561.

Author

Wu HH. Liu HJ. Huang N. Sun QB. Wen J.

Tittle

High-power picosecond terahertz-wave generation in photonic crystal fiber via four-wave mixing

Source

APPLIED OPTICS vol.50 no.27 5338-5343 SEP 20 2011

Abstract

We demonstrate picosecond terahertz (THz)-wave generation via four-wave mixing in an octagonal photonic crystal fiber (O-PCF). Perfect phase-matching is obtained at the pump wavelength of 1.55 mu m and a generation scheme is proposed. Using this method, THz waves can be generated in the frequency range of 7.07-7.74 THz. Moreover, peak power of 2.55 W, average power of 1.53 mW, and peak conversion efficiency of more than -66.65 dB at 7.42 THz in a 6.25 cm long fiber are realized with a pump peak power of 2kW.