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**DECISION MAKING IN A HYBRID TWO-STEP PROBLEM
OF DYNAMIC CONTROL WITH THREE PARTICIPANTS****A. F. Kleimenov**

The equations of motion of a control system in a two-step problem on a fixed time interval contain the controls of either the first player, or the first and second players, or the first and third players, or all players simultaneously. At the first step (stage) of the control process (from the initial time up to a certain predefined moment), the system is controlled only by the first player, who solves an optimal control problem with a given terminal functional. At the beginning of the second step (stage) of the process, the first player decides whether the other players will participate in the control process for the remaining time period. If yes, then the participants play a nonantagonistic differential game with given terminal functionals, and it can be a game of two or three persons. A Pareto-optimal Nash equilibrium is taken as a solution in this game. If no, then the first player continues to solve the optimal control problem until the end of the process.

Keywords: optimal control problem, nonantagonistic positional differential game, terminal payoff functionals, Nash equilibrium.

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Anatolii Fedorovich Kleimenov, Dr. Phys.-Math. Sci., Krasovskii Institute of Mathematics and Mechanics of the Ural Branch of the Russian Academy of Sciences, Yekaterinburg, 620108 Russia; Ural Federal University, Yekaterinburg, 620083 Russia, e-mail: kleimenov@imm.uran.ru.

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