Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Entanglement Entropy of Quantum Hall Systems with Short Range Disorder BARRY FRIEDMAN, Department of Physics, Sam Houston State University, GREG LEVINE, Department of Physics and Astronomy, Hofstra University — The critical value of the mobility for which the filling 5/2 quantum Hall effect is destroyed by short range disorder is determined from an earlier calculation of the entanglement entropy. The value agrees well with experiment; this agreement is particularly significant in that there are no adjustable parameters. Entanglement entropy vs. disorder strength for filling 1/2, filling 9/2 and filling 7/3 is calculated. For filling 1/2 there is no evidence for a transition for the disorder strengths considered; for filling 9/2 there appears to be a stripe-liquid transition. For filling 7/3 there again appears to be a transition at similar value of the disorder strength as the 5/2 transition but there are stronger finite size effects.

Barry Friedman
Department of Physics, Sam Houston State University

Date submitted: 03 Nov 2014 Electronic form version 1.4