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## LIST OF ABBREVIATIONS

IR	Infrared
HCF	Hollow-core optical fiber
HC-ARF	hollow-core anti-resonant fiber
RIU	Refractive index unit
MOFs	Microstructure optical fibers
SC-PCF	Solid-core photonics crystal fiber
HC-PCF	Hollow-core photonics crystal fiber
RI	Refractive index
GC	Gas chromatography
FEM	Finite elements method
LP	linearly polarized
SMF	Single mode fiber
SEM	Scanning electronic microscopy
MPOF	Microstructured polymer optical fibers
FM	Fundamental mode
HC-NANF	Hollow-core nested anti-resonant node free fiber
NDIR	Non-dispersive infrared
PAS	Photo-acoustic spectroscopy
PML	Perfect match layer
TIR	Total internal reflection
NA	Numerical aperture
EM	Electromagnetic
TEM	Transverse electromagnetic
TE	Transverse electric
TM	Transverse magnetic

## LIST OF ABBREVIATIONS (Continued)

UV	Ultraviolet)
PCF	Photonics crystal fiber
PBGF	Photonic bandgap fibers
SPR	surface plasmon resonance
THz	Terahertz
FBG	Fiber Bragg grating
FIB	Focused ion beam
MMF	Multimode fiber
OFS	Optical fiber sensors
RIMLs	Refractive index matching liquids
ARROW	anti-resonant reflecting optical waveguide
LPG	Long period grating
DAS	Direct absorption spectroscopy
WMS	Wavelength modulation spectroscopy
PTS	Photothermal spectroscopy
FTS	Fourier transform spectroscopy
CLDS	Chirped laser dispersion spectroscopy
SRCS	Spontaneous Raman scattering spectroscopy
RCS	Raman scattering spectroscopy
SRGS	Stimulated Raman gain spectroscopy
PET	Polyethylene terephthalate
PMMA	Polymethyl methacrylate