

Lukoyanov, Nikolai; Gomoyunov, Mikhail

Differential games on minmax of the positional quality index. (English) Zbl 1431.91037
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Summary: The paper goes back to the research of N. N. Krasovskii devoted to two-person zero-sum positional differential games on minmax of non-terminal quality indices, which evaluate a set of system's states realized at given times. The first part of the paper gives a survey of the results concerning existence of the value and saddle point in such differential games. A special attention is paid to the case when the quality index has a certain positional structure. The second part of the paper overviews a method for constructing the value and optimal strategies in the case when the dynamical system is linear in the state vector, and the quality index has the appropriate convexity properties. The method is based on the recurrent procedure of constructing the upper convex hulls of certain auxiliary functions. To illustrate that this method can be numerically realized on modern computers, a model example is considered.

MSC:

91A23 Differential games (aspects of game theory)
91A24 Positional games (pursuit and evasion, etc.)
49J35 Existence of solutions for minimax problems
91A05 2-person games

Cited in **5** Documents

Keywords:

differential game; non-terminal quality index; positional strategy; optimal guaranteed result; game value; saddle point; numerical method; convex hull

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