Abstracts

Eigenvalues for Ridged and Other Waveguides Containing Corners of Angle 3pi/2 or 2pi by the Finite Element Method (Short Papers)

B. Schiff. "Eigenvalues for Ridged and Other Waveguides Containing Corners of Angle 3pi/2 or 2pi by the Finite Element Method (Short Papers)." 1991 Transactions on Microwave Theory and Techniques 39.6 (Jun. 1991 [T-MTT]): 1034-1039.

Superelements have been developed to enable the finite element method to be used for computing eigenvalues of the Laplacian over domains containing reentrant corners of angle 3pi/2 or 2pi. The superelements embody mesh refinement and include basis functions which emulate the singular behavior of the solution at the corner. Being compatible with linear or bilinear elements, the superelements are easily incorporated into standard finite element programs. The method has been used to compute TE and TM mode eigenvalues for ridged and other waveguides, and the results agree well with those obtained rising various other methods.

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