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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.

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