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Inverse Determination of Model Parameters of Nonlinear Heat Conduction Problem Using Hybrid Genetic Algorithm

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Abstract: A new interpretation is proposed to solve the inverse heat conduction problem using hybrid genetic algorithm. In order to identify parameters of non-linear heat transfer efficiently and in a robust manner, the hybrid genetic algorithm, which combines genetic algorithm with simulated annealing and the elitist strategy, is presented for the identification of the material thermal parameters. The procedure is based on the minimization of an objective function which accounts for experimental data and the calculated response of the mathematical model. The performances of the proposed optimization algorithm were investigated with simulating data, and the effectiveness was consequently confirmed.

Keywords: *Inverse heat conduction problem; evolutionary algorithm; objective function; optimization algorithm; measurement noise.*

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