

# Polarization Maintaining Anti-Resonant Hollow Core Fiber

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**Abstract:** We summarize our recent results on design, fabrication and characterization of polarization maintaining anti-resonant hollow core fiber. Loss of 5.6 dB/km and phase birefringence of  $1.8 \times 10^{-5}$  is achieved.

Polarization maintaining (PM) hollow-core fiber (HCFs) is a strong contender to conventional PM solid-core fiber since its air core could mitigate many intrinsic problems of solid material, e.g. high dispersion, high nonlinearity, low laser induced damage threshold and high thermal sensitivity, paving the way for real world applications in fiber optic gyroscopes (FOGs), long baseline optical interferometry and fiber laser systems. Here, we review our recent progress on PM anti-resonant HCF (AR-HCF). One fiber shows high birefringence ( $\sim 10^{-4}$ ) and relatively high loss (185 dB/km), the other shows low birefringence ( $\sim 10^{-5}$ ) and low loss (5.6 dB/km) (Fig. 1). They could fulfil most of PM related applications.

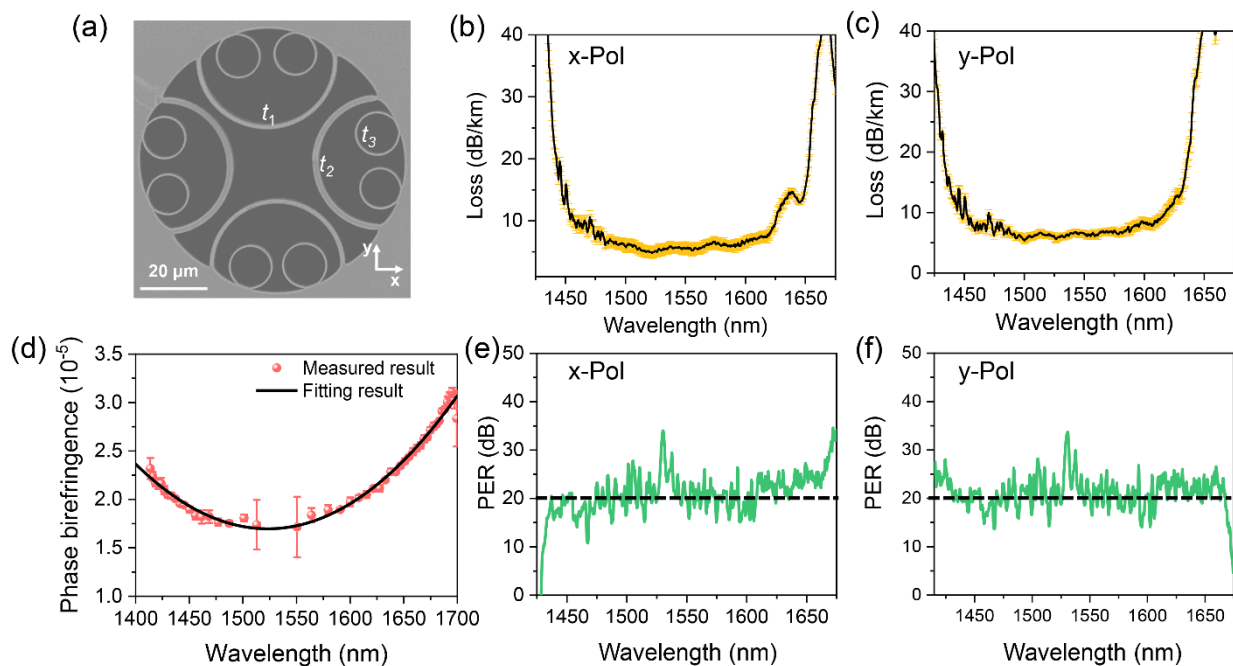


Fig.1. (a) SEM of the fabricated fiber. (b, c) Loss spectra of the fiber for two polarizations. (d) measured data (red dots) and 2<sup>nd</sup> order polynomial fitting (black curve) of phase birefringence (e, f) measured PER of two polarizations after 97 m-long fiber.

Biography (75 words max): Yingying Wang obtained her Ph.D degree from University of Bath, UK in 2011. She is currently a professor at Institute of Photonics Technology, Jinan University. Her research interest lies on novel optical fiber design and fabrication. She has delivered many postdeadline talks and invited talks in international conferences and has authored more than 50 technical papers with >1000 total citations.