

Abstract Submitted
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Nonlinear dynamics of an electronic model of one-way coupling in one and two dimensions AARON DOUD, BARBARA BREEN, JAMIE GRIMM, ANDREW TANASSE, STUART TANASSE, University of Portland, JOHN LINDNER, KATSUO MAXTED, The College of Wooster — One-way or unidirectional coupling is a striking example of how topological considerations – the parity of an array of multistable elements combined with periodic boundary conditions – can qualitatively influence dynamics. Here we introduce a simple electronic model of one-way coupling in one and two dimensions and experimentally compare it to an improved mechanical model and an ideal mathematical model. In two dimensions, computation and experiment reveal richer one-way coupling phenomenology: in media where two-way coupling would dissipate all excitations, one-way coupling enables soliton-like waves to propagate in different directions with different speeds.

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