Abstracts

Domain-Integral Analysis of Channel Waveguides in Anisotropic Multi-Layered Media

H.J.M. Bastiaansen, N.H.G. Baken and H. Blok. "Domain-Integral Analysis of Channel Waveguides in Anisotropic Multi-Layered Media." 1992 Transactions on Microwave Theory and Techniques 40.10 (Oct. 1992 [T-MTT]): 1918-1926.

A domain-integral equation method is presented to determine both propagation constants and the electromagnetic field distributions of guided surface wave modes in integrated optical waveguides. Both the waveguide and its multi-layered embedding are anisotropic. The permittivity tensor of the embedding is assumed to be piecewise homogeneous. The kernels of the domain-integral equations consist of Green's tensors. The scattering-matrix formalism is used to construct the Green's tensors. The integral equations form an eigenvalue problem, where the electric field strength represents the eigen-vector. This problem is solved numerically by applying the method of moments. Numerical results are presented for an anisotropic ridge waveguide, embedded in an anisotropic multilayered medium.

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