Abstracts

Roles of wave impedance and refractive index in photonic crystals with magnetic and dielectric properties

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We investigated the roles of wave impedance and refractive index in photonic crystals by means of analytical expressions for edges frequencies of a photonic bandgap (PBG) in a one-dimensional photonic crystal with magnetic and dielectric properties. The analytical expressions were derived when the optical thicknesses of layers are the same. The wave impedance governs the formation of PBG's and the intensity of defect modes. Meanwhile, the position of PBG's and the creation of defect modes are related to the refractive index.

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