

Fixed duration pursuit-evasion differential game with integral constraints

ABSTRACT

We investigate a pursuit-evasion differential game of countably many pursuers and one evader. Integral constraints are imposed on control functions of the players. Duration of the game is fixed and the payoff of the game is infimum of the distances between the evader and pursuers when the game is completed. Purpose of the pursuers is to minimize the payoff and that of the evader is to maximize it. Optimal strategies of the players are constructed, and the value of the game is found. It should be noted that energy resource of any pursuer may be less than that of the evader.

Keyword: Control functions; Differential games; Integral constraints; Optimal strategies; Pursuit evasion.