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SINGULAR CONTROLS IN THE SENSE OF PONTRYAGIN'S MAXIMUM PRINCIPLE FOR CONTROLLED SYSTEMS WITH THREE-POINT BOUNDARY CONDITIONS

Abstract

An optimal control problem wherein the system's state is determined from controlled system of ordinary differential equations with three-point boundary conditions is considered in the paper. Admissible controls are chosen from a class of bounded and measurable functions. Validity of Pontryagin's maximum principle is proved for the investigated class of problems. A formula for an increment of a second order functional is calculated. Necessary optimality condition for singular controls in the sense of Pontryagin's maximum principle is obtained in the base of needle-shaped control variation.