Abstracts

An Entire-Domain Basis Galerkin's Method for the Modeling of Integrated MM-Wave and Optical Circuits

G. Athanasoulias and N.K. Uzunoglu. "An Entire-Domain Basis Galerkin's Method for the Modeling of Integrated MM-Wave and Optical Circuits." 1995 MTT-S International Microwave Symposium Digest 95.2 (1995 Vol. II [MWSYM]): 471-474.

The propagation characteristics of coupled rectangular dielectric waveguides are analyzed using the electric field integral equation. In contrast with the widely used subdomain basis Galerkin's method, in this work a novel set of entire-domain basis functions is utilized. This set consists of plane wave functions that satisfy Maxwell's equations in each guiding region. Computed dispersion curves are presented for a mm-wave transmission line and compare very closely to results of other techniques. The present implementation can also deal with integrated optical circuits and its main advantage is superior numerical efficiency.

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