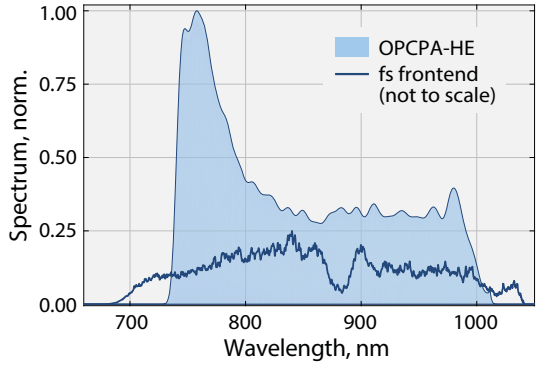
OPCPA-HE

Driving low efficiency nonlinear processes, such as high harmonic generation laser-driven THz generation, requires high pump energies. For applications of this type, LIGHT CONVERSION produces OPCPA systems delivering up to 50 mJ pulse energy, combined with exceptional energy and CEP stability, as well as temporal contrast, owing to the advanced front-end technology and favourable properties of the OPCPA process.

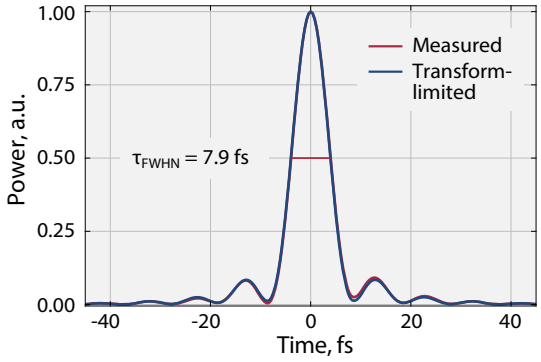
LIGHT CONVERSION and EKSPLA consortium has recently set a new standard in the field by delivering a 5.5 TW, 1 kHz few cycle OPCPA system to ELI-ALPS. Besides the record-setting output parameters, the system also exhibits excellent short-and-long-term stability and reliability. More information about this system can be found in: *https://doi.org/10.1364/OE.25.005797*.

FEATURES

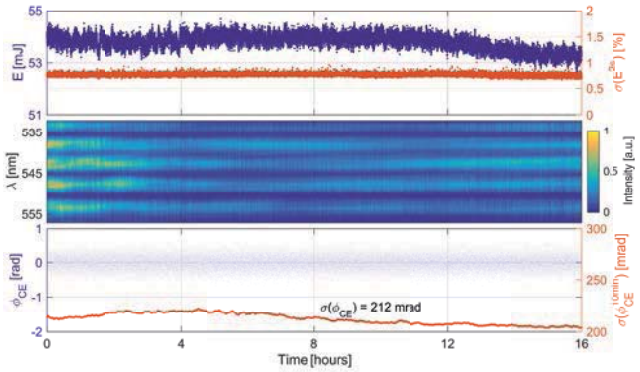
- Multi-TW peak power pulses produced at up to 1 kHz repetition rate
- Pre-pulse contrast exceeding 10^{12} achievable without complex and lossy nonlinear pulse cleaning techniques
- Sub-220 mrad CEP noise and < 1 % energy stability maintained throughout full day of operation
- Pulse duration down to < 9 fs
- Safe and simple spectral-temporal shaping of output pulses possible
- Integrated control and diagnostics system
- Less than 1 hour warm-up time



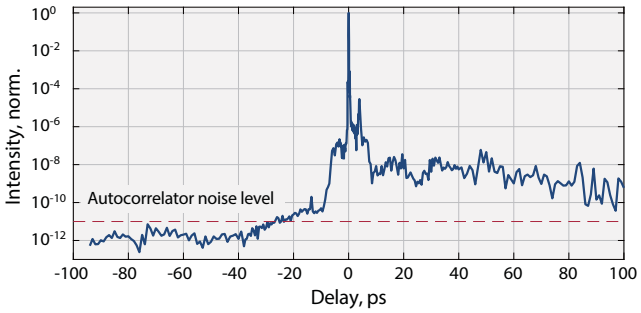
OPCPA-HE output spectrum



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



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



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

SPECIFICATIONS

Product name	Output Energy	Output power	Output pulse duration	Max. Peak Power	Repetition rates
OPCPA-HE	1 – 50 mJ	up to 50 W	< 10 fs	up to 5 TW	up to 1 kHz
OPCPA-HR	10 µJ – 1 mJ	up to 100 W	< 10 fs	up to 100 GW	up to 200 kHz

Different pulse repetition rates, output energies, pulse durations and wavelengths are also available – please contact LIGHT CONVERSION for more information.

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