

Abstract Submitted
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Isochronous chaos synchronization of delay-coupled optoelectronic oscillators¹ CHRISTIAN PANDA, LAUREN SHARESHIAN, LUCAS ILLING, Reed College — We study experimentally chaos synchronization of nonlinear optoelectronic oscillators with time-delayed mutual coupling and self-feedback. A single such optoelectronic oscillator can generate a wide range of dynamical behaviors, including fast and high-dimensional chaos. Coupling three oscillators in a chain, we find that the outer two oscillators always synchronize isochronally. In contrast, isochronous synchronization of the mediating middle oscillator is found only when certain matching conditions for the time delays and coupling strengths are satisfied. Our experimental results are in good agreement with theory.

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