

*In Memoriam Adelina Georgescu*

# $H_2$ OPTIMAL CONTROLLERS FOR A LARGE CLASS OF LINEAR STOCHASTIC SYSTEMS WITH PERIODIC COEFFICIENTS\*

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## Abstract

In this paper the  $H_2$  type optimization problem for a class of time varying linear stochastic systems modeled by Ito differential equations and Markovian jumping with periodic coefficients is considered. The main goal of such an optimization problem is to minimize the effect of additive white noise perturbations on a suitable output of the controlled system. It is assumed that only an output is available for measurements. The solution of the considered optimization problem is constructed via the stabilizing solutions of some suitable systems of generalized Riccati differential equations with periodic coefficients.

**MSC:** 93E20, 93E15, 93E03.

**keywords:**  $H_2$  norms; linear stochastic systems; periodic coefficients; output based controllers; Riccati differential equations.

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