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ON OPTIMAL CONTROL FOR PROCESSES DESCRIBED BY QUASILINEAR ELLIPTIC EQUATIONS

Abstract

In the present paper the optimal control problem for quasilinear elliptic equations with nonlinear optimality criterion of the general form is considered. The coefficients at higher derivatives and the function included to the nonlinear part of the equation are the controlling functions. The correctness problems of the statement of the considered problem are investigated, the sufficient conditions for differentiability of optimality criterion are found, the formula for its gradient is obtained, the necessary optimality condition in the form of variational inequality is established.