Measure Synchronization on Symplectic Map

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Abstract: Measure synchronization in coupled Hamiltonian systems is a novel synchronization phenomenon. The measure synchronization on symplectic map is observed numerically, for identical coupled systems with different parameters. We have found the properties of the characteristic frequency and the amplitude of phase locking in regular motion when the measure synchronization of coupled systems is obtained. The relations between the change of the largest Lyapunov exponent and the course of phase desynchronization are also discussed in coupled systems, some useful results are obtained. A new approach is proposed for describing the measure synchronization of coupled systems numerically, which is advantage in judging the measure synchronization, especially for the coupled systems in nonregular region.

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