

TRANSMISSION SPECTRA OF 1D PERIODIC STRUCTURE CONSISTING LINEARLY CHANGING DIELECTRIC PERMITTIVITY LAYERS

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Abstract

In this paper we theoretically study propagation of electromagnetic wave through multilayer structure consisting anisotropic layers with linearly changing dielectric permittivity. Transfer matrix method and Bloch theorem was exploited to calculate electromagnetic wave amplitude transmission coefficients and dispersion relations. The transmission spectra of the structure contains the forbidden band gaps, which are sensitive to the thickness of anisotropic slab and incidence angle. The parameters of forbidden band gaps confirmed by calculation of dispersion relation for Bloch wave vector.

Keywords : Electromagnetic Wave; Multilayer Structure; Gradient; Permittivity