

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Sorting Category: 05.10 (T)

Numerical simulation of fluxon dynamics in a Josephson junction array¹ USHNISH RAY, KENNETH SEGALL, NIKHIL FERNANDES — We present a numerical study of the dynamics of fluxons trapped in a parallel array of Josephson junctions. Simulations of switching current measurements have been performed in order to support experimental work in our group. Switching current measurements allow determination of the transition rate of the fluxon from its pinned state to a running state. We simulate the classical RCSJ equations of motion for a 9-junction parallel array, with and without frequency-dependent damping, and calculate switching current distributions by increasing the external current in the simulation. A new retrapping mechanism for fluxons, related to the coupling of the junctions in the array, has been identified. We present results from the simulations and comparisons to experiment.

¹Funding from NSF Grant DMR 0509450

Prefer Oral Session
 Prefer Poster Session

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Date submitted: 27 Nov 2007

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