



## David Kalok

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### Nonlinear Transport at the Superconductor-Insulator Transition in Thin TiN Films

The mechanism for the superconductor-insulator transition in disordered films, the transition from a weak superconductor into a strong insulator at low temperature, is still an open question. One key question is whether superconductivity is the driving force of this insulating behavior and in which extent charging effects play a role. We present our high resolution dc current-voltage characteristics. Non-linear behavior is found at high and low bias. The high bias non-linearity can be mainly attributed to electron overheating. The insulating state is analyzed in the framework of charge dominated Josephson junction arrays. The low-bias non-linearity can be attributed to a charge Berezinskii-Kosterlitz-Thouless transition displaying the duality of the superconducting and the insulating state.

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