



## Inverse Estimation of Heat Flux and Temperature in 3D Finite Domain

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GRIN Publishing Mrz 2016, 2016. Taschenbuch. Condition: Neu. Neuware - Thesis (M.A.) from the year 2009 in the subject Engineering - Power Engineering, , language: English, abstract: Inverse heat conduction problems occur in many theoretical and practical applications where it is difficult or practically impossible to measure the heat flux generated and the temperature of the layer conducting the heat flux to the body. Thus it becomes imperative to devise some means to cater for such a problem and estimate the heat flux inversely. Adaptive state estimator is one such technique which works by incorporating the semi-Markovian concept into a Bayesian estimation technique thereby developing an inverse input and state estimator consisting of a bank of parallel adaptively weighted Kalman filters. The problem presented in this study deals with a three dimensional system of a cube with one end conducting heat flux and all the other sides are insulated while the temperatures are measured on the accessible faces of the cube. The measurements taken on these accessible faces are fed into the estimation algorithm and the input heat flux and the temperature distribution at each point in the system is calculated. A variety of input heat flux scenarios have been examined...



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