Identification of nonlinear coefficient in a transport equation

Lapin A., Lapin S.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Considered a problem of identification a nonlinear coefficient in a first order PDE via final observation. The problem is stated as an optimal control problem and solved numerically. Implicit finite difference scheme is used for the approximation of the state equation. A space of control variables is approximated by a sequence of finite-dimensional spaces with increaing dimensions. Finite dimensional problems are solved by a gradient method and numerical results are presented.

Keywords

Final observation, Finite difference scheme, Multilevel algorithm, Nonlinear coefficient identification, Transport equation