

## Innovative Ultrafast Laser Solutions

# ShapeShifter

## Nonlinear Pump/Probe Spectrometer



### ADVANTAGES

- Packaged with our industry-leading Model CPA-Series fiber seeded Ti:Sapphire amplifier
- Sub-20fs instrument response function with available NOPAs
- Available EON option for long range probe up to milliseconds (replaces ns laser flash photolysis system)
- Open software architecture
- Included data analysis software
- Can be customized to user requirements/configurations
- Can be equipped with Model IMPULSE as the laser source for high repetition rate spectroscopy/microscopy

### APPLICATIONS

- Transient Absorption Spectroscopy and microscopy
- CARS spectroscopy/microscopy
- High S/N pump/probe spectroscopy & microscopy
- 2D spectroscopy
- Ultrafast electron microscopy
- Time-resolved photo-induced Electrochemistry

ShapeShifter is a state-of-the-art research tool that can be configured to perform pump-probe experiments using many different types of nonlinear processes. It is designed, fabricated and tested using field-proven components from a single manufacturer, thereby minimizing your technology adoption risk.

ShapeShifter is capable of meeting your current needs while retaining the flexibility to add options that include pulsewidth as short as 15fs, a large range of pump and probe wavelengths (e.g. sub-200nm to beyond 10 microns) with decay times ranging from sub-30 femtoseconds to nanoseconds, and at user-selectable repetition rates that are variable from single-shot to multiple kHz. ShapeShifter begins with the field-proven Model CPA-series patented, fiber-oscillator-seeded, Ti:Sapphire regenerative amplifier.

The output beam of the Model CPA can be split into as many as seven beams to pump as many as seven tunable, non-collinear OPAs (NOPAs), or you can use one beam to generate multiple continua and/or you can microstructure materials to create features smaller than 1 micron. Clearly, ShapeShifter is the ideal tool for a user facility.

Why limit your future options when ShapeShifter offers you unmatched flexibility to go where your research takes you?

## Specifications:

	Default	Optional
Pump wavelength(s)	775nm (Fundamental) 388nm (SHG)	450-1600nm NOPA 250nm to 20um (OPA)
Probe wavelength range	450-780nm	320-1600nm
Delay window	3.2ns	up to milliseconds with EON Longer optical delays are also available
Detection	VIS detection	UV-Vis detection Vis-NIR detection NIR-mid-IR detection
Spectral resolution	2nm	Detector/wavelength range dependent
Temporal resolution	x1.4 (pump/probe, typical)	as small as sub-20fs with NOPA-pump/ NOPA-probe
Sample holder	3D sample holder	Reflection geometry or customized sample holders
Cooling requirements	none	
Polarization	Optional polarization control for anisotropy experiments	

## Notes:

- Custom configurations with wavelength tunability between 400nm and 10micron are available as a pump or probe source.
- Transmission or reflection geometry
- Available polarization control
- Customized sample holders for magneto-optical experiments
- Can be customized to run concurrently with electrochemical experiments
- 1T. Wilhelm, J. Piel, and E. Riedle, "Sub-20-fs pulses tunable across the visible from a blue-pumped single-pass noncollinear parametric converter," Opt. Lett. 22, 1494-1496 (1997)



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