On H_∞ Control Design for Singular Continuous-Time Delay Systems with Parametric Uncertainties

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Abstract: In this paper we study the problem of H_∞ control of singular linear continuous-time systems with parametric uncertainty. The system under consideration is subjected to time-delay in state, and norm-bounded parametric uncertainty entering all matrices of the system and output equations. First, the problem of robust stabilization of the underlying system is investigated. Next, we address the problem of robust H_∞ state feedback control in which both robust stability and a prescribed H_∞ performance are required to be achieved irrespective of the uncertainty and time-delay. It is shown that the above control problem can be solved in terms of solutions of some linear matrix inequalities.

Keywords: *Singular continuous-time systems; parameter uncertainty; time-delay; linear matrix inequality (LMI).*

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