

# STATIC OUTPUT-FEEDBACK STABILIZATION OF MARKOVIAN JUMP SYSTEMS WITH UNCERTAIN PROBABILITY RATES\*

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Dedicated to Dr. Vasile Drăgan on the occasion of his 70<sup>th</sup> anniversary

## Abstract

This paper provides a treatment for the mode-dependent static output-feedback control problem of linear systems subject to random Markovian jumps in its parameters. For this kind of systems, we consider the mean-square stability and we develop a numerical method to find static output-feedback stabilizing control. We show how one can handle the uncertainties that can affect the transition probability matrix. The robust static output-feedback stabilization problem (against unknown or uncertain probability rates) is formulated in terms of the minimization of a scalar product of definite positive matrices under convex constraint (LMIs). Such problem can be solved via a cone complementarity algorithm.

**MSC:** 93E03, 93E15, 35Q93, 90C26, 34H15, 93D15

**keywords:** Jump systems, Static output-feedback stabilization, Uncertain transition probabilities, Cone complementarity algorithm.

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