

Abstract Submitted
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The scaling behavior of oscillations arising in delay-coupled optoelectronic devices¹ GREGORY HOTH, LUCAS ILLING, Reed College — We study the effect of asymmetric coupling strength on the onset of oscillations in an experimental system of nonlinear optoelectronic devices with delayed feedback and wide-band bandpass filtering. Specifically, we consider a network consisting of two Mach-Zehnder modulators that are cross-coupled optoelectronically. We find that oscillations appear in the system when the product of the coupling strengths exceeds a critical value. We also find a scaling law that describes how the amplitude of the oscillations depends on the coupling strengths. The observations are in good agreement with predictions from normal form theory.

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