Abstract Submitted
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Analytic Description of Superconducting-Ferromagnetic Proximity Systems[1] THOMAS E. BAKER[2], Department of Physics & Astronomy University of California, Irvine, CA 92617, OVIDIU E. ICREVERZI, ADAM K. MOKE, ANDREAS BILL, Department of Physics & Astronomy California State University Long Beach, Long Bech, CA 90840 — We present the exact analytic solution of the Usadel equations for a proximity system made of a superconductor and a ferromagnet in the wide dirty limit, including spin-flip scattering. The solution was found by mathematical analogy to the Jacobi elliptic function description of a classical mechanics system known as the bead on a hoop [1]. We highlight the parallels between the two systems and present an analysis of the solution with special attention to long rage triplet effects and the inverse Fulde-Ferrell-Larkin-Ovchinnikov state. We determine the Josephson critical current and the variation of the critical temperature with spin-flip scattering.

[1] T.E. Baker and A. Bill, *Am. J. Phys.* **80**, 506 (2012)

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