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ON THE EXISTENCE OF THE SOLUTION OF RICCATI EQUATIONS ARISING IN LINEAR QUADRATIC MEAN FIELD DYNAMIC GAMES*

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Dedicated to Dr. Vasile Drăgan on the occasion of his 70th anniversary

Abstract

In this paper we obtain existence conditions for the solution of a class of generalized Riccati equations arising in finite horizon linear quadratic (LQ) mean-field games.
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keywords: Mean-field games, Riccati equations, existence conditions.

1 Introduction

Mean field (MF) game theory provides a powerful tool to study non-cooperative games with a large population of players. It is a class of non-cooperative stochastic differential games, where there is a large number of players, who interact with each other through a mean field coupling term included in the cost function and/or each agent's dynamics. This theory attracted a phenomenal interest from the scientific community these last few years since the

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