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Adaptive outer synchronization between two complex delayed dynamical networks via aperiodically intermittent pinning control

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Abstract

In this paper, an aperiodically adaptive intermittent control scheme combined with pinning strategy is proposed for outer synchronization between two general complex delayed dynamical networks. Through constructing a novel piecewise auxiliary function, some sufficient conditions for outer synchronization are derived based on the reduction to absurdity and piecewise analytic method. Different from the periodically intermittent pinning control, here the adaptive intermittent pinning control can be aperiodic. Additionally, an effective pinned-node selection scheme is provided to guide what kinds of nodes should be pinned first. Numerical simulations are finally given to illustrate the effectiveness of the obtained theoretical results.

Key words: Complex delayed dynamical network; Outer synchronization; Adaptive intermittent control; Pinning strategy; Aperiodic

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