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Polynomial approximations of the Lyapunov matrix of a class of time delay

Time Delay Systems, Volume # 8 | Part# 1

Location: University of Craiova, Romania, Romania

National Organizing Committee Chair: Bobasu, Eugen

International Program Committee Chair: Rasvan, Vladimir, Niculescu, Silviu Iulian, Popescu, Dan, Ionita, Achim

Conference Editor: Petre, Emil

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Identifier

10.3182/20090901-3-RO-4009.00042

Index Terms

time delay systems, Lyapunov matrix, Lyapunov-Krasovskii functionals, approximation

Abstract

A polynomial approximation of the Lyapunov matrix appearing in the complete type Lyapunov Krasovskii functionals associated to a class of retarded time delay systems is proposed. The results are concordant with the available semi-analytic solution. The comparison of the approximation error with that of the piecewise linear approximation previously introduced in the literature shows a significant improvement.

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