Abstract

This paper deals with the stability problem of neutral time-delay systems. Based on the Lyapunov-Krasovskii functional theory, new theorems are proposed for a type of neutral delay systems with robust time-delay control. New delay-dependent stability conditions are developed for the system without time-delay control in the first time and with time-delay control in the second time. Linear matrix inequality approaches are used to solve the stability problem in these cases. Numerical examples illustrate that the proposed methods are effective and lead to less conservative results.

**Index Terms**

Computer Science  
Control Systems

**Keywords**

Neutral Time-delay Systems  
Stability Analysis  
Robust Time-Delay Control  
Linear Matrix Inequality (LMI).