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Title:High efficiency terahertz-wave photonic crystal fiber optical parametric oscillator
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Abstract:We theoretically propose phase matched terahertz (THz)-wave generation via degenerate four-wave mixing (FWM) in a fiber optical parametric oscillator (FOPO) with our newly designed photonic crystal fiber (PCF). Perfect phase matching is realized when we locate the pump wavelength in the normal group-velocity dispersion (GVD) regime. The generated THz-wave can be tuned from 4.7578 to 5.9015 THz by varying the pump wavelength. Moreover, peak power of 27.38 W at 5.9015 THz with conversion efficiency of 1.37% is realized when the pump peak power of 2000 W is at 4.675 μm in our FOPO. © 2012 Optical Society of America.
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