Abstracts

Analytical and Numerical Studies of the Relative Convergence Phenomenon Arising in the Solution of an Integral Equation by the Moment Method

R. Mittra, T. Itoh and T.-S. Li. "Analytical and Numerical Studies of the Relative Convergence Phenomenon Arising in the Solution of an Integral Equation by the Moment Method." 1972 Transactions on Microwave Theory and Techniques 20.2 (Feb. 1972 [T-MTT]): 96-104.

The relative convergence phenomenon that occurs in the numerical solution of the integral equation for the iris discontinuity problem is studied both analytically and numerically. It is shown that the solution for the aperture field can be highly dependent upon the manner in which the kernel and the unknown function are approximated in the process of constructing a matrix equation by the moment method. An analytical explanation is provided for the above phenomenon and the theoretical predictions are verified numerically. Also included is a suggested numerical algorithm for detecting and alleviating the relative convergence behavior for more general problems.

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