Evasion differential game with many pursuers versus one evader whose control set is a sector

ABSTRACT

We study a simple motion evasion differential game of many pursuers $x_1, \ldots, x_m$ and one evader y in the plane. Maximum speeds of pursuers are equal to 1, and the control set of the evader is a sector S of radius greater than 1. We say that evasion is possible if $x_i(t) \neq y(t)$ for all $t \geqslant 0$ and $i = 1, \ldots, m$. We obtain conditions that guarantee the evasion from any initial positions of the pursuers and evader.

Keyword: Simple motion; Strategy; Geometric constraint