

Abstract Submitted
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Behavior of an Amorphous Superconducting Thin Film in a Tunable Dissipative Environment¹ ILANA PERCHER, ALLEN GOLDMAN, University of Minnesota — It has been shown that a dissipative electrical environment supports superconductivity. This is particularly true for low-dimensional systems of disordered and granular superconductors close the insulating state, where Ohmic dissipation can damp the order parameter fluctuations that would otherwise destroy global phase coherence. We will present the latest results from experiments in which a homogeneously disordered indium oxide film is placed in very close proximity to a two dimensional electron gas (2DEG) within a gallium arsenide/aluminum gallium arsenide heterostructure. The dissipation provided by the 2DEG depends on its carrier concentration, which is varied electrostatically by means of a back gate. We are grateful to the groups of Prof. Rachel Goldman at University of Michigan and Prof. Aviad Frydman at Bar Ilan University for growing heterostructures and superconducting films (respectively) for this experiment.

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