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UNIVERSITÄT LEIPZIG

Fakultät für Physik und Geowissenschaften

Physik-Kolloquium

Dienstag, den 25.11.2014, 16.00 Uhr

Prof. Dr. Bernd Rosenow

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Non-equilibrium steady states and charge fractionalization in Luttinger liquids

In many cases, interacting fermions in one spatial dimension are described by the Luttinger model of free bosonic charge density excitations. Due to the absence of interactions between these bosonic degrees of freedom, the model is integrable. When driving such a system out of equilibrium via the local injection of electrons, it does not relax back to equilibrium due to its integrable nature. Instead, it reaches a non-equilibrium steady state with a peculiar electronic distribution function. In the case of two coupled electronic channels, the electron distribution is characterized by a fractional Fano factor and can be interpreted in terms of charge fractionalization. The results of our calculation [1] explain the findings of a recent experiment [2].

[1] M. Milletari and B. Rosenow, Phys. Rev. Lett. 111, 136807 (2013).
[2] H. Inoue et al., Phys. Rev. Lett. 112, 189902 (2014).

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Alle Teilnehmer sind im Anschluss zu einem kleinen Imbiss in der Aula eingeladen.