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Optimal electron entangler at low temperatures YURY SHERKUNOV, JIN ZHANG, NICHOLAS D'AMBRUMENIL, BORIS MUZYKANTSKII, University of Warwick — Electron transport in mesoscopic contacts at low temperatures is accompanied by logarithmically divergent equilibrium noise when a tunneling barrier transparency is changed abruptly. We show that the equilibrium noise can be dramatically suppressed in the case of tunneling junction with smoothly tunable transparency. We study analytically the full counting statistics of the transparency modulated quantum contact and identify the minimal excitation states generated by the gate voltage. The proposed scheme could be used as an optimal electron entangler at low temperatures.

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