313. Title:Magnetic photonic crystals for terahertz tunable filter and multifunctional polarization controller

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Abstract:We numerically investigate the photonic bandgaps as well as the transmission properties of a two-dimensional magnetic photonic crystal (PC) in the terahertz (THz) region by the plane wave expansion and finite-difference time-domain methods. The calculation predicts a magnetic PC waveguide that can work as a tunable filter with a bandwidth larger than 0:1 THz, and its central frequency is from 0.83 to 1:03 THz. It also shows that a magnetic PC can be used as a polarization controller with three functions, including controllable polarizing, polarization beam splitting, and -π-π phase shifting.