Abstracts

Discussion of Capabilities of Microwave Phased Arrays for Hyperthermia Treatment of Neck Tumors

F. Jouvie, J.-C. Bolomey and G. Gaboriaud. "Discussion of Capabilities of Microwave Phased Arrays for Hyperthermia Treatment of Neck Tumors." 1986 Transactions on Microwave Theory and Techniques 34.5 (May 1986 [T-MTT] (Special Issue on Phased Arrays for Hyperthermia Treatment of Cancer)): 495-501.

The power deposition capabilities of phased arrays are investigated by means of numericaf modeling. Integral formulation and gradient conjugate techniques have been used to calculate the power deposited by complete or limited annular arrays in cylindrical neck cross sections. Comparisons with the power deposition patterns obtained by means of other heating modalities (RF capacitive electrodes, single microwave applicator or nonphased arrays) show that, even with a moderate number of elements, phased arrays are expected to provide better uniformity and larger penetration depths although improvements offered by phased arrays largely depend on the possibility to conveniently check the initial amplitude/phase adjustment of the array elements. Some existing and potential control procedures are addressed.

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