# Abstracts

## A simplified formulation to analyze inhomogeneous waveguides with lossy chiral media using the finite-element method

*L. Valor and J. Zapata. "A simplified formulation to analyze inhomogeneous waveguides with lossy chiral media using the finite-element method." 1998 Transactions on Microwave Theory and Techniques 46.2 (Feb. 1998 [T-MTT]): 185-187.*

In this paper, an efficient finite-clement formulation is presented for the analysis of the propagation characteristics in arbitrarily shaped lossy inhomogeneous waveguides loaded with chiral media. It is a simplified form of the one proposed for the bi-anisotropic media. In this formulation, showing no spurious modes, the frequency or the propagation constants may be treated as eigenvalues of a resulting sparse quadratic eigenproblem. However, in order to handle losses easily and to facilitate computation of complex modes, the frequency is specified as an input parameter and the eigensystem is solved for the complex propagation constant as the eigenvalue. This sparse eigensystem is further transformed into a generalized one, thus maintaining the sparse properties of the matrices. New numerical finite-element results are presented.

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