Abstracts

Waveguide Modes Via an Integral Equation Leading to a Linear Matrix Eigenvalue Problem (Short Papers)

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A numerical method for determining the modes of a rectangular or a circular waveguide strongly perturbed by axial cylindrical conducting objects is presented. The method is based upon an integral equation which leads to a matrix eigenvalue problem by using the Galerkin procedure. Cutoff wavenumbers are simultaneously calculated with very good precision for a number of modes near to the order of the matrix eigenvalue problem. Excellent results are obtained also when the perturbed waveguide section exhibits reentrant parts or edges. Computing time is short and storage requirements are moderate. The method is also applicable for waveguides of arbitrary cross section.

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