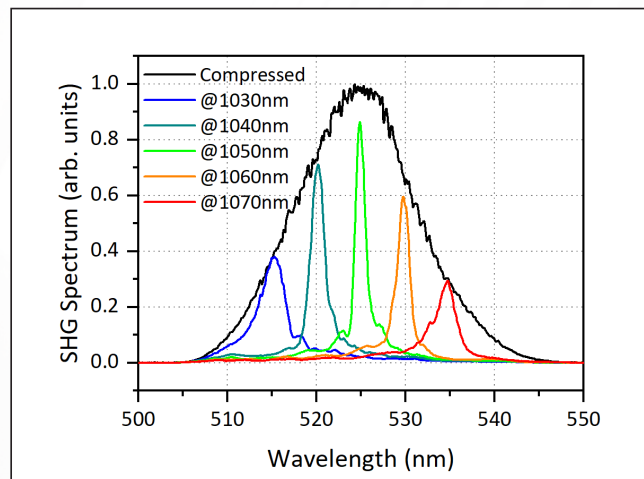
** Use diffractive shaping to enable phase-only, amplitude-only, and phase-and-amplitude control.

*** FWHM of the second-harmonic generation (SHG) intensity profile as a function of shaper-assisted time delay.

**** Beam diameter at the laser output, measured by the knife-edge method, 84% level.



Measured autocorrelation profiles for compressed and pre-chirped pulses. The second-order dispersion, known also as linear chirp, is applied by the built-in pulses shaper. The logarithmic vertical scale is used to highlight both peak power and pulse duration trends. The ACFF WHM scales from 51 fs to 2,100 fs.



Selective two-photon excitation via phase-only shaping. The third-order dispersion of 300,000 fs³ is programmed at various wavelengths, λ_0 , across the laser spectrum to diminish the two-photon transitions other than to $\lambda_0/2$.



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MAX. AVERAGE OUTPUT POWER: 1 W
 MAX. PEAK OUTPUT POWER: 4 MW
 PULSE DURATION: 30 fs - 20 ps
 PULSE REPETITION RATE: <15 MHz
 WAVELENGTH RANGE: 900-1200 nm

DANGER - INVISIBLE LASER
 RADIATION AVOID EYE OR SKIN
 EXPOSURE TO DIRECT OR
 SCATTERED RADIATION
 CLASS 4 LASER PRODUCT
 IEC 60825-1:2014