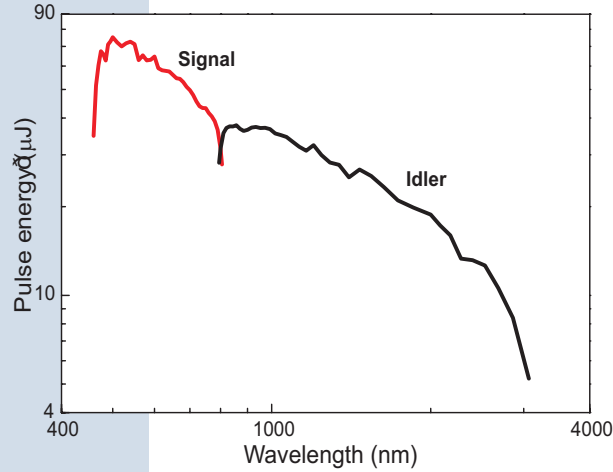
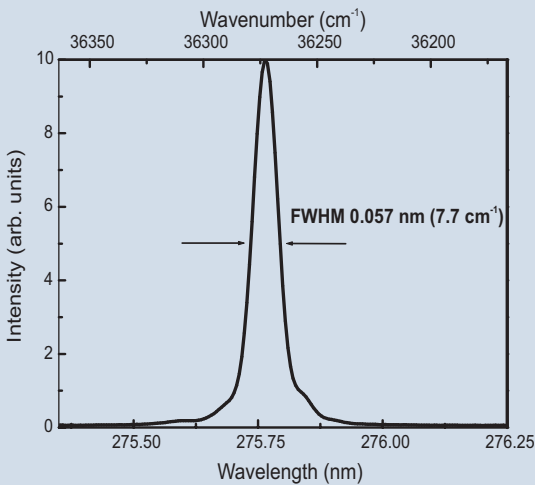


TYPICAL OUTPUT PERFORMANCE OF TOPAS 400 PUMPED WITH 0.44mJ, 400 nm, 1.5 ps



TOPAS Model 400 is pumped by second-harmonic of Ti:sapphire lasers and continuously covers wavelength range from 470 to 2600 nm. With optional frequency mixers this range can be extended from 189 nm to 5 microns.

TYPICAL SPECTRUM OF SHS PULSE WITH FWHM=7.7 cm<sup>-1</sup>



#### PUMP REQUIREMENTS

Wavelength	385-405 nm
Pulse width (FWHM)	1-4 ps
Pulse energy	0.3-5 mJ
Maximum average power	2 Watt
Spectral width	< 1.2 times transform limit
Polarization	horizontal
Energy instability	< 3% peak-to-peak
Pulse width instability	< 1% pulse-to-pulse
Beam divergence	M <sup>2</sup> < 1.5
Pulse tilt	< 10% of pulse width
Pulse contrast	< 5% of output energy in background

#### PERFORMANCE SPECIFICATIONS WITH 400nm/0.5 mJ/3 ps/6 cm<sup>-1</sup> PUMP PULSES

##### OUTPUT FROM TOPAS

Tuning range (signal+idler)	470-2600 nm
Energy (signal+idler)	> 100 μJ at peak
Pulse duration	(0.5 to 0.7) x pump pulse width
Spectral width	< 12 cm <sup>-1</sup>
Polarization	signal (470-800 nm) vertical idler (800-2600 nm) horizontal
Energy instability	5% rms
Beam divergence	< 2x diffraction limit

**OUTPUT FROM OPTIONAL SECOND-HARMONIC GENERATOR  
SH OF SIGNAL (SHS) & SH OF IDLER (SHI)**

Tuning range	235-400 nm (SHS)	400-470 nm (SHI)
Pulse energy	> 20 $\mu$ J at peak	
Pulse duration	(0.7 to 1.0) x signal pulse width	
Spectral width	< 15 $\text{cm}^{-1}$	
Polarization	horizontal (235-400nm)	vertical (400-470nm)

**OUTPUT FROM OPTIONAL SUM-FREQUENCY GENERATOR\***

Tuning range	217-235 nm
Pulse energy	> 2 $\mu$ J at peak
Pulse duration	(1.0 to 1.2) x pump pulse width
Polarization	horizontal

**OUTPUT FROM OPTIONAL DEEP UV GENERATOR\*\***

Tuning range	189-220 nm
Pulse energy	> 2 $\mu$ J at peak
Pulse duration	(1.0 to 1.2) x pump pulse width
Polarization	vertical

**OUTPUT FROM OPTIONAL MID-IR GENERATOR\*\*\***

**PUMP- SHI**

Tuning range	2.6 -5 $\mu$ m	
Pulse energy	>50 $\mu$ J @ 3 $\mu$ m	>25 $\mu$ J @ 4 $\mu$ m
	> 8 $\mu$ J @ 5 $\mu$ m	
Polarization	horizontal or vertical (depends on model)	
Spectral width	< 20 $\text{cm}^{-1}$	
Time- bandwidth product	< 0.7 (assuming Gaussian shapes)	

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Beam divergence with all options < 2x diffraction limit

\* Sum-frequency generator mixes pump (400 nm) and signal pulses

\*\* Deep UV generator mixes laser fundamental (800 nm) and SHS pulses.  
(Assuming secondary 0.5 mJ pump channel at 800 m)

\*\*\* Assuming secondary 1 mJ pump channel

**Note:** with increased pump energy TOPAS output energy scales up linearly