

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Vortices and quasiparticles near the “superconductor-insulator” transition in thin films. VICTOR GALITSKI, University of Virginia, GIL REFAEL, Caltech, MATTHEW P. A. FISHER, KITP, UCSB, T. SENTHIL, IISc — We consider the low temperature behavior of an amorphous superconducting film driven normal by a perpendicular magnetic field. We introduce a new two-fluid formulation consisting of fermionized field-induced vortices and electrically neutralized Bogoliubov quasiparticles interacting via a long-ranged statistical interaction. This approach allows us to access a novel non-Fermi liquid phase which naturally interpolates between the low field superconductor and the high field normal metal. We also discuss the transport, thermodynamics, and tunneling properties of the resulting “vortex metal” phase.

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Date submitted: 06 Dec 2005

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