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Relaxation of the game problem of guidance connected with alternative in guidance-evasion differential game. (Russian. English summary) [Zbl 1475.91029](#)

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Summary: Differential game (DG) of guidance-evasion for a finite time interval is considered; as parameters, the target set (TS) and the set defining phase constraints (PC) are used. Player I interested in realization of guidance with TS under validity PC uses set-valued quasistrategies (nonanticipating strategies) and player II having opposite target uses strategies with nonanticipating choice of correction instants and finite numbers of such instants. On informative level, the setting corresponds to alternative theorem of *N. N. Krasovskij* and *A. I. Subbotin* [J. Appl. Math. Mech. 34, 948–965 (1970; [Zbl 0241.90071](#)); translation from Prikl. Mat. Mekh. 34, 1005–1022 (1970)]. For position not belonging to solvability set of player I, determination of the least size of neighborhoods for set-parameters under that player I guarantees guidance (under weakened conditions) is interested. In article, this scheme is supplemented by priority elements in questions of TS attainment and PC validity; this is realized by special parameter defining relation for sizes of corresponding neighborhoods. Under these conditions, a function of the least size of TS neighborhood is defined by procedure used program iteration method for two variants. The above-mentioned function is fixed point for one of two used “program” operators. Special type of the quality functional for which values of the above-mentioned function coincide with values of the minimax-maximin games is established.

MSC:

[91A23](#) Differential games (aspects of game theory)

Cited in **2** Documents

Keywords:

differential game; quasistrategy; program iteration method

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