Umesha, Veerakyathaiah; **Padmanabhan, Spirangaiah**; **Baskar, P.**; **Ali, Muhammad Syed**
Exponential stability analysis for delay-differential systems of neutral type with an LMI approach. (English) Zbl 1412.34196
Khayyam J. Math. 5, No. 1, 11-20 (2019).

Summary: In this paper for neutral delay differential systems, the problem of determining the exponential stability is investigated. Based on the Lyapunov method, we present some useful criteria of exponential stability for the derived systems. The stability criterion is formulated in terms of linear matrix inequality (LMI),which can be easily solved by using the MATLAB LMI toolbox. Numerical examples are included to illustrate the proposed method.

MSC:

34K09 Functional-differential inclusions
93C05 Linear systems in control theory
34K40 Neutral functional-differential equations
34D35 Stability of manifolds of solutions to ordinary differential equations
37B25 Stability of topological dynamical systems

Keywords:

neutral system; exponential stability; Lyapunov method; linear matrix inequality (LMI)

Software:

Matlab

Full Text: DOI