

Abstract Submitted
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Quantum pumping in graphene¹ ELSA PRADA, PABLO SAN-JOSE, Consejo Superior de Investigaciones Científicas (CSIC) - Spain, HENNING SCHOMERUS, Lancaster University - United Kingdom — We show that graphene-based quantum pumps can tap into evanescent modes, which penetrate deeply into the device as a consequence of Klein tunneling. The evanescent modes dominate pumping at the Dirac point, and give rise to a universal response under weak driving for short and wide pumps, in close analogy to their role for the minimal conductivity in ballistic transport. In contrast, evanescent modes contribute negligibly to normal pumps. Our findings add a new incentive for the exploration of graphene-based nanoelectronic devices.

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