

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Thermoelectric transport near the pair breaking quantum phase transition out of a  $d$ -wave superconductor** DANIEL PODOLSKY, ASHVIN VISHWANATH, JOEL MOORE, University of California at Berkeley, SUBIR SACHDEV, Harvard University — We study electric, thermal, and thermoelectric conductivities in the vicinity of a  $z = 2$  superconductor-diffusive metal transition in two dimensions, both in the high and low frequency limits. We find violation of the Wiedemann-Franz law, with a Lorentz ratio *below* the Sommerfeld value (more charge than heat transport). In addition, the dc thermoelectric conductivity  $\alpha$  does not vanish at low temperatures, in contrast to Fermi liquids. We introduce a Langevin equation formalism to study critical dynamics over a broad region surrounding the quantum critical point.

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Date submitted: 30 Nov 2005

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