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Title

15-THz Tunable Wavelength Conversion of Picosecond Pulses in a Silicon Waveguide

Source

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Abstract

We demonstrate all-optical ultra-broadband tunable wavelength conversion of 1-ps pulses based on four-wave mixing in a 3-mm-long dispersion engineered silicon waveguide. In the waveguide, an input pulse with center wavelength at 1600 nm is down-converted by 135 nm (17.3 THz) to 1465 nm. A tuning range of 115 nm (15 THz, from 1465 to 1580 nm) of the converted wavelength is demonstrated, while keeping conversion efficiency, pulse shape, and pulsewidth almost unchanged.