Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Can Ohmic contact in quantum Hall systems be considered a voltage probe?[1] ARTUR SLOBODENIUK, IVAN LEVKIVSKYI, EUGENE SUKHORUKOV, Department of Theoretical Physics, University of Geneva — Ohmic contacts are crucial elements of mesoscopic systems, which have no clear theoretical description yet. We propose a model of the Ohmic contact with a finite capacitance C attached to a quantum Hall edge channel. It is shown that in contrast to naïve expectations the fluctuations of currents originating at such contact have non-equilibrium statistics. Consequently, the Ohmic contact can be considered a "voltage probe" only for certain values of the system parameters. In particular, the distribution function of outgoing electrons is close to the equilibrium one if the contact's temperature is much larger than $e^2/2\pi C$.

[1]This work has been supported by Swiss NSF.

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Date submitted: 12 Dec 2012 Electronic form version 1.4