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ON APPLICATION OF OPTIMAL CONTROL METHODS TO THE SOLUTION OF THE CAUCHY PROBLEM FOR A SECOND ORDER ELLIPTIC EQUATION

Abstract

In the paper, the Cauchy-Dirichlet ill-posed problem is considered for a linear elliptic equation of second order.

This equation is reduced to an optimal control problem that is also ill-posed. The obtained problem is regularized and investigated by means of optimal control methods. Applying the Fourier method, we get the exact solution of the optimal control problem and the solution of the Cauchy-Dirichlet input problem