

Abstract Submitted  
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**Effects of a rotating magnetization on pair correlations in a ballistic regime Josephson Junction**<sup>1</sup> ANDREAS BILL, LUIS LEAL, California State University Long Beach — Pair correlations in clean superconducting-magnetic proximity systems are studied with a focus on the singlet-triplet mixing resulting from magnetic inhomogeneities. The system is modeled in the clean limit using a tight-binding Hamiltonian and the Bogoliubov–de Gennes equations are solved to determine the Gor’kov functions of the system. Three different magnetic configurations are considered: an exchange spring, a helical magnet, and misaligned homogeneous ferromagnetic layers; each is sandwiched between two superconductors to form a Josephson junction. The goal of the study is to revisit how pair correlations are affected by different magnetization configurations and magnitudes in the clean limit. We discuss our results in the light of those obtained in the diffusive regime [1,2].

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

T.E. Baker, A. Richie-Halford, O.E. Icreverzi, A. Bill *Europhys. Lett.*, 107, 17001 (2014).

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