Abstracts

Functional Approximations for Solving Boundary Value Problems by Computer

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The use of functional (as opposed to numerical) approximations in solving electromagnetic boundary value problems is presented. Galerkin's method is modified to simplify the choice of trial functions by permitting use of trial functions which do not satisfy certain boundary conditions. A test problem, the dielectric loaded rectangular waveguide, is worked using both the modified and unmodified Galerkin's method with identical results. This method is then applied to the arbitrary waveguide. The cutoff frequencies and computer drawn contour plots are presented for circular, rectangular, triangular and star-shaped waveguides.

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