

论文与报告

## 线性多时变时滞系统的指数稳定性

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摘要

本文基于一个新型滞后动态系统指数稳定性定理和两个准备引理, 采用 Lyapunov 函数稳定性分析新方法, 建立了线性多时变时滞系统保守性少的稳定性条件. 与文献中已有的一些结果不同, 所建立的稳定性条件不依赖于时变时滞的变化率. 因此, 所建立的结果适用于具有非常快变时滞的系统. 文中给出了一个例子展示所得结果好于直接采用标准的 Razumikhin 型条件所得的结果.

关键词 [指数稳定性](#) [稳定性定理](#) [时变时滞动态系统](#)

分类号

## Exponential Stability of Linear Systems with Multiple Time-varying Delays

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Abstract

Based on the established new-type exponential stability theorem for general retarded dynamical systems and two preliminary lemmas, less conservative stability conditions for linear systems with multiple time-varying delays are established by using the new stability analysis approach of Lyapunov function. Unlike some results in the literature, none of the established results depends on the derivatives of the time-varying delays. Therefore, the results are suitable to the cases with very fast time-varying delays. An example is provided to show that the stability conditions obtained are better than the ones obtained directly based on the standard Razumikhin-type condition in the literature.

Key words [Exponential stability](#) [stability theorem](#) [dynamical systems with time-varying delays](#)

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