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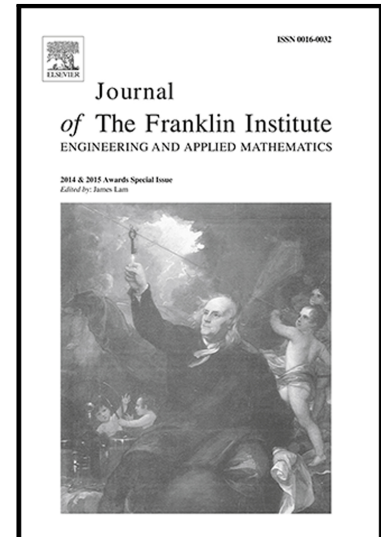
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Output Feedback Stabilization of Switching Discrete-Time Linear Systems with Parameter Uncertainties

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Abstract

This paper deals with observer-based control design for a class of switched discrete-time linear systems with parameter uncertainties. The main contribution of the paper is to propose a convenient way based on Finsler's lemma to enhance the synthesis conditions, expressed in terms of Linear Matrix Inequalities (LMIs). Indeed, this judicious use of Finsler's lemma provides additional decision variables, which render the LMIs less conservative and more general than all those existing in the literature for the same class of systems. Two numerical examples followed by a Monte Carlo evaluation are proposed to show the superiority of the proposed design technique.

Keywords: Switched discrete-time systems; Output feedback control; Switched Lyapunov function (SLF); Finsler's lemma; LMI.

1. Introduction

Switching systems deserve to be investigated for theoretical motivations justified by their fascinating construction as well as practical reasons, due to several

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