169.Title: Optically-controlled high-speed terahertz wave modulator based on nonlinear photonic crystals

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Abstract: An optically-controlled terahertz (THz) modulator based on nonlinear photonic crystals (PCs) is proposed, which has the merits of high speed, compactness and easy integration. The PC structure consists of point and line defects. High speed modulation of THz wave can be realized by filling one of the point defects with organic polymer polyaniline which has rapid nonlinear response time. Simulation results show that the modulation rate, modulation depth and insertion loss of the modulator achieve 2.5 GHz, 20.3 dB and 1.02 dB, respectively.