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Summary: The outer synchronization of irregular coupled complex networks is investigated with nonidentical topological structures. The switching gain is estimated by an adaptive technique, and a sliding mode controller is designed to satisfy the sliding condition. The outer synchronization between two irregular coupled complex networks with different initial conditions is implemented via the designed controllers with the corresponding parameter update laws. The chaos synchronization of two small-world networks consisting of $N$ uncertain identical Lorenz systems is achieved to demonstrate the applications of the proposed approach.

Keywords: adaptive synchronization; sliding mode control; Lyapunov stability; small-world network
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