Abstracts

Multimodal Variational Analysis of Uniaxial Waveguide Discontinuities

J.-W. Tao and H. Baudrand. "Multimodal Variational Analysis of Uniaxial Waveguide Discontinuities." 1991 Transactions on Microwave Theory and Techniques 39.3 (Mar. 1991 [T-MTT]): 506-516.

A unified multimodal variational formulation is described for the characterization of uniaxial waveguide discontinuities. A variational form is obtained by using a self-adjoint susceptance operator which is defined in terms of two eigenmode sets corresponding to the two constituent waveguides. By making use of the similarity between the field and network theory, the final admittance matrix will be of small size owing to the use of the "accessible" and "localized" modes. This formulation leads to an appreciable reduction in the computation time and computer memory space and facilitates in this way the use of the optimization process on personal computers and workstations. Examples are given for both homogeneous and inhomogeneous waveguide discontinuity problems, showing good agreement with the experiments. An evanescent-mode ridge-waveguide filter has been designed on this theoretical basis with success.

❑ Return to main document.