Abstracts

An Iterative Moment Method for Analyzing the Electromagnetic Field Distribution Inside Inhomogeneous Lossy Dielectric Objects (Short Papers)

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An iterative method is proposed for solving the electromagnetic deposition inside lossy inhomogeneous dielectric bodies. The technique uses the conventional method of moments to formulate the problem in matrix form. The resulting system of linear equations is solved iteratively by the method of conjugate gradients. The main advantage of the method is that the iterative procedure does not require the storage of any matrix, thus offering the possibility of solving larger problems compared to conventional inversion or Gaussian elimination schemes. Another important advantage is that monotonic convergence to a solution is ensured and accomplished within a fixed number of iterations, not exceeding the total number of basis functions, independently of the initial guess for the solution. Preliminary examples involving two-dimensional cylinders of fat and muscle are illustrated. The iterative method is expendable and applicable to the three-dimensional case.

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