

THE EXISTENCE OF THE STABILIZING SOLUTION OF THE RICCATI EQUATION ARISING IN DISCRETE-TIME STOCHASTIC ZERO SUM LQ DYNAMIC GAMES WITH PERIODIC COEFFICIENTS*

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Abstract

We investigate the problem for solving a discrete-time periodic generalized Riccati equation with an indefinite sign of the quadratic term. A necessary condition for the existence of bounded and stabilizing solution of the discrete-time Riccati equation with an indefinite quadratic term is derived. The stabilizing solution is positive semidefinite and satisfies the introduced sign conditions. The proposed condition is illustrated via a numerical example.

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