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Title

A Simple Birefringent Terahertz Waveguide Based on Polymer Elliptical Tube

Source

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Abstract

We propose a simple birefringent terahertz (THz) waveguide which is a polymer elliptical tube with a cross section of elliptical ring structure. It can be achieved by stretching a normal circular-tube in one direction. Simulations based on the full-vector finite element method (FEM) show that this kind of waveguides exhibits high birefringence on a level of 10^{-2} over a wide THz frequency range. Moreover, as a majority of modal power is trapped in the air core inside the polymer elliptical tube, the THz waveguide guiding loss caused by material absorption can be reduced effectively. (18 References).