

عنوان مقاله:

Adaptive Boundary Stabilization of the Heat PDE with an Intermediate Point Non-local Term

محل انتشار:

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خلاصه مقاله:

This paper develops an adaptive state-feedback control design scheme for boundary stabilization of the heat partial differential equation (PDE) containing a destabilizing non-local term with unknown coefficient at its interior point. To this end, the underlying non-adaptive backstepping-forwarding transformation and the control law are modified by replacing the unknown parameter by its adaptive estimate and the Lyapunov based update law is developed for the adaptive stabilization. The closed-loop stability and the regulation of the plant state are shown and the effectiveness of the proposed controller is verified through a numerical simulation example.

کلمات کلیدی:

Adaptive control, partial differential equation, backstepping

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