

Stability and Stabilization of Network Dynamical Systems and Switching

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Abstract

In this talk we discuss the stability and stabilization of diffusively coupled network dynamical systems with hybrid dynamics. We employ Lyapunov methods to analyze the role of coupling in stabilizing or destabilizing network systems. We derive critical coupling parameter values for stability and provide sufficient conditions for asymptotic stability under arbitrary switching scenarios, thus illustrating the impact of both coupling strength and network topology on the stability analysis of such hybrid systems. Our theoretical results are supported by numerical simulations.

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