Abstracts

Conformal Transformations Combined with Numerical Techniques, with Applications to Coupled-Bar Problems

R. Levy. "Conformal Transformations Combined with Numerical Techniques, with Applications to Coupled-Bar Problems." 1980 Transactions on Microwave Theory and Techniques 28.4 (Apr. 1980 [T-MTT]): 369-375.

This paper describes a new approach to the solution of two-dimensional boundary value problems which eliminates the disadvantages and combines the advantages of both conformal transformations and numerical methods. The conformal transformations are used to remove potential gradient singularities, and numerical (e.g., finite difference) methods may then be applied to the resulting almost-regular field problems. Boundary value problems previously regarded as very difficult become tractable, and considerable savings in computer time and storage requirements are achieved. The method is applied to the calculation of the even and odd mode capacitances of cylindrical rods between plane parallel ground planes. Excellent agreement with resuIts obtained previously is demonstrated.

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