

Abstract Submitted
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Dynamic vortex in a narrow superconducting film with Josephson junction¹ ALEX GUREVICH, Old Dominion Univ — A vortex moving along a planar Josephson junction perpendicular to a narrow thin film strip is investigated. Exact solutions of the equations of nonlocal Josephson electrodynamics describing the dynamic structure of the vortex driven by time-dependent current across an overdamped junction are obtained. It is shown that this problem reduces to two coupled nonlinear differential equations for the vortex position and core length. Using these equations, the critical film width below which the vortex turns into a phase slip is calculated.

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