

Abstract Submitted  
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**Fabrication and measurement of multi-terminal mesoscopic Josephson junctions.**<sup>1</sup> NATALYA SOLOVYEVA, Univ of Maryland-College Park, MISHIMA TETSUYA, MICHAEL SANTOS, Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, 440 West Brooks, Norman, Oklahoma 73019-3151, JAVAD SHABANI, Physics Department, City College of New York, New York, 10031, VLADIMIR MANUCHARYAN, Univ of Maryland-College Park — We present fabrication and characterization of 3- and 4-terminal mesoscopic Josephson junctions involving InAs quantum well heterostructures [1] and superconducting Al contacts. A cross-shaped nanowire junction region with dimensions of order a few 100 nm is dry-etched in the 2DEG, followed by deposition of superconducting contacts and gating electrodes. These novel 0D devices have been recently predicted to have topological features in their Andreev spectra and finite-bias transport [2]; they may also be useful in efforts towards observation and braiding of Majorana fermions in the solid state [3]. // References: [1] J. Shabani et al. arXiv:1408.1122; [2] R-P Riwar et al. arXiv:1503.06862; B. van Heck et al. Phys. Rev. B 90, 155450 (2014); [3] S. Plissard et al. Nature Nanotechnology 8, 859 (2013)

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