

# **Possible observation of resonance conductance in a quantum point contact with a tunable channel potential**

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We investigate the resonance conductance of a quantum point contact (QPC), defined in a two dimensional electron gas of a high-mobility GaAs/AlGaAs heterojunction. The potential profile of the QPC channel is locally deformed by biasing an cross-gate, electrically isolated on the top of the QPC. The conductance, evolving with the cross-gate voltage exhibits an oscillatory feature superimposed on the quantized plateau in the positive gating bias and the suppression of the plateau in negative bias voltages. Numerical simulation of the gate dependence of the potential profile has been performed. We demonstrate that the oscillations on the conductance are resulted from the resonance effect, which is very responsive to the shape of the longitudinal potential through the channel.