Delay Dependent Robust Exponential Stability Criterion for Perturbed and Uncertain Neutral Systems with Time Varying Delays

Issam Amri, Dhaou Soudani, Mohamed Benrejeb

Unit research LA.R.A., Ecole Nationale d'Ingénieurs de Tunis, ENIT, BP 37, 1002 Tunis Tunisia.

amri_issam@yahoo.fr, dhaou.soudani@enit.rnu.tn, mohamed.benrejeb@enit.rnu.tn

Abstract: This paper deals with the issue of robust exponential stability of uncertain neutral system with time varying delay and nonlinear perturbations. Using Lyapunov-Krasovskii functional, new sufficient delay dependent stability conditions have been derived in terms of Linear Matrix Inequalities LMIs solved using efficient convex optimization algorithms. Neither model transformation, nor estimating techniques for cross terms, nor free weighting matrices are involved in this work. Numerical examples are considered to show the efficiency of the proposed stability approach.