

Abstract Submitted
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Current reversal in collective rocking ratchets induces by ground state instability¹ JOSE L. VICENT, LUIS DINIS, ELVIRA M. GONZALEZ, Universidad Complutense, 28040 Madrid, Spain, JOSE V. ANGUIA, Instituto Microelectronica, CSIC, 28760 Madrid, Spain, JUAN M.R. PARRONDO, Universidad Complutense, 28040 Madrid, Spain — A collective mechanism for current reversal in rocking ratchets is proposed. The mechanism is based on a two-dimensional instability of the ground state of the system. We illustrate our results with numerical simulations and experiments using the dynamics properties of superconducting vortex lattice in Nb superconducting films fabricated on top of Si substrates with array of asymmetric nanodefects.

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