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**Proximity Effects and Vortex Dynamics in Nanostructured Superconductors** SERENA ELEY, NADYA MASON, Department of Physics and Materials Research Laboratory, University of Illinois Urbana-Champaign — We report transport measurements on triangular arrays of proximity-coupled superconducting islands placed on normal-metal substrates. The superconducting islands are well-understood coherent systems with long-range electron interactions, while the intervening normal metal channels introduce known dissipation into the system. We show how by changing the island spacing, we can tune characteristics such as the critical temperature and field. The arrays undergo a Kosterlitz-Thouless vortex-unbinding phase transition at zero-field, and we observe frustration-induced magnetoresistance oscillations at finite fields. We also observe unusual cusp-like behavior in resistance vs temperature at finite magnetic fields

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