Abstracts

Variational Method for the Analysis of Lossless Bi-Isotropic (Nonreciprocal Chiral) Waveguides (Short Papers)

I.V. Lindell. "Variational Method for the Analysis of Lossless Bi-Isotropic (Nonreciprocal Chiral) Waveguides (Short Papers)." 1992 Transactions on Microwave Theory and Techniques 40.2 (Feb. 1992 [T-MTT]): 402-405.

Equations are derived for the Iongitudinal fields of a propagating mode in the most general straight open waveguide structure made from the most general lossless linear material whose parameters are independent of its orientation. This material, also called bi-isotropic, has the important chiral medium as the reciprocal special case. Self-adjointness of the differential operator with respect to the hermitian inner product is confirmed. Applying the theory of nonstandard eigenvalue problems, a variational expression is derived for the solution of the waveguide problem. A procedure for its application is discussed.

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