Abstracts

Fast-Fourier-Transform Method for Calculation of SAR Distributions in Finely Discretized Inhomogeneous Models of Biological Bodies

D.T. Borup and O.P. Gandhi. "Fast-Fourier-Transform Method for Calculation of SAR Distributions in Finely Discretized Inhomogeneous Models of Biological Bodies." 1984 Transactions on Microwave Theory and Techniques 32.4 (Apr. 1984 [T-MTT]): 355-360.

The paper describes a novel iterative approach for calculations of specific absorption rate (SAR) distributions in arbitrary, lossy, dielectric bodies. To date, the method has been used for 2-D problems where its accuracy has been confirmed by comparison with the analytic solutions for homogeneous and layered, circular, cylindrical bodies. With computation times that are proportional to N log/sub 2/N rather than N^2 to N^3 for the method of moments, the present approach should be extendable to 3-D bodies with N= 10/sup 4/to 10/sup 5/ cells allowing, thereby, details of SAR distributions that are needed for EM hyperthermia, as well as for assessing biological effects.

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