Abstracts

A contour-based approach to the multimode network representation of waveguide transitions

W.L. Schroeder and M. Guglielmi. "A contour-based approach to the multimode network representation of waveguide transitions." 1998 Transactions on Microwave Theory and Techniques 46.4 (Apr. 1998 [T-MTT]): 411-419.

A flexible and efficient numerical method is presented by which the multimode network representation (MMNR) of the abrupt transition between a standard waveguide and a waveguide of arbitrary cross section can be established without reference to the cross-sectional fields. The approach combines the boundary integral-equation method (BIEM) with contour integral expressions for the coupling coefficients, and a novel highly efficient scheme to express modal normalization constants in terms of coupling coefficients and eigenvalues. Application is demonstrated for a variety of multiridge circular waveguide (MRCW) configurations and transitions between MRCW and circular waveguide (CW). Comparison is made against most published results for this problem.

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