GLOphotonics

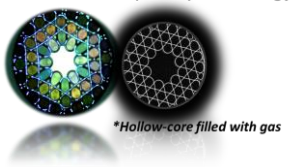
The Hollow-Core PCF and Photonic MicroCell™ Company

Fastlas

Hollow-core fiber technology for new family of pulse compressors

Shorter pulses with the most scalable nonlinear pulse compressor in the market

Based on a disruptive & proprietary fiber & Photonic Micro Cell (PMC™)* technology



*Hollow-core filled with gas

Exceptional compression ratio & spectral-broadening

Input-Laser Wavelength coverage UV to IR

Large input laser pulsewidth range

Large pulse-energy range

One-stage compression



FEATURES

- Input pulsewidth range 1ps-30 fs
- Compression down to a few cycles
- Input pulse energy range nJ-mJ nJ- mJ
- >1 Octave Spectral broadening
- Tailorable to all USP lasers
- Ultra-high average power
- Easy-to-use module
- Stand-alone module or Integrable OEM

APPLICATIONS

- Ultra-fast lasers
- Ultra-fast optics
- Femtochemistry
- High field science
- Laser micromachining
- High harmonic generation

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Demonstrated with FastLas technology

Input Laser					Compressed output				Performance		
Central wavelength (nm)	Spectral bandwidth (nm)	Input pulse energy (µJ)	Pulsewidth (fs)	Average power (W)	Central wavelength [nm]	Spectral bandwidth* (nm)	Energy (µJ)	Pulsewidth (fs)	Compression ratio	Spectral broadening factor	Ref.
343	1.2	4.5	250	1	343	23.5	2.5	50	**5**	**20**	[1]
800	60	2600	30	0.07	775	160	1300	10**	**3**	**2.6**	[2]
1030	3	100-1000	600	0.1-1	1050-1080	1030-1100	80-650	50	**12**	**23**	[3]
	1.6	16.8	740	118	1030	30	15.8	84	**9**	**19**	[4]
	3	158	600	0.158	1030-1040	30	126	22	**27**	**10**	[5]
1550	15	105	850	4.2	1550	50	78	300	**2.8**	**3.3**	[6]
1800	80	35	80	0.07	2000***	1000-2200	28	4.5	**20**	**15**	[7]

*1/e² width **Estimation based on the transform limit. ***Soliton wavelength

1. M. Chafer *et al.*, "Pulse-compression down to 50 fs of femtosecond UV laser using Inhibited-Coupling hollow-core PCF," in Conference on Lasers and Electro-Optics, 2018, p. JTh5A.6.
2. B. Debord *et al*, "2.6 mJ energy and 81 GW peak power femtosecond laser-pulse delivery and spectral broadening in inhibited coupling Kagome fiber," in CLEO: 2015, 2015, p. STh4L.7.
3. B. Debord *et al.*, "Multi-meter fiber-delivery and pulse self-compression of milli-Joule femtosecond laser and fiber-aided laser-micromachining," Opt. Express, vol. 22, no. 9, p. 10735, May 2014.
4. F. Emaury *et al.*, "Efficient spectral broadening in the 100-W average power regime using gas-filled kagome HC-PCF and pulse compression," Opt. Lett., 2014. F. Emaury *et al.*, "Beam delivery and pulse compression to sub-50 fs of a modelocked thin-disk laser in a gas-filled Kagome-type HC-PCF fiber," Opt. Express, vol. 21, no. 4, p. 4986, 2013.
5. M. Maurel *et al.* « Giant compression of high energy optical pulses using a commercially available Kagome fiber". In The European Conference on Lasers and Electro-Optics (p. CJ_4_6). Optical Society of America (2017, June).
6. Y. Y. Wang *et al.*, "Design and fabrication of hollow-core photonic crystal fibers for high-power ultrashort pulse transportation and pulse compression," Opt. Lett., vol. 37, no. 15, p. 3111, 2012.
7. T. Balciunas *et al.*, "A strong-field driver in the single-cycle regime based on self-compression in a kagome fibre," Nat. Commun., vol. 6, no. May 2014, pp. 1–7, 2015.

Mechanical & Physical Specifications

Physical module*	Table-top rectangular module (Dimensions: 470*288*98 mm, Weight: 9Kg)
Gas and thermal handling	Equipped with connections for gas pressure control, and water cooling for high average power lasers
Operations	Pre-aligned system for quick and easy fiber coupling

* Contact us for smaller package or Integrable OEM version

All specifications may be changed without notice

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