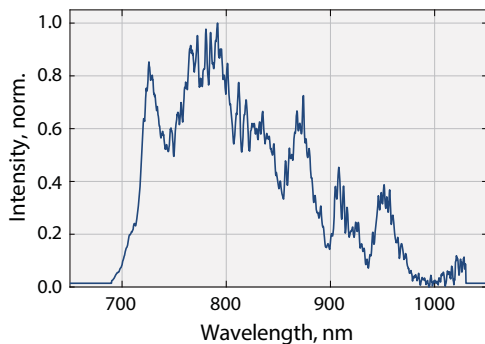
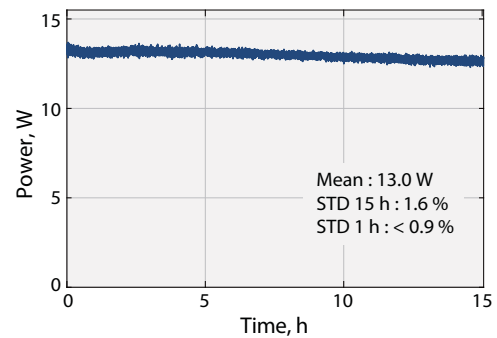


OPCPA-HR

The technology developed by LIGHT CONVERSION can be readily integrated with high repetition rate pump lasers to create high average power OPCPA systems. In this regime, few cycle pulses can be produced at repetition rates up to 200 kHz. A special dual pulse picker system in the Pharos laser can be used to adjust the repetition rate of the frontend independently of the pump laser. This allows to conveniently reduce the output power for alignment of experimental setups without affecting pulse energy or beam direction. Furthermore, residual pump beams can readily be used, for example, to generate photoelectron bunches synchronized with OPCPA output for advanced experiments.



OPCPA-HR pulse spectrum



Output power of OPCPA-HR measured over 15 hours

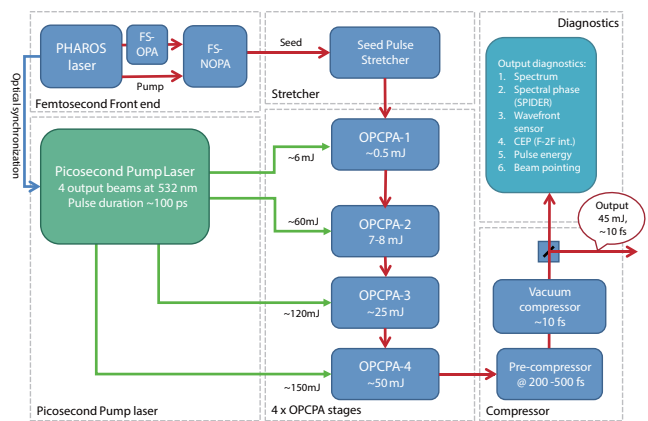
FEATURES

- Pulse repetition rates up to 200 kHz
- Average power > 15 W at 100 kHz
- Passive CEP stabilization available
- Pulse duration down to < 8 fs
- Arbitrary division of OPCPA pulse repetition rate possible
- Convenient integrated control and monitoring software
- Compact footprint

INSTALLATIONS

LIGHT CONVERSION and EKSPLA Consortium have won the public procurement tender of the ELI-ALPS facility for the design and construction work for the SYLOS laser system. To our knowledge, the SYLOS laser system will be able to generate four times higher peak power pulses than the current state of the art at 1 kHz rep rate. The system is based on LIGHT CONVERSION's Optical Parametric Chirped Pulse Amplifiers driven by LIGHT CONVERSION's femtosecond (fs) laser PHAROS and EKSPLA's picosecond laser.

PHAROS pumps two fs OPAs: the first (FS-OPA) produces passively CEP stabilized pulse at 1.3 μm used for generation of CEP stable WLC, while the second (FS-NOPA) amplifies WLC in 700 – 1000 nm range providing high contrast seed pulse for the subsequent OPCPA stages. The pulse amplified to 50 mJ of energy at an 850 nm central wavelength is compressed in a sequence of glass blocks and chirped mirrors down to 10 fs pulse duration.



ELI-ALPS OPCPA laser system SYLOS block diagram



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