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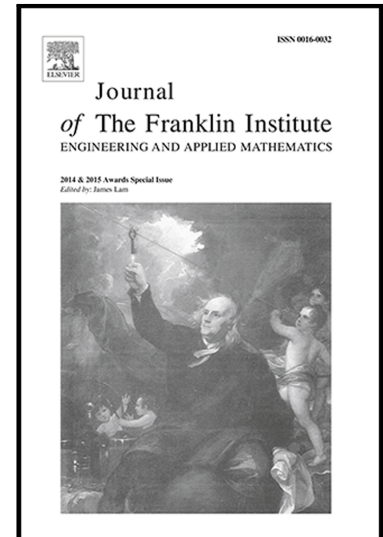
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# Event-triggered control of switched linear systems

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## Abstract

This paper presents an event-triggered sampling mechanism and develops a sampled-data-based stabilizer for switched linear systems. First of all, state estimators are designed for individual subsystems of the switched system. Secondly, sampling is triggered only if the error between estimated state and sampled state violates a dynamic threshold, and a sampled-data-based controller is designed for the overall switched system to achieve stabilization provided that average dwell time conditions of the switched system are satisfied. Lastly, a numerical example is given to illustrate the effectiveness of the proposed method.

*Keywords:* Switched system; event-triggered control; average dwell time

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## 1. Introduction

The periodical sampling is often used to control physical plants in sampled-data control systems since it can simplify the design and analysis (Chen and Francis (2012)). However, samplings in periodical sampling control happen in a fixed rate, which often lead to a waste of resources. The event-triggered control, i.e., the sampling is determined by the occurrence of an event, is thus proposed to reduce the unnecessary samplings. Several event-triggered control strategies have been developed in the early works (see, for example Cassandras (2013); Arzen (1999); Durand and Marchand (2009); Astrom and Bernhardsson (1999); Tabuada (2007); Wang and Lemmon (2008, 2009); Lunze and Lehmann (2010); Lehmann and Lunze (2011); Heemels and

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