

Abstract Submitted  
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**Search for  $\pi/2$  state in large-area spin-triplet ferromagnetic Josephson junctions**<sup>1</sup> YIXING WANG, NORMAN O. BIRGE, WILLIAM P. PRATT, JR., Department of physics and Astronomy, Michigan State University — The current-phase relationship of ferromagnetic spin-triplet Josephson junctions was predicted to be tuned by the magnetization orientations of different magnetic layers [1]. Given the random domain structure in large-area ferromagnetic junctions, the possibility of a random distribution of 0 or  $\pi$  sub-junctions across the area could lead to a global  $\pi/2$  junction [2]. Critical current measurements as a function of area provide indirect evidence for  $\pi/2$  coupling [3], but they do not provide phase-sensitive information. Unfortunately there are technical difficulties faced by a direct current-phase measurement, especially for large area junctions. We are currently working toward a SQUID-based experiment that should be able to distinguish the  $\pi/2$  state from either the 0 or  $\pi$  states. In this talk we will report our progress toward this goal. [1] A.F. Volkov, F.S. Bergeret, and K.B. Efetov, Phys. Rev. Lett. 90, 117006 (2003). [2] A. Zyuzin, B. Spivak, Phys. Rev. B 61 5902 (2000). [3] Y Wang, W. P. Pratt Jr., N. O. Birge, Phys. Rev. B 85 214522 (2012).

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