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Scaling analysis of magnetic fluid hyperthermia MONRUDEE LIANGRUKSA, Department of Engineering Science and Mechanics, Virginia Polytechnic Institute and State University, RANJAN GANGULY, Department of Power Engineering, Jadavpur University, Kolkata, India, ISHWAR K. PURI, Department of Engineering Science and Mechanics, Virginia Polytechnic Institute and State University — Magnetic fluids have been investigated for hyperthermia and thermoablation applications. These have advantages over traditional treatments in terms of localization of the therapy and less serious side effects. Herein, an analysis of bioheat transfer during magnetic fluid hyperthermia is performed. The results provide insight into the roles of dimensionless numbers in the bioheat equation and can lead to parameter optimization for in vitro and in vivo magnetic fluid hyperthermia experiments. In addition, a clinical efficacy index and a damage is provided for magnetic heating.

Monrudee Liangruksa
Department of Engineering Science and Mechanics,
Virginia Polytechnic Institute and State University

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