A pursuit differential game problem on a closed convex subset of l_2

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Abstract: We study a pursuit differential game problem with finite number of pursuers and one evader on a nonempty closed convex subset of l_2. Players' motions are described by ordinary differential equations and control functions of the pursuers and evader are subject to integral constraints. Pursuit is said to be completed if the geometric positions of a pursuer and the evader coincide. We formulated and proved theorems, each of which provides a condition for completion of pursuit. Consequently, strategies of the pursuers that ensure completion of pursuit are constructed. Furthermore, illustrative example was given to demonstrate the result.

Keywords: Pursuit; integral constraint; closed convex set