

OPCPA

Optical Parametric Chirped Pulse Amplification Systems

FEATURE OVERVIEW

- Customizable light sources for applications requiring the shortest pulses and extreme peak and average powers
- Wavelengths from 800 nm to 3 μm (Mid-IR extensions available)
- Peak powers up to > 5 TW
- Pulse duration down to 6.5 fs
- Repetition rates: 100 Hz to 200 kHz
- CEP stability < 250 mrad even in multi-TW peak power systems

Optical parametric chirped pulse amplification is the only currently available laser technology simultaneously providing high peak and average power, as well as few-cycle pulse duration required by the most demanding scientific applications.

LIGHT CONVERSION's answer to these demands is a portfolio of cutting-edge OPCPA products that are based on years of experience in developing and manufacturing Optical Parametric Amplifiers and Femtosecond Lasers.

OPCPA system delivering 5.5 TW peak power (6.6 fs, 36 mJ) pulses.

Built for ELI-ALPS in collaboration with Ekspla.



Pumped by Picosecond Nd:YAG Lasers, Seeded by ORPHEUS-OPCPA

Applications like high energy attosecond pulse generation, generation of high harmonics from solid targets, and laser electron acceleration all benefit from few-cycle pulse durations and excellent pulse contrast while requiring multi-millijoule pulse energy. Our most powerful systems, scalable to multi-TW peak powers at kHz repetition rate while maintaining few-cycle pulse durations, will fit the most demanding requirements, while providing stability and reliability unprecedented for systems of this scale.

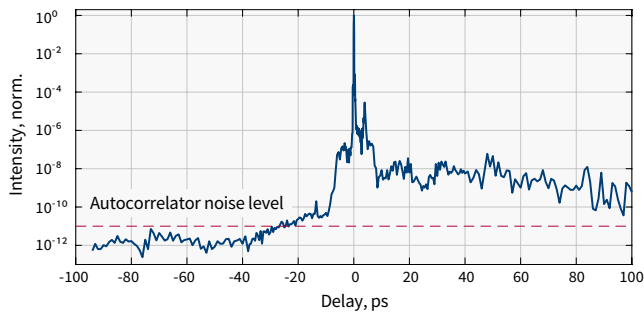
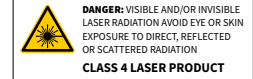


SYLOS has been launched in ELI-ALPS facility in Hungary on 15th of May, 2019

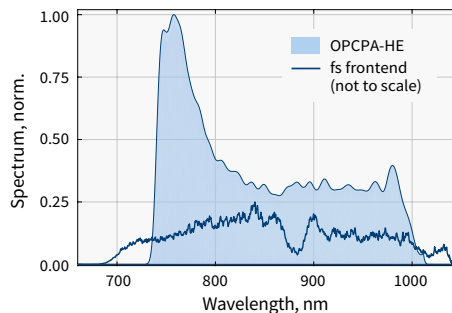
CONFIGURATIONS EXAMPLES

Wavelength	800 nm	900 nm	1.6 μm	2 μm
Pulse duration	< 9 fs	< 6.5 fs	< 50 fs	< 30 fs
	Repetition rate		Pulse energy / Output power	
HE-100 ¹⁾	100 Hz	50 mJ	35 mJ	100 mJ
HE-1000 ²⁾	1 kHz	50 mJ / 50 W	35 mJ / 35 W	100 mJ / 100 W

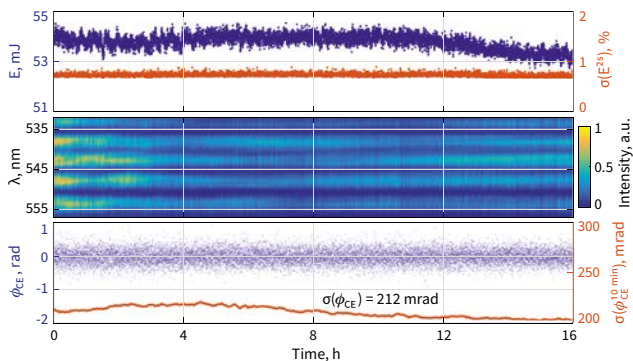
- 1) Cost-effective highly-stable multi-TW source.
- 2) Cutting-edge combination of peak and average power.



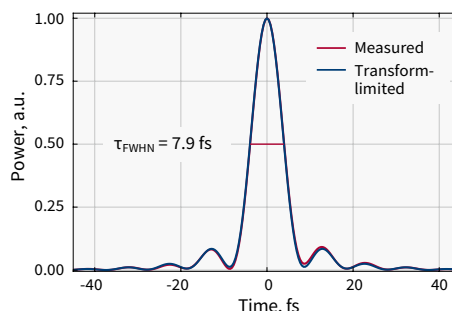
High-dynamic-range third order autocorrelation measurement of an OPCPA-HE system



OPCPA-HE output spectrum



OPCPA-HE pulse energy, f-2f interferogram and CEP stability measured during a 16-hour test run



Temporal profile of OPCPA-HE output pulses measured with a self-referenced spectral interferometry device