

Xtended Tunable Pulse Stretcher for High-End Ultrafast Lasers

René Dionne
Product Line Manager – Ultrafast Laser Components

November 17, 2020



A photograph of a modern, multi-story office building with a large glass facade and a prominent 'TeraXion' sign. The building is set in a snowy winter landscape under a clear blue sky. The sign is white with a blue 'X' and is mounted on a wooden structure. The building's architecture features a mix of wood, glass, and metal.

TeraXion

**TeraXion Celebrates
20 Years of Sustained
Innovation in 2020**

**Over 350 000 components
manufactured**



Three Primary Markets

LASER COMPONENTS (> 50% revenues)

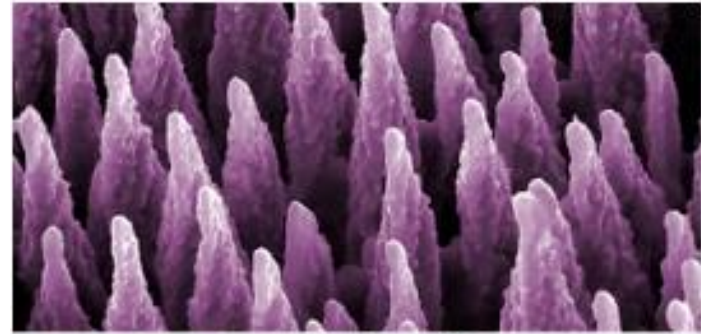
- High-power reflectors (kW class lasers)
- Dispersion compensators/pulse stretchers (Ultrafast Lasers)

OPTICAL COMMUNICATIONS

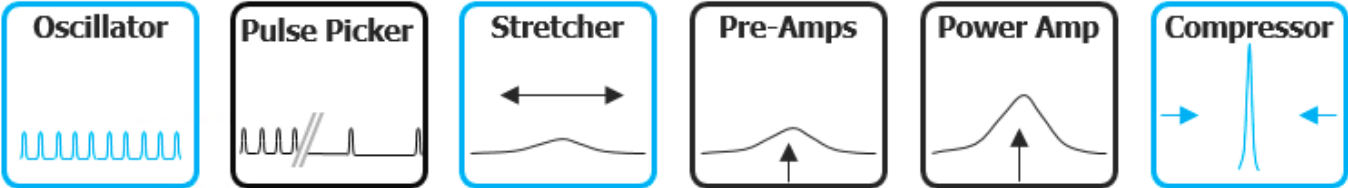
- Dispersion compensators
- Dispersion emulators

OPTICAL SENSING

- Low-noise lasers
- Narrow FBG filters



Chirped-Pulse Amplification (CPA) Chain



DMR
Dispersion Management
Reflector



HPSR
High-Accuracy Fixed-Dispersion
Pulse Stretcher



CM-V
Chirped Module with VBG
Compressor



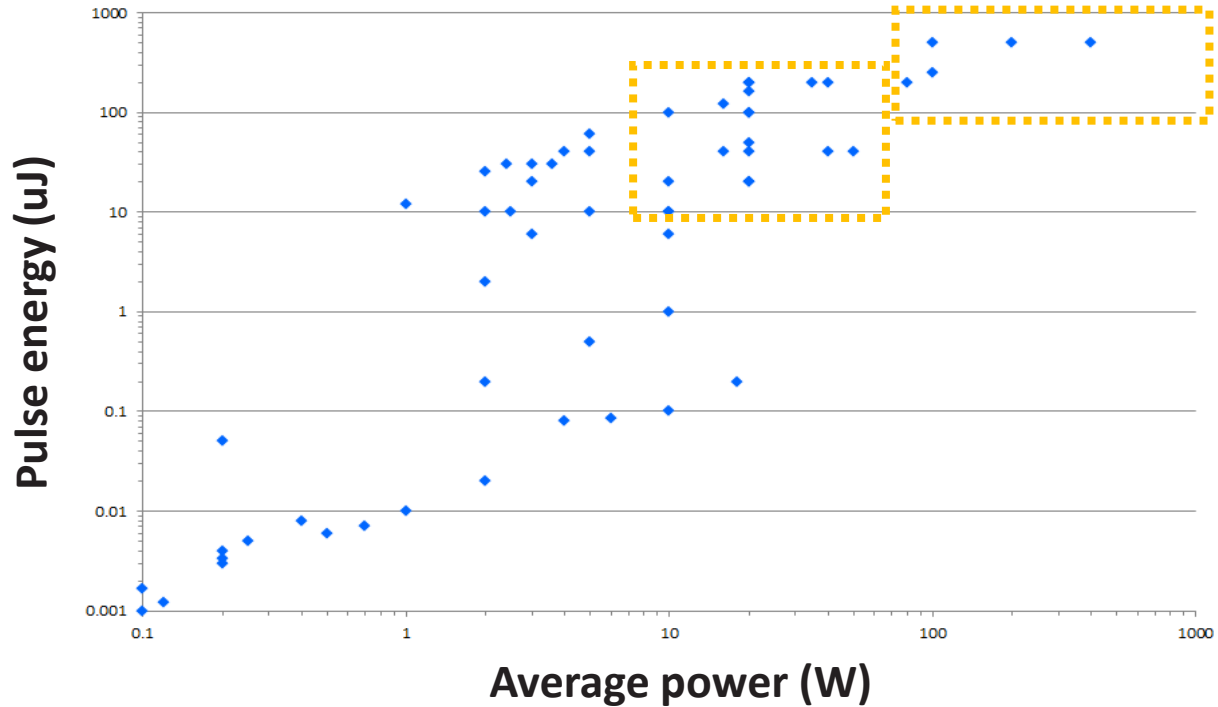
TPSR
Tunable Pulse Stretcher



TPSR-XTENDED
Extended Tunable Pulse Stretcher

Ultrafast Lasers Market Trends

Ultrafast Laser Market Landscape



PowerSpectrum™ TPSR-Xtended

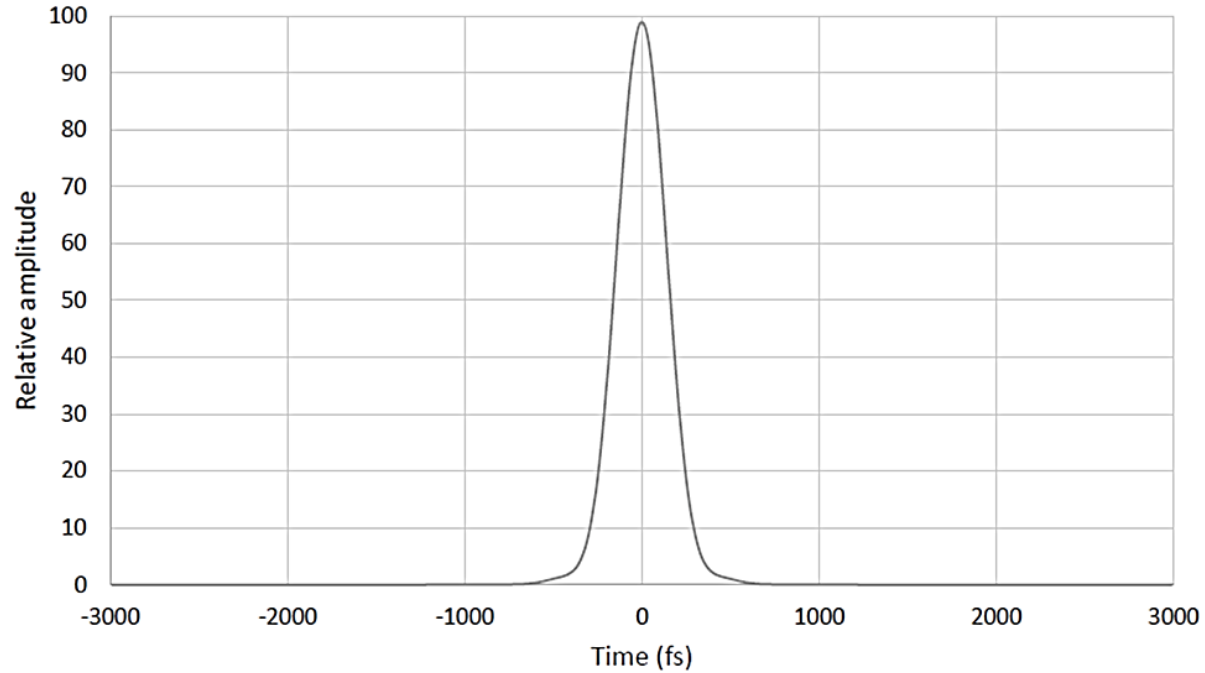
Tunable Pulse Stretcher



TPSR-XTENDED BENEFITS

- **Dynamic Self-Phase Modulation compensation**
- **Extended stretching (1200ps per CFBG)**
(Up to 50% more energy)
- **High order dispersion compensation**
(β_2 , β_3 , β_4 and β_5)
- **Broad wavelength range**
(1 μm 1.5 μm 2 μm)

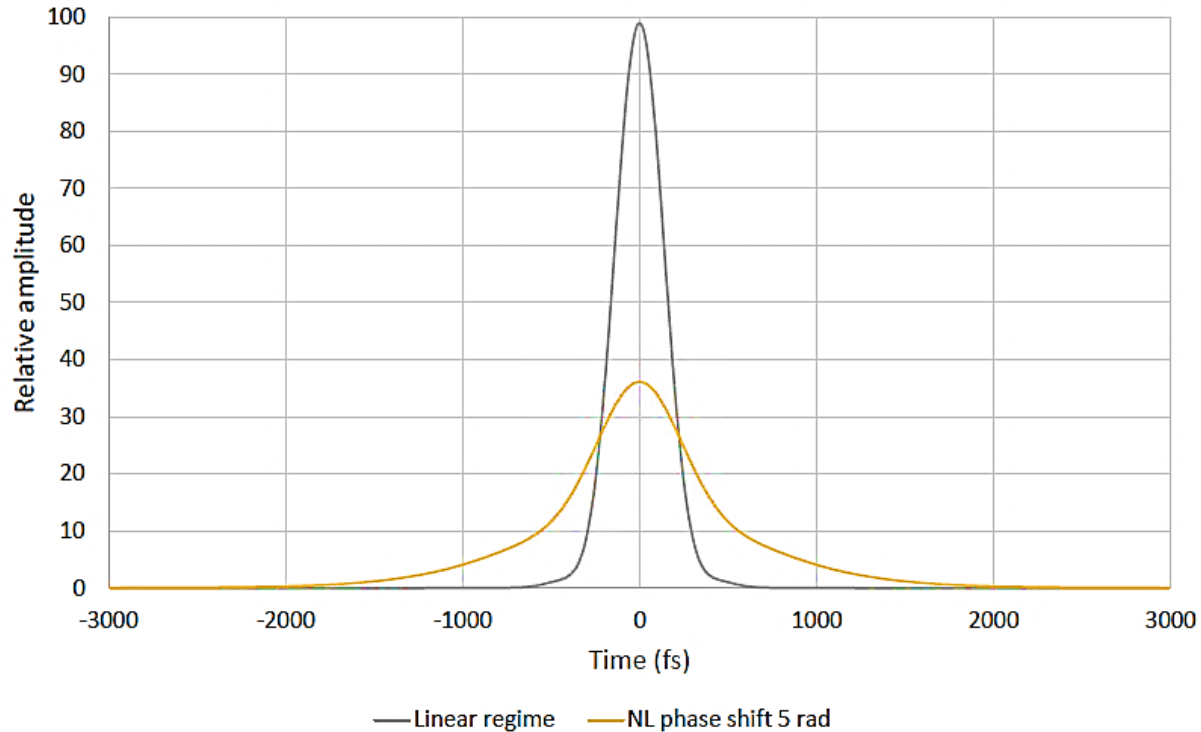
Pulse Out of the Oscillator



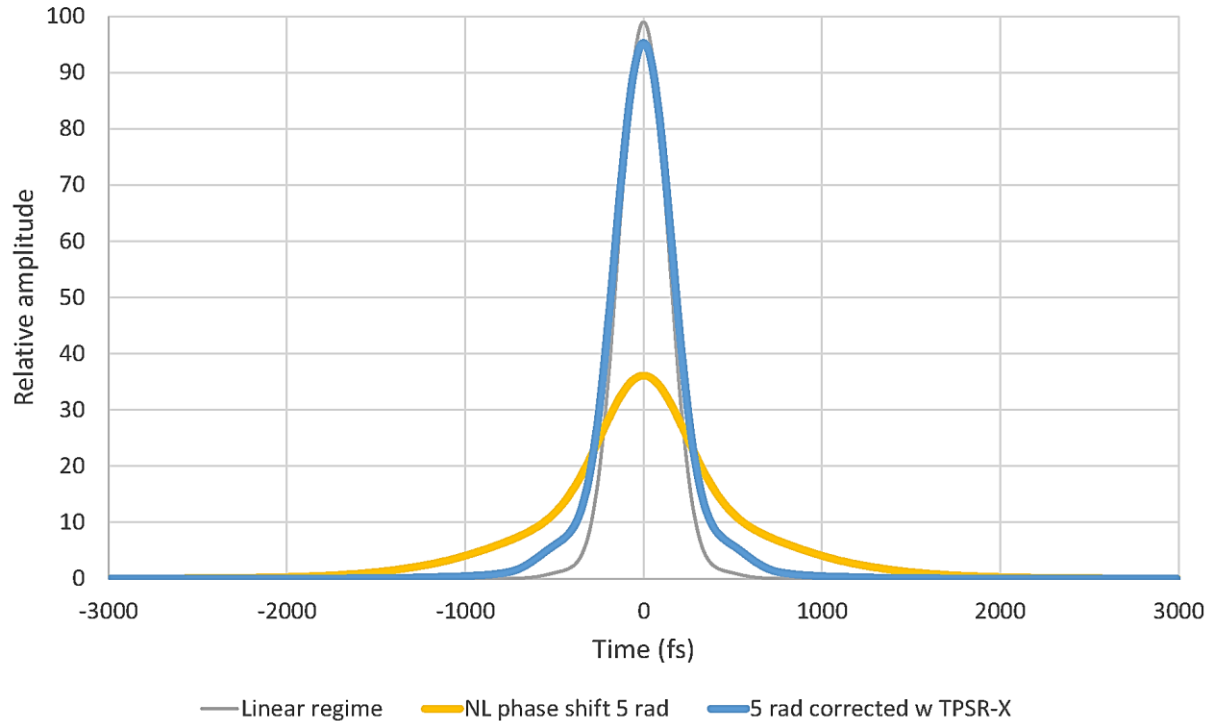
— Linear regime

Auto-Correlator Trace

Self Phase Modulation Pulse Degradation Through Amplification



Self Phase Modulation Compensation with the TPSR-Xtended



Let us Help You Deliver The Perfect Pulse



René Dionne

Product Line Manager

Ultrafast Laser Components

ultrafast@teraxion.com



@TeraXion

+1 418 658-9500

+1 877 658-8372



www.teraxion.com