Abstracts

A Linear-Operator Formalism for the Analysis of Inhomogeneous Biisotropic Planar Waveguides

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Using the theory of linear operators, guided electromagnetic wave propagation in inhomogeneous (non-reciprocal) biisotropic planar structures is analyzed in terms of a 2 x 2 matrix differential operator. Based on the concept of adjoint waveguide, a new bi-orthogonality relation for the guided hybrid modes is derived. For the special case of reciprocal biisotropic media or chiral media, the linear-operator formalism leads to a self-adjoint problem. As an example of application, a general analysis of the radiation modes of a grounded chiroslabguide is also presented.

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