# Abstracts

## Optimization of Helical Coil Applicators for Hyperthermia (Short Papers)

*M.J. Hagmann. "Optimization of Helical Coil Applicators for Hyperthermia (Short Papers)." 1988 Transactions on Microwave Theory and Techniques 36.1 (Jan. 1988 [T-MTT]): 148-150.*

Numerical solutions have been used to optimize helical coil applicators in order to maximize the ratio of axial to surface heating within coaxial muscle cylinders. It is shown that this optimization requires significantly larger values of pitch angle and frequency than those which have been specified thus far for experimental applicators. The maximum ratio of axial to surface heating is obtained with a linear helix, which is a limiting form of the helix, defined to have a pitch angle of 90°. Calculated ratios of axial/surface heating with a linear helix are as large as 2.54 (at 352 MHz) for a muscle cylinder with a radius of 4 cm, and 1.26 (at 82 MHz) for one with a radius of 8 cm. The relationship of the linear helix to the annular phased array and the resonant cylindrical cavity applicator is discussed.

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