

Necessary Conditions for Optimality in Problems of Optimal Control of Systems with Discontinuous Right-Hand Side

O. I. Kostyukova ¹,

E. A. Kostina (Foreign) ²

2019

¹ Department of Informatics, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus; Institute of Mathematics, National Academy of Sciences of Belarus, Minsk, Belarus

² Foreign (Heidelberg University, Heidelberg, Germany)

Keywords: Dynamical systems with discontinuous right hand side, Optimality conditions, Non-degeneracy.

Abstract: We consider the problems of optimal control of a dynamical system whose right-hand side is discontinuous in the state variable and is linear in the control with sufficiently smooth coefficients in each of the half-spaces into which the space is divided by the switching hyperplane. The main attention is paid to the situation where there exist intervals on which the optimal trajectory lies on the switching surface. New nondegenerate necessary conditions for optimality are stated and proved in the maximum principle form. The obtained optimality conditions are compared with the already known conditions.

This article published in: Kostyukova, O. I. Necessary Conditions for Optimality in Problems of Optimal Control of Systems with Discontinuous Right-Hand Side / O. I. Kostyukova, E. A. Kostina // Differential Equations. – 2019. – Vol. 55, Issue 3. – P. 374-389. – <https://doi.org/10.1134/S001226611903011X>.

Internet link to the article:

<https://link.springer.com/article/10.1134%2FS001226611903011X>.

Springer Nature

© 2019 Springer Nature Switzerland AG. Part of Springer Nature.

Not logged in Belarusian State University of Informatics and Radioelectronics (3001292057) - The Main Information-Analytical Center Ministry of Educ of the Repub of Belarus (3002873152)
46.216.181.51.