Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Spin-charge scattering in generic Luttinger liquids[1] ALEX LEVCHENKO, Michigan State University — We discuss the violation of spin-charge separation in generic nonlinear Luttinger liquids and investigate its effect on the relaxation, electrical and thermal transport of genuine spin-1/2 electron liquids in ballistic quantum wires. We identify basic scattering processes compatible with the symmetry of the problem and conservation laws that lead to the decay of plasmons into the spin modes and Brownian backscattering of spin excitations. We derive a closed set of coupled kinetic equations for the spin-charge excitations and solve the problem of conductance of interacting electrons for an arbitrary relation between the quantum wire length and spin-charge relaxation length.

[1]This work was supported by NSF Grant No. DMR-1401908.

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Date submitted: 06 Nov 2014 Electronic form version 1.4