

# Highly Nonlinear Single mode Mid Infrared Fibers

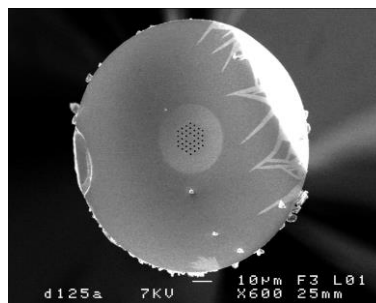
## Advantages

- Highly NonLinear
- Single mode
- Low losses transmission
- Core diameter and dispersion can be adjusted

## Applications

- Supercontinuum generation
- Brillouin Fiber Laser Wavelength Conversion

## Specifications



Reference	GeAsSe SM
Glass	$\text{Ge}_{10}\text{As}_{22}\text{Se}_{68}$
Refractive Index @1.55 $\mu\text{m}$	2.62
Nonlinear Refractive index $n_2$ ( $\text{m}^2/\text{W}$ )	$\approx 8.8 \cdot 10^{-18}$ ( $\approx 400 \cdot n_2$ silica)
Brillouin Gain, $g_B$ ( $\text{W}/\text{m}$ )	$\approx 4.4 \cdot 10^{-9}$ ( $\approx 100 \cdot g_B$ silica)
Operating Range ( $\mu\text{m}$ )/Guiding Regime	1.5-4 (Single Mode)
Typical Attenuation ( $\text{dB}/\text{m}$ )	$< 2.5$ @ 1.55 $\mu\text{m}$
Typical Core Diameter ( $\mu\text{m}$ )	4
Typical Cladding Diameter ( $\mu\text{m}$ )	130
Typical Numerical Aperture	$\approx 0.35$ @ 1.55 $\mu\text{m}$
Zero Dispersion Wavelength ( $\mu\text{m}$ )	$< 4.5$
Possible Customized specifications	Core diameter can be adjusted in the [3-13] $\mu\text{m}$ range for applications up to 10 $\mu\text{m}$

## References:

- Kenny Hey Tow et Al; « Linewidth-narrowing and intensity noise reduction of the 2<sup>nd</sup> order Stokes component of a low threshold Brillouin laser made of  $\text{Ge}_{10}\text{As}_{22}\text{Se}_{68}$  chalcogenide fiber »; Optics Express, Vol.20, N°26, 2012.
- Kenny Hey Tow et Al; « Toward More Coherent Sources Using a Microstructured Chalcogenide Brillouin Fiber Laser »; Photonics Technology Letters, Vol. 25, N°3, 2013.