

Abstract Submitted
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Cascading Proximity Effects in Inhomogeneous Superconductor-Ferromagnetic Structures¹ THOMAS BAKER², Department of Physics & Astronomy, University of California, Irvine, CA 92697, ADAM RICHIE-HALFORD, OVIDIU ICREVERZI, ANDREAS BILL, Department of Physics & Astronomy, California State University, Long Beach, CA 90840 — When a superconductor is placed near another material, the whole system becomes superconducting by proximity. Paired correlations with a projection on the quantization axis of zero have a shorter coherence length than those with ± 1 on the quantization axis. We show that the ± 1 projections can generate short range components deep inside a magnetic layer in the middle region of five mutually perpendicular ferromagnets as well as an exchange spring system [1,2]. Measurable consequences including the characteristic signature of short range correlations in the Josephson current of a wide layer and a new type of $0 - \pi$ transition will be discussed.

[1] T.E. Baker, A. Richie-Halford, O.E. Icreverzi A. Bill, *Euro. Phys. Lett.* **107**, 17001 (2014)

[2] T.E. Baker, A. Richie-Halford, A. Bill, *New J. Phys.* **16**, 093048 (2014)

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