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Thermopower Measurements in the $\nu = 5/2$ FQHE J.P. EISENSTEIN, W.E. CHICKERING, Caltech, L.N. PFEIFFER, K.W. WEST, Bell Labs — The fractional quantized Hall state at $\nu = 5/2$ is currently under intense scrutiny owing to its possible application to topological quantum computation. This connection relies on the possibility that the ground state of the 2D electron gas at $\nu = 5/2$ is the non-abelian Moore-Read paired composite fermion state. A key attribute of this state is its large degeneracy when quasiparticles are present. While most schemes for detecting this degeneracy rely on interferometric braiding operations, it may also have thermodynamic implications. In particular, the entropy of the 2D system at $\nu = 5/2$ should be significantly enhanced relative to conventional abelian quantum Hall states. In this contribution we report measurements of the low temperature thermopower of the 2DES at $\nu = 5/2$. Although thermopower is a transport parameter, it is closely related to the entropy of the system under study and there have been recent suggestions [1] that it may bear signatures of non-abelian quasiparticle statistics. Our measurements will highlight the similarities and differences between the thermopower at $\nu = 5/2$ and other quantum Hall states. This work is supported by Microsoft Project Q and DOE grant DE-FG03-99ER45766. [1] Kun Yang, arXiv:0807.3341

James Eisenstein
Caltech

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