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Title: Terahertz transmission optical fiber with low absorption loss and high birefringence

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Abstract: A novel terahertz transmission optical fiber with low absorption loss and high birefringence is proposed. The proposed fiber is composed of alternate teflon and air-hole layers to form a two-fold symmetry configuration. Using the finite element method, the dependences of absorption loss and birefringence on the configuration parameter of the fiber are presented. The numerical results show that the birefringence can reach as large as 0.08. In addition, when the mode absorption loss is less than 20 dB/m, the birefringence can still be larger than 0.02.