Abstracts

Finite-Element Analysis of Waveguide Modes: A Novel Approach that Eliminates Spurious Modes (Comments and Reply)

M. Mrozowski, T. Angkaew, M. Matsuhara and N. Kumagai. "Finite-Element Analysis of Waveguide Modes: A Novel Approach that Eliminates Spurious Modes (Comments and Reply)." 1991 Transactions on Microwave Theory and Techniques 39.3 (Mar. 1991 [T-MTT]): 611-611.

One of the drawbacks of the finite-element analysis of waveguiding structures is that it often yields nonphysical solutions, which are called spurious modes. In the above paper, a novel formulation of the finite element method is presented which allows one to readily identify proper modes. The approach is based on the variational expression of the propagation constant involving transverse electric and magnetic field components. The following generalized eigenvalue problem is obtained from the stationary condition.

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