

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Intrinsic Localized Modes in nonlinear two-dimensional electrical lattices J.F. STORMES, L.Q. ENGLISH, Dickinson College, F. PALMERO, University of Seville, Spain, P.G. KEVREKIDIS, University of Massachusetts, DICKINSON COLLEGE COLLABORATION, UNIVERSITY OF SEVILLE COLLABORATION, UNIVERSITY OF MASSACHUSETTS COLLABORATION — We report on the generation of stationary and traveling intrinsic localized modes (ILMs), also called discrete breathers or discrete solitons, in two dimensions in damped-driven electrical lattices. ILMs are spatially localized eigenmodes that arise due to the nonlinearity of the system, not due to spatial impurities. Since solitons are generally unstable in two dimensions, the existence of these ILMs relies on the discreteness of the lattice. We show experimentally that depending on the frequency and amplitude of the spatially uniform driving, different numbers of ILMs can be induced in both square and hexagonal lattices. In lattices that allow ILM motion, we furthermore study the interaction of such modes.

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Date submitted: 07 Nov 2012

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