

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Wireless Josephson Junction Arrays LAURA ADAMS¹, Harvard University — We report low temperature, microwave transmission measurements on a wireless two- dimensional network of Josephson junction arrays composed of superconductor-insulator -superconductor tunnel junctions. Unlike their biased counterparts, by removing all electrical contacts to the arrays and superfluous microwave components and interconnects in the transmission line, we observe new collective behavior in the transmission spectra. In particular we will show emergent behavior that systematically responds to changes in microwave power at fixed temperature. Likewise we will show the dynamic and collective response of the arrays while tuning the temperature at fixed microwave power. We discuss these spectra in terms of the Berezinskii-Kosterlitz-Thouless phase transition and Shapiro steps. We gratefully acknowledge the support Prof. Steven Anlage at the University of Maryland and Prof. Allen Goldman at the University of Minnesota.

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Date submitted: 14 Nov 2014

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