Abstracts

Computer Aided Solution of Vector Field Boundary Value Problems in Three Dimensions

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The analysis of many microwave devices, for example, an electromagnetic cavity containing inhomogeneous anisotropic medium, involves the solution of a vector field, boundary value problem in three dimensions. The method of moments (in particular, that of Galerkin or Rayleigh-Ritz) is a well known general technique of field computation. For a region of arbitrary shape, a basic difficulty of the method of moments is the generation of a set of expansion functions that are complete over the region and which converge not only inside the region but also on the boundary. This paper outlines a systematic technique for generating such a set with the aid of a computer.

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