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Vortragsankündigung

Seminar Regelungssysteme LV 0430L 654

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Vortragsort: EN 223

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Non-conservative discrete-time ISS small-gain conditions for closed sets

This talk is concerned with a unification and a generalization of the small-gain theory subsuming a wide range of the existing small-gain theorems. In particular, we introduce small-gain conditions that are necessary and sufficient to ensure input-to-state stability (ISS) with respect to closed sets. Toward this end, we first develop a Lyapunov characterization of ω-ISS via finite-step ω-ISS Lyapunov functions. Then, we provide the small-gain conditions to guarantee ω-ISS of a network of systems. Finally, applications of our results to partial input-to-state stability, ISS of time-varying systems, incremental stability and distributed observers are given.