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Influence of Device Geometry on Tunneling in ν=5/2 Quantum Hall Liquid[1] GUANG YANG, DMITRI FELDMAN, Brown University — Two recent experiments [1,2] measured the temperature and voltage dependence of the tunneling current through a constriction in the ν=5/2 quantum Hall liquid. The results led to conflicting conclusions about the nature of the 5/2 quantum Hall state. The results of Ref. [1] were interpreted as supporting the anti-Pfaffian non-Abelian state while the results of Ref. [2] suggested that the Abelian 331 state was more likely. Several different constriction geometries were used in Refs. [1,2]. We argue that in some of those geometries there is significant unscreened electrostatic interaction between segments of the quantum Hall edge on the different sides of the constriction. The Coulomb interaction affects the tunneling current. After the Coulomb corrections are taken into account, the results from all geometries agree and support the same 5/2 state.

[1] I. P. Radu, J. B. Miller, C. M. Marcus, M. A. Kastner, L. N. Pfeiffer, and K. W. West, Science 320, 899 (2008).
[2] X. Lin, C. Dillard, M. A. Kastner, L. N. Pfeiffer, and K. W. West, Phys. Rev. B 85, 165321 (2012).

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