SPECIALTY FIBER PHOSPHORUS DOPED FIBERS

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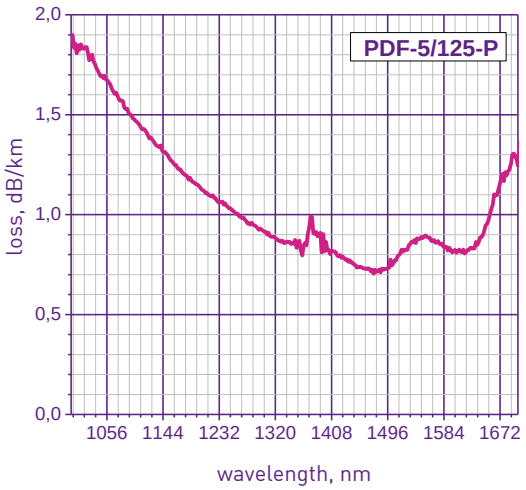
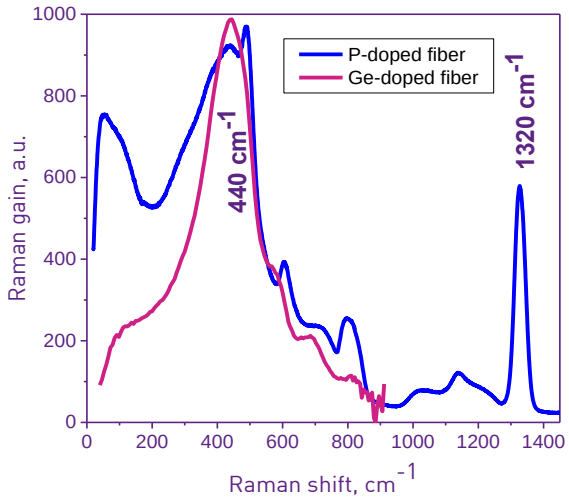
ARTICLE PDF-5/125

Phosphorus doped fiber PDF-5/125 series is specially designed for highly efficient Raman lasers and amplifiers operating in the 1.1-1.6 μm spectral range. The main advantage of phosphorus-doped fiber is a three times higher value of the Raman shift as compared to germanium-doped fibers. This feature allows one to strongly simplify the Raman fiber laser and amplifier design. For example, to construct a high-power laser @ 1480nm required for pumping Er-doped fibers, only two cascades of Raman wavelength transformation are necessary, whereas six cascades are necessary in the case of Ge-doped fibers.
PDF-5/125PM series is specially designed with ability to maintain polarization.

Typical optical loss spectrum



Typical Raman gain spectrum



FIBER SPECIFICATIONS	PDF-5/125-P	PDF-5/125-A	PDF-5/125PM-P
Quality coefficient Pf	< 1	> 1	< 1
Core diameter, μm	5.0 ± 0.5	5.0 ± 1	5.0 ± 1
Clad diameter, μm		125 ± 1	
Nonconcentricity, μm		< 1	
Core NA	0.17 ± 0.02	0.17 ± 0.02	0.18 ± 0.01
Cutoff wavelength, μm	0.9 ± 0.2	0.9 ± 0.2	0.9 ± 0.2
Raman gain @ 1480 nm, dB/km·W	> 5.8	> 5.0	> 5.0
Core ellipticity, %	< 5	< 5	< 30
Optical loss (1064 nm), dB/km	< 2.0	< 2.9	< 3.0
Optical loss (1240 nm), dB/km	< 1.2	< 1.95	< 2.0
Optical loss (1480 nm), dB/km	< 1.0	< 1.45	< 20
Fiber type:	SM	SM	PANDA
PER, dB	-	-	> 20 after 30 m