Abstract Submitted
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Identification of 331 quantum Hall states with Mach-Zehnder interferometry[1] CHENJIE WANG, D.E. FELDMAN, Physics Department, Brown University — It has been shown recently that non-Abelian states and the spin-polarized and unpolarized versions of the Abelian 331 state may have identical signatures in Fabry-Pérot interferometry in the quantum Hall effect at filling factor 5/2. We calculate the Fano factor for the shot noise in a Mach-Zehnder interferometer in the 331 states and demonstrate that it differs from the Fano factor in the proposed non-Abelian states. The Fano factor depends periodically on the magnetic flux through the interferometer. Its maximal value is $2 \times 1.4e$ for the 331 states with a symmetry between two flavors of quasiparticles. In the absence of such symmetry the Fano factor can reach $2 \times 2.3e$. On the other hand, for the Pfaffian and anti-Pfaffian states the maximal Fano factor is $2 \times 3.2e$. The period of the flux dependence of the Fano factor is one flux quantum. If only quasiparticles of one flavor can tunnel through the interferometer then the period drops to one half of the flux quantum. We also discuss transport signatures of a general Halperin state with the filling factor $2 + k/(k + 2)$.

[1] Chenjie Wang and D. E. Feldman, Phys. Rev. B **82**, 165314 (2010).

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Chenjie Wang
Physics Department, Brown University

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