

The BraggTune™ is a stand-alone interferometer designed with 25 years experience on writing of fiber Bragg gratings (FBGs). It conveniently allows any type of FBG to be written at any Bragg wavelength between 0.5 μm and 2.5 μm using a **single** phase mask. Tilted, apodised, phase-shifted or chirped FBGs can be written within minutes. The simple, tunable interferometer is easy to align. All you need is an ultraviolet laser and you will be writing gratings soon after you put the interferometer in front of the laser.

The BraggTune™ comes with a comprehensive **User Manual** and a **complimentary signed copy** of the book: *Fiber Bragg Gratings*, Academic Press, 2010, by the author R. Kashyap, to get you fully conversant with FBGs.

## SPECIFICATION OF THE BraggTune™:

Model	FBGTMI-914
FBG wavelength tuning range with single phase mask <sup>1</sup>	500-2500 nm
Length of grating with tunable writing <sup>2,3</sup>	< 25mm <sup>3</sup>
Maximum grating length for behind the phase mask (BPM) writing <sup>4</sup>	120 mm
FBG length	10 mm <sup>5</sup> - > 25 mm <sup>6</sup>
Strain tuning of FBG before writing <sup>7</sup>	5%
Max dimension:	Depend on unit
Grating tilt range	0-45°

<sup>1</sup>The tuning range can be shifted upon demand

<sup>2</sup>Standard FBG length is 10mm

<sup>3</sup>With Option –LG (Maximum phase mask length is 25 mm for any Bragg Tune)

<sup>4</sup>With Option -BPM

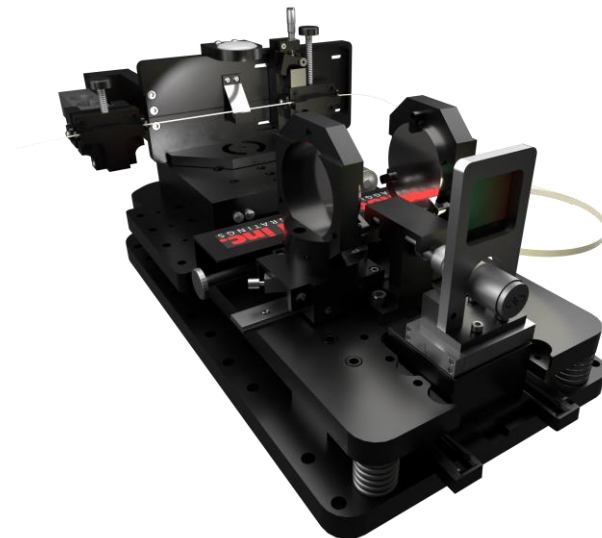
<sup>5</sup>Guaranteed for minimum coherence length of laser of 5 mm. FBG length at wavelength <600 nm is limited by coherence length of laser.

<sup>6</sup>Guaranteed for minimum coherence length of laser of >>10 mm (SLM laser) and maximum phase mask length of 25mm, and limited length at wavelengths <800 nm

<sup>7</sup>For use with hard coated fibres such as with Ormocer or Polyimide, assuming that the fibre survives the strain

## LASER SPECIFICATION

Recommended Laser (can be ordered with the BraggTune™)	UV Laser	SLM UV Laser
Wavelength	213 nm	213 nm
Power	150 mW, QS	100 mW, QS
Pulse width	7 ns	7 ns
Rep rate	1-30 kHz	1-30 kHz
Coherence length	5mm	>10 m



### Option 1: BraggScan™ Beam control

- Full control for beam delivery to the writing station
- Software for laser beam scanning, shutter control and speed of exposure of fibre.

### Option 2: BraggATune™

- Semi-Automatic Interferometer
- Set mirrors automatically for a specific FBG wavelength
- Minimum manual adjustment
- *Video Option* available to view alignment
- All hardware included
- All control software included

### Option 3: BraggApod™

- Apodise FBGs using various common functions
- Apodise with custom functions
- Includes all software and hardware needed for apodisation
- Write phase shifted FBGs
- Write chirped FBGs for dispersion compensation
- Write small and large chirp
- Make ultra-narrow bandpass DFB filters

### Option 4: BraggATuneFs™

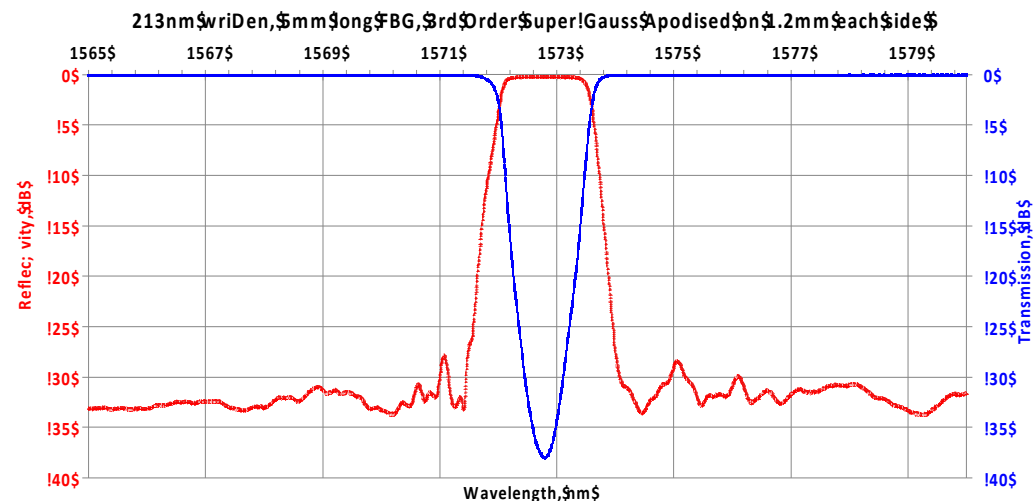
- Write FBGs with fs laser<sup>1</sup>

<sup>1</sup>Contact PhotoNova Inc. for Details.

Apodization:	0 to 100 % of FBG length
Phase change <sup>2</sup>	0 to + 10 pi
Max chirp for 10 mm <sup>1</sup>	1-5 nm/mm

<sup>2</sup> When more then one of those option is selected the range is reduced.

### APODISED FBG



**Relevant Publications:**

Joé Habel, Tommy Boilard, Younès Messaddeq, François Trépanier, and Martin Bernier,

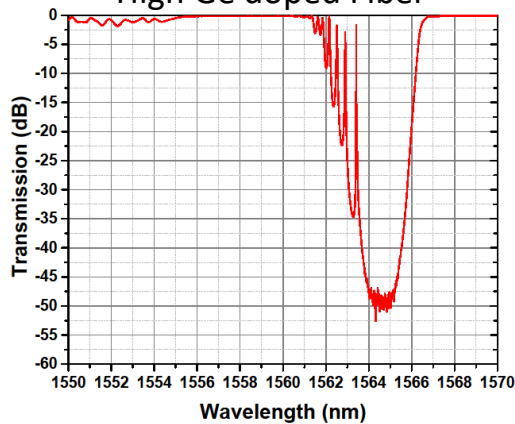
**“Flexible phase-mask writing technique of robust femtosecond FBG for distributed sensing”, Advanced Photonics 2018 (BGPP, IPR, NP, NOMA, Sensors, Networks, SPPCom, SOF)**

OSA Technical Digest (online) (Optical Society of America, 2018), paper BM3A.4

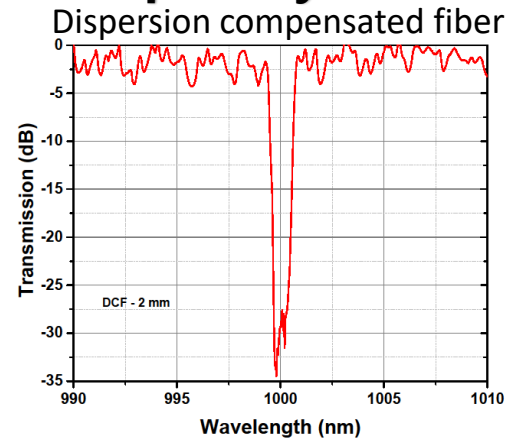
• <https://doi.org/10.1364/BGPPM.2018.BM3A.4>

**Obtained results:**

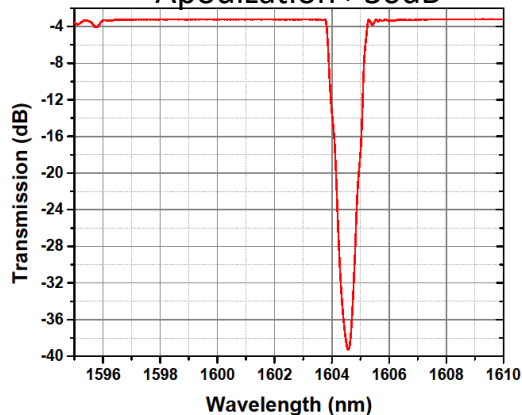
**> 50 dB extinction**  
High Ge doped Fiber



**Specialty fiber**



**Apodized grating**  
Apodization >30dB



**Tilted FBG**

Coupling with high order modes

