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Mechanism of enhancement of the electron g-factor in quantum point contacts

The electron g-factor measured in a quantum point contact by source-drain bias spectroscopy is significantly larger than its value in a two-dimensional electron gas. This enhancement, established experimentally in numerous studies, is an outstanding puzzle. In the present work we explain the mechanism of this enhancement in a theory accounting for the electron-electron interactions. We show that the effect relies crucially on the non-equilibrium nature of the spectroscopy at finite bias.

Primary author: Mr VIONNET, Gregoire (Institute of Theoretical Physics, Ecole Polytechnique Fédérale de Lausanne (EPFL), 1015 Lausanne, Switzerland)

Co-author: Prof. SUSHKOV, Oleg (University of New South Wales)

Presenter: Prof. SUSHKOV, Oleg (University of New South Wales)