

A Novel Low-Loss Diamond-Core Porous Fiber for Polarization Maintaining Terahertz Transmission - DTU Orbit (09/11/2017)

A Novel Low-Loss Diamond-Core Porous Fiber for Polarization Maintaining Terahertz Transmission

We report on the numerical design optimization of a new kind of relatively simple porous-core photonic crystal fiber (PCF) for terahertz (THz) waveguiding. A novel twist is introduced in the regular hexagonal PCF by including a diamond-shaped porous-core inside the hexagonal cladding. The numerical results obtained from an efficient finite-element method, which confirms a high birefringence of the order 10^{-2} and low effective material loss of 0.07 cm^{-1} at 0.7-THz operating frequency. The proposed PCF is anticipated to be useful in polarization sensitive THz appliances.

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