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Synchronization between two non-autonomous chaotic systems via intermittent control of sinusoidal state error feedback

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Abstract

A new intermittent control way, namely sinusoidal state error feedback, is adopted to synchronize two non-autonomous chaotic systems. Some synchronization criteria are deduced by the Lyapunov stability theory and the Gerschgorin disc theorem. The relationships among the control gain, control period and control width are revealed, and their influences on synchronization are also discussed. The Mathieu-Duffing equation and a gyrostat system are chosen as numerical examples to show that synchronization can be achieved under the proposed criteria.

Keywords: chaos synchronization; intermittent control; sinusoidal state error feedback; Gerschgorin disc theorem.

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