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A Fictitious Time Integration Method to Identify Time-Space-Dependent Heat Transfer Coefficient

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Summary

We consider an inverse problem for identifying a time-space-dependent heat transfer coefficient h(x,t) in a two-dimensional heat conduction equation, with the aid of an extra measurement of temperature at the top side of a rectangular plate. Finite differences are used to discretize the governing equation and boundary conditions of Neumann type, and then the Fictitious Time Integration Method (FTIM) is used to solve a large scale linear system of unknown variables. The numerical results show that the FTIM is effective and robust against noise.