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标题: Design of a Photonic Crystal Waveguide for Terahertz-Wave Difference-Frequency Generation
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摘要: We propose and simulate a device based on hybrid channel waveguide and photonic crystal waveguide (PCW) for THz-wave difference-frequency generation (DFG) from near-infrared light sources. The proposed structure guides the two pumps by a Ti-diffused LiNbO3 channel waveguide, and confines the DFG THz wave tightly with LiNbO3 PCW. By proper use of the PCW, both continuous phase matching and very strong overlap of the pump and THz product can be obtained. With CW pumps and pulse pumps, the high conversion efficiencies for 1-THz DFG are obtained, respectively, by numerical simulations. Since the photonic crystal structures have been widely exploited for THz applications, this approach has the potential to open a new window for THz technology.
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