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**Field-Induced Superconductor to Metal and Superconductor to Insulator Transitions in Thin Indium Oxide Films** K. H. SARWA B. TAN, KEVIN A. PARENDO, ALLEN M. GOLDMAN, School of Physics and Astronomy, University of Minnesota, Z. OVADYAHU, The Racah Institute of Physics, The Hebrew University — The application of magnetic fields to ultra-thin superconducting films is believed to bring about superconductor-insulator transitions which are quantum phase transitions. We will present measurements in perpendicular and parallel magnetic fields of R(T) of amorphous indium oxide films. In contrast with what has been reported for films with similar $T_c$'s, scaling, although successful for the superconducting curves, fails for the insulating ones. For a 150 Angstrom thick film with a zero-field $T_c$ = 2.8K, the high-field behavior is governed by a $T^{1/3}$ law suggestive of a 3D dirty metal. For a 100 Angstrom film with $T_c$ =1.8K the high-field regime is governed by Efros-Shklovskii hopping. This suggests that the former is superconductor-metal transition, whereas the latter is a superconductor-insulator transition. Further studies related to quantum corrections and film morphology are still in progress. This work was supported in part by the National Science Foundation under grant NSF/DMR-0455121.

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