Abstracts

Finite-Element Formalism for Nonlinear Slab-Guided Waves

K. Hayata, M. Nagai and M. Koshiba. "Finite-Element Formalism for Nonlinear Slab-Guided Waves." 1988 Transactions on Microwave Theory and Techniques 36.7 (Jul. 1988 [T-MTT]): 1207-1215.

A unified computer-aided numerical approach based on the finite-element method is developed for analyzing optical waves guided by dielectric stab waveguiding structures with arbitrary nonlinear media. In the formulations, both TE and TM polarizations are considered. For the TM case, the biaxial nature of nonlinear refractive index is considered without any approximation. Numerical results are presented for nonlinear TE and TM waves propagating in symmetric slab waveguides. The dependence of dispersion relations on the refractive-index profile of the film is also examined.

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