Quantum-limited shot noise and quantum interference in graphene based Corbino disk

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A theoretical study of finite voltage effects on the conductance of graphene-based Corbino disk in the presence of external magnetic fields is presented [1]. Additionally, the shot noise power and the third charge-transfer cumulant are analysed. For relatively small source-drain voltages, periodic magnetoconductance oscillations, predicted in Refs. [2,3], become invisible as the current decays rapidly with the magnetic field. Quantum interference still governs the behavior of higher charge-transfer cumulants. These effects are robust against the influence of local charged impurities.

References:

[1] G. Rut and A. Rycerz, arXiv:1401.7247.