Simple motion evasion differential game of many pursuers and evaders with integral constraints

ABSTRACT

We study a simple motion evasion differential game of many pursuers and evaders. Control functions of players are subjected to integral constraints. If the state of at least one evader does not coincide with that of any pursuer forever, then evasion is said to be possible in the game. The aim of the group of evaders is to construct their strategies so that evasion can be possible in the game and the aim of the group of pursuers is opposite. The problem is to find a sufficient condition of evasion. If the total energy of pursuers is less than or equal to that of evaders, then it is proved that evasion is possible, and moreover, evasion strategies are constructed explicitly.