

Abstract Submitted
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Shot Noise Signatures of Charge Fractionalization in the $\nu = 2$ Quantum Hall edge MIRCO MILLETARI¹, BERND ROSENOW, Leipzig University — We investigate the effect of non-equilibrium and interactions on shot noise in $\nu = 2$ quantum Hall edges, where interactions between the two co-propagating edge modes are expected to give rise to charge fractionalization. We consider a setup consisting of a Hall bar pinched by two Quantum point contacts (QPCs). The first QPC selectively drives out of equilibrium the outer edge mode only, which then interacts with the unbiased inner one over the distance between the two QPCs. We describe the edge modes by two coupled chiral Luttinger liquids, and employ the method of non-equilibrium bosonization to study the relaxation dynamics of the inner one. We find that even asymptotically the edge distribution function does not thermalize, but instead depends in a sensitive way on the interaction strength between the two edge modes. We compute shot noise and Fano factor from the asymptotic distribution function of the inner edge mode at the second QPC, and from comparison with a reference model of fractionalized excitations we find that the Fano factor can be close to the value of the fractionalized charge.

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