Abstracts

Optimization of Simulated Two-Dimensional Temperature Distributions Induced by Multiple Electromagnetic Applicators

C. De Wagter. "Optimization of Simulated Two-Dimensional Temperature Distributions Induced by Multiple Electromagnetic Applicators." 1986 Transactions on Microwave Theory and Techniques 34.5 (May 1986 [T-MTT] (Special Issue on Phased Arrays for Hyperthermia Treatment of Cancer)): 589-596.

A computer simulation to calculate transient temperature distributions in realistic cross sections of the human body is described. In the simulation, the therapeutic effect of hyperthermia administration is maximized by optimum use of the electromagnetic applicators. The time-dependent mathematical optimum for the levels of energy going to the applicators as well as for the waterbolus separating the applicators from the patients is computed. Among other applications, this modeling is useful for predicting limitations to certain types of hypertherrnia systems, and has the potential for realistic computer-aided therapy planning. As an example, the treatment planning for a tumor in the lower limb is given in the case of incoherent sources.

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