

Abstract Submitted
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Vortex Glass is a Metal¹ JIANSHENG WU, University of Illinois, PHILIP PHILLIPS, University of Illinois — We consider the disordered quantum rotor model in the presence of a magnetic field. We analyze the transport properties in the vicinity of the multicritical point between the superconductor, phase glass and paramagnetic phases. We find that the magnetic field leaves metallic transport of bosons in the glassy phase intact. In the vicinity of the superconductivity to the intervening metallic state transition, the resistivity turns on as $(H - H_c)^2$ with H_c . This functional form is in excellent agreement with the experimentally observed turn-on of the resistivity in the metallic state in MoGe, namely $R \approx R_c(H - H_c)^\mu$, $1 < \mu < 3$. The metallic state is also shown to persist in three spatial dimensions. As the phase glass in $d = 3$ is identical to the vortex glass, we conclude that the vortex glass is, in actuality, a metal rather than a superconductor at $T = 0$.

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