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Conductance beyond the Landauer limit and charge pumping in quantum wires driven by linearly polarized radiation JAY SAU, TAKUYA KITAGAWA, BERTRAND HALPERIN, Department of Physics, Harvard University, Cambridge, MA 02138 — Periodically driven systems, which can be described by Floquet theory, have been proposed to show characteristic behavior that is distinct from static Hamiltonians. Floquet theory proposes to describe such periodically driven systems in terms of states that are indexed by a photon number in addition to the usual Hilbert space of the system. In this work, we propose a way to measure directly this additional state by the measurement of the conductance of a single channel quantum point contact. Specifically, we show that a single channel wire augemented with a grating structure when irradiated with microwave radiation can show a DC conductance above the limit of one conductance quantum set by the Landauer formula. Another interesting feature of the proposed system is that being non-adiabatic in character, it can be used to pump a photo-current even with linearly polarized light. This circumvents the topological restrictions of adiabatic pumping, which necessisate the use of circularly polarized light. J.S. thanks the Harvard Quantum Optics center for support.

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