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**Current-Phase Measurements in Single Layer Graphene**[1] CESAR CHIALVO, ION MORARU, DANIEL BAHR, NADYA MASON, DALE VAN HARLINGEN, Department of Physics and Materials Research Laboratory, University of Illinois at Urbana-Champaign — The current-phase relationship (CPR) of a Josephson junction can provide key information about the microscopic processes that make up a supercurrent. However, CPR has not been previously measured in graphene. We have successfully fabricated a variety of Josephson junctions containing single-layer graphene as a weak link, and with different junction width to length ratios. We present results of measurements based on a phase-sensitive SQUID technique, where we determine the supercurrent amplitude and phase, as well as a possibly anomalous shape of the CPR.

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