NKT Photonics
the power of light

Crystal Fibre • *aero*LASE • Koheras • SuperK

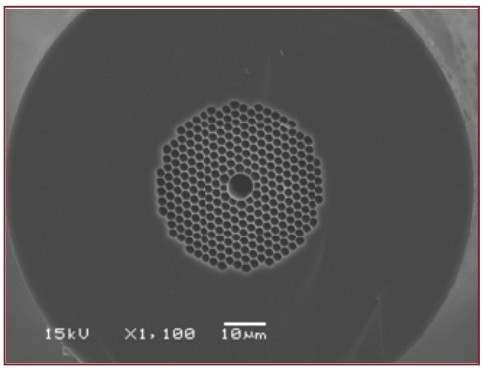
HC-800-01

Hollow Core Photonic Bandgap Fiber

Hollow Core

Spectral Filtering

- >95% of optical power located in air
- Can be filled with gas
- Low bend loss down to few mm bend radius
- Fresnel reflection to air at the end faces <10^{-4}
- Up to 85% of fiber cross section composed of solid silica, facilitating fusion splicing to conventional fibers
- Undoped silica for good temperature stability

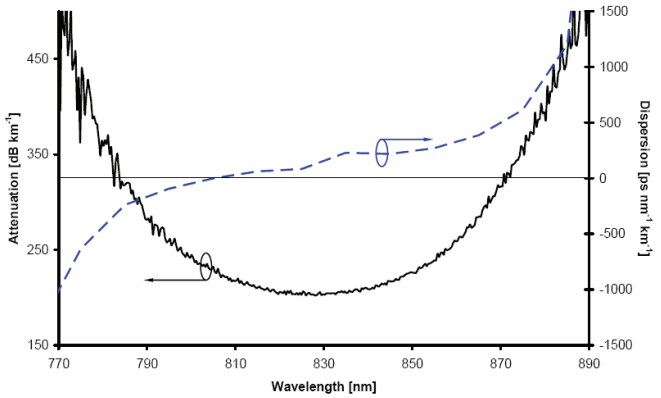


Photonic Bandgap Fibers guide light in a hollow core, surrounded by a microstructured cladding formed by a periodic arrangement of air holes in silica.

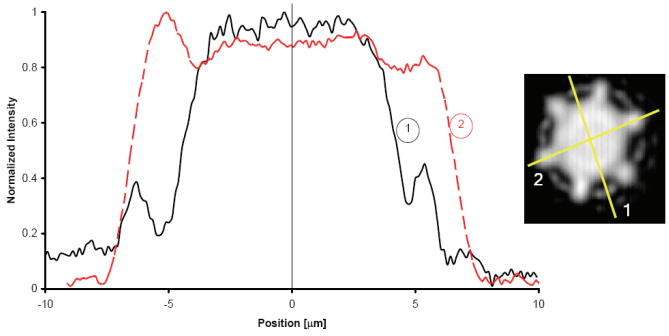
Since only a small fraction of the light propagates in glass, the effect of material nonlinearities is significantly reduced and the fibers do not suffer from the same limitations on loss as conventional fibres made from solid material alone.

While hollow core fibers hold the promise to become the next generation ultra-low loss transmission fibers, in the immediate future they find important applications in power delivery, sensors and nonlinear optics.

Typical attenuation and dispersion



Typical near field intensity



Physical properties	
Core diameter[1]	9.5 µm ± 1 µm
Pitch	2.3 µm
Air filling fraction in the holey region	> 90%
Diameter of holey region	40 µm
Cladding diameter	135 µm ± 5 µm
Coating diameter (single layer acrylate)	220 µm ± 50 µm

Optical properties	
Center wavelength	830 nm
Attenuation @ 830 n	< 0.3 dB/m
Width of transmission band[2]	> 70 nm
Mode field diameter	8,8 µm
Effective mode index	~0.99

1. *Core formed by removing 7 hexagonal unit cells of the cladding*
2. *Bandwidth over which loss <0.3 dB/m*

HC-800-01-091001

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