

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Galilean invariance and linear response theory for Fractional Quantum Hall Effect¹ ANDREY GROMOV, ALEXANDRE ABANOV, State University Of New York at Stony Brook — We study a general effective field theory of Galilean invariant two-dimensional charged fluid in external electro-magnetic and gravitational fields. We find that combination of the generalized Galilean [1] and gauge invariance implies nontrivial Ward identities between gravitational and electro-magnetic linear responses in the system. This identity appears to hold in all orders of gradient expansion and it generalizes the relation between Hall viscosity and Hall conductivity recently found by Hoyos and Son. We also check the relation in the case of free electrons with integer filling of Landau levels where corresponding linear responses can be calculated directly.

[1] Carlos Hoyos, Dam Thanh Son “Hall Viscosity and Electromagnetic Response”

¹Was supported by the NSF under Grant No. DMR-1206790.

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Date submitted: 26 Nov 2012

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