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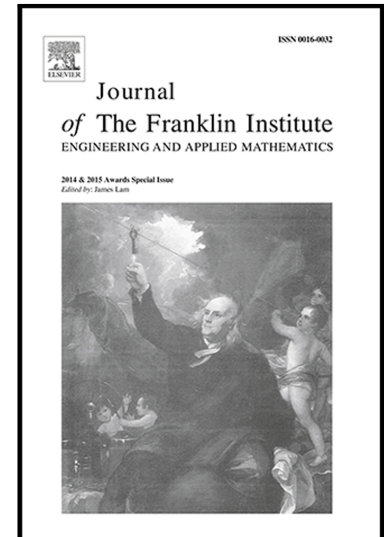
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Dissipative filtering for singular Markov jump systems with generally uncertain transition rates via new integral inequality approach

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Abstract

This paper considers the problem of dissipative filtering problem for singular Markov jump systems with time-varying delay and generally uncertain transition rates. Firstly, by tuning the improved integral inequality and Wirtinger-based integral inequalities, a sufficient condition is derived to guarantee that the considered system is regular, impulse-free, stochastically stable with the dissipation performance. Then, based on the derived condition, and applying linear matrix inequalities(LMIs) techniques, the filter is synthesized. Finally, some numerical examples are given to illustrate the effectiveness of the obtained theoretic results.

Key words: dissipative filtering, singular Markov jump systems, time-varying delay, linear matrix inequalities (LMIs)

1 Introduction

Over the last few decades, many efforts have been paid to Markov jump systems (MJSs) due to their theoretical importance and practical usefulness in various areas[1-3]. Several practical dynamics have their structures or parameters changed abruptly, which caused by sudden disturbances, disconnection

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