Abstracts

An efficient Krylov-subspace-based algorithm to solve the dielectric-waveguide problem

K. Radhakrishnan and W.C. Chew. "An efficient Krylov-subspace-based algorithm to solve the dielectric-waveguide problem." 2001 Transactions on Microwave Theory and Techniques 49.7 (Jul. 2001 [T-MTT]): 1345-1348.

An efficient scheme based on the bi-Lanczos algorithm has been developed for analysis of the dielectric-waveguide problem. A two-dimensional finite-difference scheme in the frequency domain is used to discretize the waveguide cross section. The resulting sparse eigenvalue problem is solved efficiently using the bi-Lanczos algorithm. Apart from solving the modes of the dielectric waveguide, a scheme to solve for the fields in the presence of a localized source is also described. Numerical results are also included to confirm the validity of the method.

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