

Yet another characterization of input-to-state stability: a preliminary note

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ABSTRACT

Ever since Eduardo Sontag introduced the notion of input-to-state stability (abbreviated by ISS) in [2], it has played an important role in nonlinear system analysis and nonlinear control design, and many variants and characterizations have appeared in the literature [1,3,7,5,6,4]. In this talk, yet another characterization of ISS is presented, which is a by-product of on-going research with Daniel Liberzon about nonlinear observers robust to measurement disturbances. This characterization is based on lim sup operation and monotonicity of certain functions, and therefore, it turns out that it is relatively easy to be checked especially when the system under consideration is complex.

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