Necessary and Sufficient Conditions for Ensuring Stability and Avoiding Sinusoidal Oscillation of Uncertain Interval Systems

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Abstract: *In this paper, two types of second-order uncertain interval systems are proposed and discussed. Based on control theory, time-domain approach, and bilinear transformation method, the necessary and sufficient conditions are derived for above two interval systems to ensure that stability can be achieved and that the output signal will not produce sinusoidal oscillations. Finally, several numerical simulations are given to illustrate the feasibility and effectiveness of the obtained results.*

Keywords: Sinusoidal oscillation, Uncertain systems, Continuous-data interval systems, Discrete-data interval systems

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