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Prescribed-Time Asynchronous Boundary Control for Uncertain Delay Reaction-Diffusion Systems

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There have been a number of works in the literature dealing with the stabilization of processes with input delays for a reaction-diffusion partial differential equation, mainly by using finite-time control strategies, where their settling time depends on the initial conditions. However, in many practical applications, it is difficult or even impossible to obtain system initial values in advance, which makes it impossible to control the settling time. Recently, the prescibed-time control method has aroused extensively research interests, because for the upper bound of settling time, it can be arbitrarily selected by suitably tuning control parameters, and the true convergence time in prescribed-time stabilization results is independent of initial conditions. Thus far, the research on prescribed–time stabilization of reaction-diffusion systems is interesting and meaningful. In this talk, the prescribed-time stabilization is considered for uncertain delay reaction–diffusion systems via asynchronous boundary control.

Primary author: WANG, Xuelian (MPI)

Presenter: WANG, Xuelian (MPI)

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