

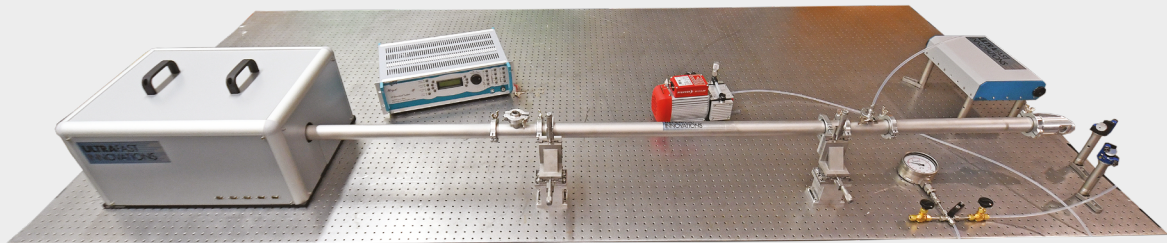


UltraFast
Innovations

YOUR KEY to innovation and success



1.5 Octave supercontinuum few cycle laser pulse generator SAVANNA



The hollow core fiber compressor spectrally broadens high-energy femtosecond input pulses by nonlinear interaction with a noble gas of adjustable gas pressure inside a hollow fiber. Ultra-broadband chirped mirrors compress the supercontinuum pulses after the fiber, and the increased spectral width supports shorter pulse durations than the original input. Effectively, the device compresses the input pulses temporally by increasing their spectral bandwidth. Our device draws on extensive expertise in the generation of intense few-cycle pulses for attosecond research and combines high transmission with unique ultra-broadband compression. Besides pulse compression the extremely broadband fiber output addresses also state-of-the-art spectroscopy experiments.

Key Product Features:

- Input Pulse Duration:** up to 60 fs (as short as possible)
- Input pulse energy:** 0.5-2 mJ (optimum: 1-1.5 mJ)
- Repetition rate:** 1-10 kHz
- Typical compression factor:** 5-6 x
- Fiber transmission:** up to 70%
- White light spectral bandwidth:**
 - 270-1000 nm (achievable with perfect input)
 - 400-900 nm (with commercial 25 fs laser)
- Extremely broadband fiber output for spectroscopy**
- Footprint:** 300 x 60 cm²

Customization Options:

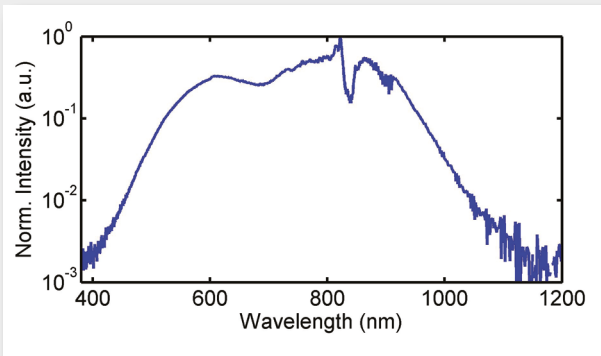
- Active beam pointing stabilization unit**
- Variable spectrum selection**
- Flexible dispersion management**

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Fiber Output Spectrum:

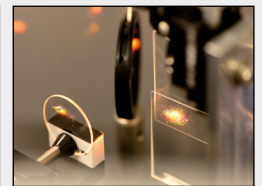


The extremely broadband fiber output spectrum (before the spectral mirror shaping) facilitates spectroscopy experiments from 400 nm up to the NIR at 1200 nm.

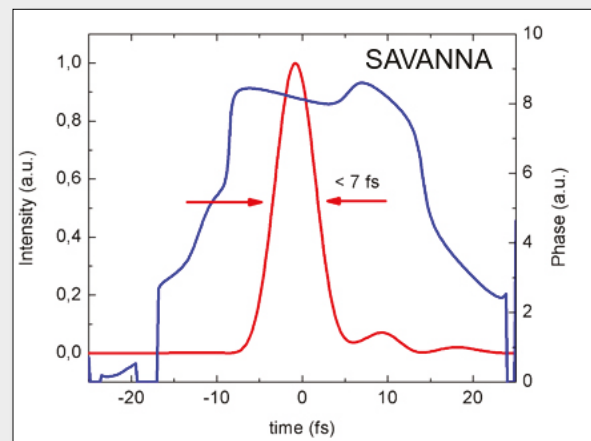
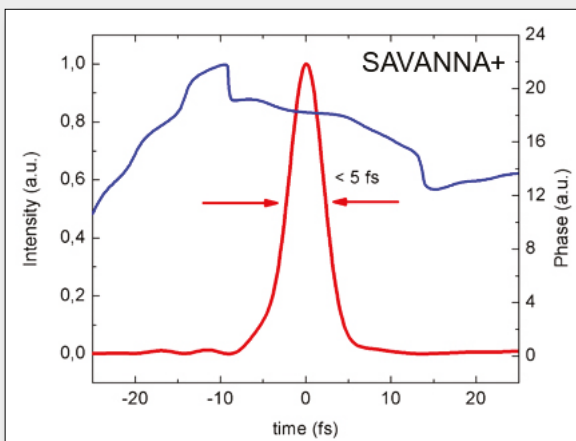
Ultra-broadband Chirped Mirror Technology:

Our double-angle chirped mirrors are a key component of the hollow core fiber compressor. Building on our extensive experience in ultra-fast coating design these mirrors provide unprecedented broadband compression with the proven capability to produce pulses with <4 fs duration. Custom solutions for specific spectral coverage and selection are available.

	Savanna	Savanna+
	PC70	PC1332
Bandwidth	500-1050 nm	450-1000 nm
Supported pulse duration	<4 fs* [1]	<3 fs* [2]
Reflectance per bounce	>99%	>99%
Angle of incidence	5° and 19°	5° and 19°



* With appropriate input spectrum. Available chirped mirror specifications and an image of their application in our pulse compressor.



Left: Characterized pulse duration after SAVANNA+.
Right: Characterized pulse duration after SAVANNA.

References:

[1] F. Silva, M. Miranda, B. Alonso, J. Rauschenberger, V. Pervak, and H. Crespo, Optics Express **22** (9), 10181-10191 (2014).
[2] F. Silva, B. Alonso, W. Holgado, R. Romero, J. S. Román, E. C. Jarque, H. Koop, V. Pervak, H. Crespo, and I. J. Sola, Optics Letters **43** (2), 337-340 (2018).