Abstracts

The Discrete Variational Conformal Technique for the Calculation of Strip Transmission-Line Parameters

R.E. Diaz. "The Discrete Variational Conformal Technique for the Calculation of Strip Transmission-Line Parameters." 1986 Transactions on Microwave Theory and Techniques 34.6 (Jun. 1986 [T-MTT]): 714-722.

This paper describes a new method of obtaining the transmission line properties of strip transmission lines whose geometrical configurations would make them difficult to analyze with other available techniques. The Discrete Variational Conformal (DVC) technique relies on conformal transformations to obtain the simplest possible representation of the Green function for the configuration of interest. This Green function is then used with an assumed charge distribution in the plane of the original configuration, and in a novel variational expression for the modal capacitance. The resulting equation is particularly well suited for numerical evaluation. Sample configurations are used to compare DVC to other techniques: Exact conformal mapping, Method of Moments, Full Wave solutions, and a Transverse Transmission Line Method. Two examples of application of DVC to asymmetric configurations are given.

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