

Robust Stability: Three Approaches for Discrete-Time Systems

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Abstract: The paper presents the results of estimating the robust stability bounds for discrete system in terms of three approaches based on scalar, vector and hierarchical Lyapunov functions. It is shown that the hierarchical Lyapunov function allows one to obtain the most wide bounds for the uncertain matrix in the investigation of discrete system. A numerical example is cited which illustrates the application of the proposed approach.

Keywords: *Discrete-time system; robust bounds; scalar; vector and hierarchical Lyapunov functions.*

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