

Frequency-Locking in Coupled Chaotic Systems

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Abstract: A novel approach is presented for measuring the phase synchronization (frequency-locking) of coupled N nonidentical oscillators, which can characterize frequency-locking for chaotic systems without well-defined phase by measuring the mean frequency. Numerical simulations confirm the existence of frequency-locking. The relations between the mean frequency and the coupling strength and the frequency mismatch are given. For the coupled hyperchaotic systems, the frequency-locking can be better characterized by more than one mean frequency curves.

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Key words: frequency-locking, mean frequency, hyperchaotic system

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