Abstracts

Coupled Radiation Between Concentrically Placed Waveguide Applicators: Optimization of the Deposited Power Distribution Inside a Lossy Medium

K.S. Nikita, N.K. Uzunoglu and N.G. Maratos. "Coupled Radiation Between Concentrically Placed Waveguide Applicators: Optimization of the Deposited Power Distribution Inside a Lossy Medium." 1995 MTT-S International Microwave Symposium Digest 95.1 (1995 Vol. I [MWSYM]): 311-314.

A method is proposed for determining the optimal amplitude and phase excitations of a phased array hyperthermia system consisting of four waveguide applicators, in order to attain an improved Specific Absorption Rate (SAR) distribution inside and outside of malignant tissues. The method is based on a rigorous electromagnetic analysis which takes into account coupling phenomena between array elements. A penalty function technique, using the downhill simplex method, is applied to solve the optimization problem. Numerical simulations have been performed to check the effectiveness of the proposed method.

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