EVALUATION OF THE SPECIFIC
ABSORPTION RATE DISTRIBUTION
IN INTERSTITIAL MICROWAVE HYPERTHERMIA

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ABSTRACT  Interstitial microwave hyperthermia is an invasive kind of treatment in which electromagnetic heating is produced by various types of the applicators located in the human pathological tissues. A good example may be a coaxial-slot antenna presented in this paper. The described 2D mathematical model consists of a coupling of the electromagnetic wave equation for TM wave case and the bioheat equation under steady-state condition. Using the finite element method, the microwave power deposition and the specific absorption rate (SAR) distributions in the human tissue are calculated. Moreover, the simulation results have been made for different values of the microwave antenna’s total input power and various tissues.

Keywords:  interstitial microwave hyperthermia, specific absorption rate (SAR), coaxial-slot antenna, bioheat equation