

Abstract Submitted
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Transition from Vortex-Antivortex Pairs to Single Vortices in 2D SNS Josephson Junction Arrays MALCOLM DURKIN, University of Illinois at Urbana-Champaign, SERENA ELEY, Sandia National Laboratories, NADYA MASON, University of Illinois at Urbana-Champaign — SNS Josephson Junction arrays represent a model system for studying vortices in 2D systems. Despite long term interest in zero magnetic field effects, such as the Berezinsky-Kosterlitz-Thouless transition, the field tuned transition between a state dominated by vortex-antivortex pairs and one dominated by single vortices remains largely unstudied. Often, evidence for such a transition is mischaracterized as a large suppression of the single vortex energy barrier at low fields. Here we demonstrate, via transport measurements, a finite magnetic field transition between vortex-antivortex pair and single vortex excitations in a 2D superconductor.

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