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A broadband low loss and high birefringence terahertz photonic bandgap photonic crystal fiber Source

ACTA PHYSICA SINICA VOL.60 NO.9 098702 SEP 2011

Abstract

A low loss and broadband photonic bandgap (PBG) terahertz photonic crystal fiber (PCF) with high birefingence is proposed. Terahertz wave is confined within the core surrounded by the cladding with triangular lattice arrangement of subwavelength air holes. The birefringence and the loss of the fiber are investigated by using a full-vectorial finite element method. The numercal simulation shows that within a broadband area of about 0.3THz, the loss of the near-rectangle core THz PBG photonic crystal fiber is less than 0.009cm(-1), the phase birefringence is on the order of 10(-3), and the group birefringence even can reach 10(-2).