

On a fixed duration pursuit differential game with geometric and integral constraints

ABSTRACT

In this paper we investigate a differential game in which countably many dynamical objects pursue a single one. All the players perform simple motions. The duration of the game is fixed. The controls of a group of pursuers are subject to integral constraints, and the controls of the other pursuers and the evader are subject to geometric constraints. The payoff of the game is the distance between the evader and the closest pursuer when the game is terminated. We construct optimal strategies for players and find the value of the game.

Keyword: Differential game; Pursuer; Evader; Strategy; Value of the game