Abstracts

Gain Optimization of a Near-Field Focusing Array for Hyperthermia Applications

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A new variation of the array gain optimization problem has arisen in the study of microwave arrays used for hyperthermia, the heating of biological tissue. For a given array configuration and arbitrary medium it is desired to maximize the power deposition at a prescribed focus in the near field of the array. This paper shows how the optimum excitation may be found by solving an eigenvalue problem. Our optimum solution is compared with two other solutions, namely a closed-form solution which optimizes the power in one linear polarization of the radiated field, and a solution based on the popular conjugate-field scheme.

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