Abstracts

Induced Polarization Effects in Coupling Processes of Waveguide Modes

E.O. Kamenetskii. "Induced Polarization Effects in Coupling Processes of Waveguide Modes." 1996 Transactions on Microwave Theory and Techniques 44.4 (Apr. 1996 [T-MTT]): 572-584.

An analysis of waveguide problems based on a solution of full vector-wave equations is very important for many applications. To solve such problems, a new coupled-mode method, taking into account the so-called induced polarization effects, is proposed in this paper. The theory is based on the spectral method, which makes it possible to analyze correctly a mode excitation by arbitrary sources with longitudinal components. It also takes into consideration singularities caused by abrupt discontinuities of longitudinal currents. The method may be a powerful tool for investigation of propagating and evanescent modes coupling due to both material and geometric effects.

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