

Abstract Submitted
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Suppression of Superconductivity in Small Clusters of Proximity-Coupled Superconducting Islands¹ MALCOLM DURKIN, University of Illinois Urbana-Champaign, SERENA ELEY, Sandia National Laboratories, SARANG GOPALAKRISHNAN, Harvard University, NADYA MASON, University of Illinois Urbana-Champaign — We report transport measurements of proximity-coupled arrays of mesoscopic niobium islands patterned on gold films. We show that superconductivity in the individual islands depends on the number of nearest neighbors, even for island diameters much larger than the superconducting coherence length. We also investigate the length scale where superconductivity in single islands approaches the bilayer approximation. This work is relevant to the understanding of metallic states and quasi-superconductivity in 2D systems [1]. [1] S. Eley, S. Gopalakrishnan, P. Goldbart, and N. Mason, *Nature Phys.* 8, 59-62 (2012)

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