Abstracts

Calculation of Capacitance Coefficients for a System of Irregular Finite Conductors on a Dielectric Sheet

P.D. Patel. "Calculation of Capacitance Coefficients for a System of Irregular Finite Conductors on a Dielectric Sheet." 1971 Transactions on Microwave Theory and Techniques 19.11 (Nov. 1971 [T-MTT]): 862-869.

The capacitance coefficients for a system of irregular finite conductors on a dielectric sheet are considered. There are two parts to the Green's function-integral equation approach considered herein: the first deals with a derivation of Green's functions for a desired mathematical model; the second solves the integral equation by a discretization procedure in which a solution for a large number of unknowns is required-a significant limitation. This approach, however, allows treatment of rather complex finite geometric configurations that are useful in the design of modern thin-film circuits. An integral representation of the Green's functions for the desired mathematical model is presented in which ground planes are assumed at finite distances from the dielectric sheet. However, in this paper, final results are obtained only for the case in which ground planes are at infinity. Numerical results are presented for some typical multiconductor systems. For the case of a two-dimensional parallel strip problem, the result of the present analysis compares well with that available in the literature.

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