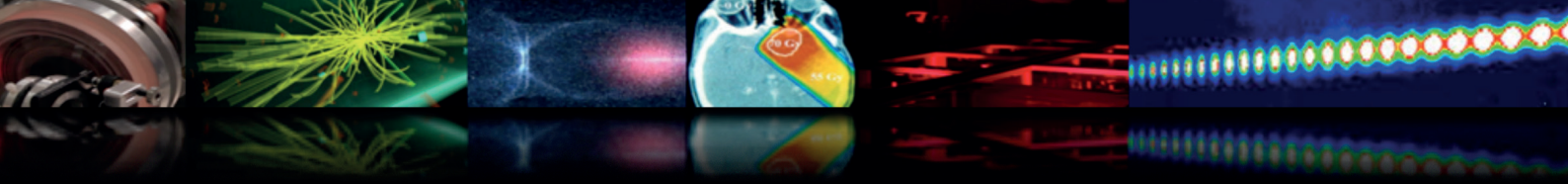
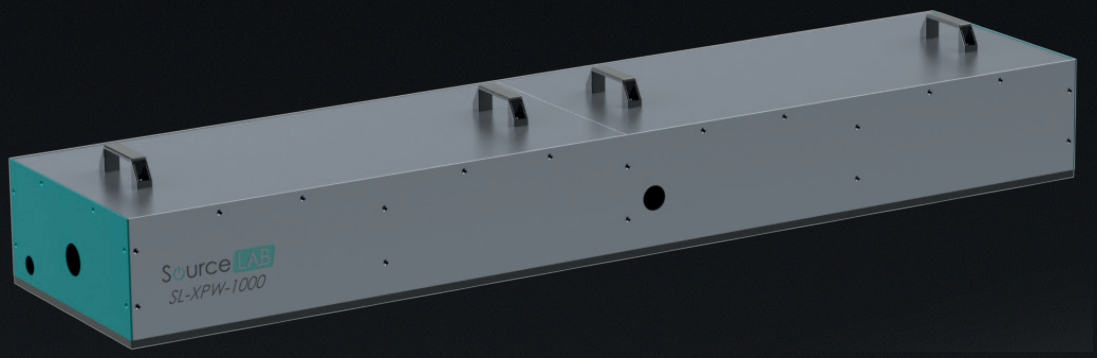


SourceLAB

Laser Shaping & Metrology

XPW

Energy-scalable high-efficiency laser temporal contrast filter



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XPW Temporal contrast filter and post-compressor

For clean, high-contrast pulses

Laser-solid interaction at high intensity requires clean, high-contrast ultrashort pulses. Several methods have been used to improve high-density femtosecond pulse temporal contrast.

Amongst them, XPW technique has soared in the recent years and is now recognized as the most effective solution inside a laser chain. Not only it improves temporal contrast, but it also shortens pulse duration and smoothens spectral phase.

Typical layout

(CEP Compatible)

Key features

- fs-pulse contrast enhancement (> 3 orders)
- fs-pulse post-compression (> two-fold)
- Generation of high-contrast few-cycle pulse

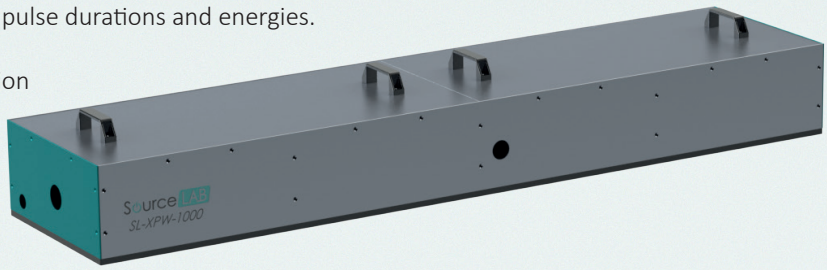
OUR SOLUTION

We provide a state-of-the-art XPW configuration combining spatial and temporal filtering for optimal conversion efficiency.

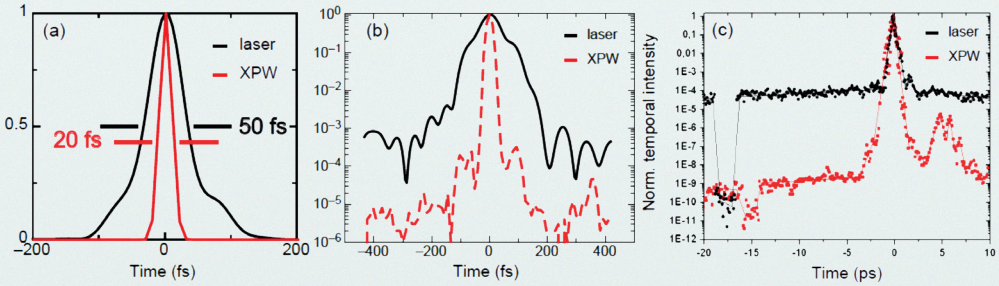
Set-up is versatile, easily configurable for a wide range of input pulse durations and energies.

Set-up performs maximum conversion efficiency, in the saturation regime, reducing shot-to-shot instability.

Contrast improvement, energy, pointing stability and spectral shape and bandwith are optimized.



In addition to the filtering feature, thanks to spectral broadening, XPW is an alternative to gas-filled hollow-core fiber for post-compression of multi-mJ, ultra-short pulses into the few-cycle regime.



Typical temporal profiles before and after XPW

a. Pulse compression from 50 to 20 fs
b. Coherent contrast enhancement by 2 orders of magnitude
c. Incoherent contrast enhancement by 4 orders of magnitude

Specifications	
Input energy range	1 - 10 mJ
Input duration range	5 - 100 fs
Total energy throughput	10 - 20% depending on configurations
Spectral bandwidth **XPW pulse FTL duration**	Two-fold Half the input pulse duration
Contrast ratio enhancement	3 - 4 orders depending on configurations
Available options: • low B-integral • input/output beam pointing stabilization • fully motorized system • front-end full characterization	**Features:** • reflective optics design • motorized mounts, cameras and software • additional motorized control of fiber and crystal • spectrometer, cameras and software