Abstracts

Iterative Solutions of Waveguide Discontinuity Problems

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The method of overlapping regions, together with Schwarz's technique, is applied to waveguide discontinuity problems to illustrate its potential and basic advantages and disadvantages over other methods. The method reasonably corrects an arbitrary initial assumption of field distribution in the plane of discontinuity to the final value in a small number of iterations. The advantages are illustrated for a waveguide bend and dumbbell shaped waveguide as examples of transverse and longitudinal discontinuities, respectively. Numerical results for the case where only the electric field is parallel to the sharp edge discontinuity are presented and compared with available data, while extension to the case where only the magnetic field is parallel to the edge is discussed.

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