

One Method for Robust Control of Uncertain Systems: Theory and Practice

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Abstract: We present a controller design methodology for uncertain systems which is based on the constructive use of Lyapunov stability theory. The uncertainties, which are deterministic, are characterized by certain structural conditions and known as well as unknown bounds. As a consequence of the Lyapunov approach, the methodology is not restricted to linear or time-invariant systems. The robustness of these controllers in the presence of singular perturbations is considered. The situation in which the full state of the system is not available for measurement is also considered as are other generalizations. Applications of the proposed controller are noted, and examples of some resource management problems are discussed.

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AMS Subject Classification: