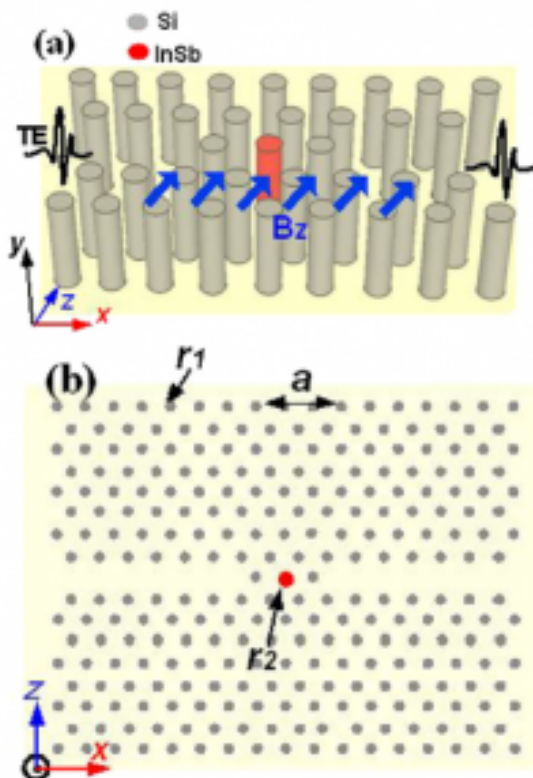


Vertically magnetic-controlled THz modulator based on 2-D magnetized plasma photonic crystal



A novel magnetized plasma modulator for THz range is proposed. The structure is based on 2-D photonic crystal (PC) constructed by triangular lattice of Si rods in air with line defects and an InSb rod as a point defect. Based on the magneto-optic effect, the resonant frequency can be tuned by the external magnetic field and the radius of point defect. The transfer and disappearance of the PC-based mode can be realized by utilizing a waveguide and a plasma cavity. The simulation results show that PC-based mode disappearance modulator has the potential for THz wireless broadband communication system with a good performance of high contrast ratio (<33.61 dB), low insertion loss (<0.36 dB) and high modulation rate (~ 4 GHz).

Source: <http://www.sciencedirect.com/science/article/pii/S1569441016301250>

Related paper: Wen Zhou et al., Vertically magnetic-controlled THz modulator based on 2-D magnetized plasma photonic crystal, *Photonics and Nanostructures – Fundamentals and Applications*, Volume 23, February 2017, Pages 28–35, (2017).