# Abstracts

## Absorbing Boundary Conditions for the Finite-Element Analysis of Planar Devices

*J.P. Webb. "Absorbing Boundary Conditions for the Finite-Element Analysis of Planar Devices." 1990 Transactions on Microwave Theory and Techniques 38.9 (Sep. 1990 [T-MTT] (Special Issue on Multifunction MMIC's and their System Applications)): 1328-1332.*

Microwave and optical devices in which the fields are not confined to a finite region can nevertheless be analyzed with the finite-element method if special boundary conditions are used, to absorb outgoing radiation. The absorbing boundary conditions may be imposed by the addition of two terms to the usual functional for the scalar Helmholtz equation. New universal matrices are introduced to allow the additional terms to be easily assembled, for polynomial orders one through four. Results are given for the impedance of a parallel-plate waveguide radiating into free space and for the scattering parameters of three dielectric slab waveguide devices: a rectangular discontinuity, a feed structure, and a Y junction.

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