# Evasion differential game of infinitely many evaders from infinitely many pursuers in Hilbert space

## ABSTRACT

We consider a simple motion evasion differential game of infinitely many evaders and infinitely many pursuers in Hilbert space $\ell_2$. Control functions of the players are subjected to integral constraints. If the position of an evader never coincides with the position of any pursuer, then evasion is said to be possible. Problem is to find conditions of evasion. The main result of the paper is that if either (i) the total resource of evaders is greater than that of pursuers or (ii) the total resource of evaders is equal to that of pursuers and initial positions of all the evaders are not limit points for initial positions of the pursuers, then evasion is possible. Strategies for the evaders are constructed.