

Eighth Mississippi State - UAB Conference on Differential Equations Computational Simulations, May 7–9, 2009, Department of Mathematics and Statistics, Mississippi State University, Mississippi State, MS, USA

OPTIMIZATION OF A HEAT TRANSFER COEFFICIENT IN A THERMISTOR PROBLEM

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Optimal control of a steady state thermistor is considered. The problem is described by a system of two nonlinear elliptic partial differential equations coupled with appropriate boundary conditions. Based on physical considerations, an objective functional to be minimized is introduced and the heat transfer coefficient is taken as the control. Existence and uniqueness of the optimal control are proven. To characterize this optimal control, the optimality system consisting of the state and adjoint equations, is derived.

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