

Kamil B. MANSIMOV, Rasmiya R. AMIROVA

NECESSARY OPTIMALITY CONDITIONS IN A
CONTROL PROBLEM DESCRIBED BY A SYSTEM
OF VOLTERRA TYPE TWO-DIMENSIONAL
DIFFERENCE EQUATIONS

Abstract

In the paper, an optimal control problem described by a system of Volterra type two-dimensional difference equations is studied. A necessary optimality condition is obtained in the form of Pontryagin's discrete maximum principle. In the case of convexity of controls domain the necessary optimality condition in the form of linearized maximum principle is proved. Analogy of the Euler equation is introduced under the assumption of openness of the controls domain.