

[2008-0828] Delay-Dependent Stability for Systems with Fast-Varying Neutral-Type Delay via A PTVD Compensation

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摘要

关键词

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Delay-Dependent Stability for Systems with Fast-Varying Neutral-Type Delay via A PTVD Compensation

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Abstract

The stability for a class of linear neutral systems with time-varying delays is studied in this paper, where delay in neutral-type term includes a fast-varying case (i.e., the derivative of delay is more than 1), which is never considered in current literature. The less conservative delay-dependent stability criteria for this systems are proposed by applying a new Lyapunov-Krasovskii functional and a novel polynomials with time-varying delay (PTVD) compensation technique. The aim dealt with systems with fast-varying neutral-type delay can be achieved by using the new functional. And the benefit brought by applying the PTVD compensation technique is that some useful elements can be included in criteria, which are generally ignored when estimating the upper bound of derivative of Lyapunov-Krasovskii functional. A numerical example is provided to verify the effectiveness of the proposed results.

Key words [Linear neutral systems](#) [stability](#) [delay-dependent](#) [fast-varying neutral-type delay](#) [PTVD compensation technique](#)

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