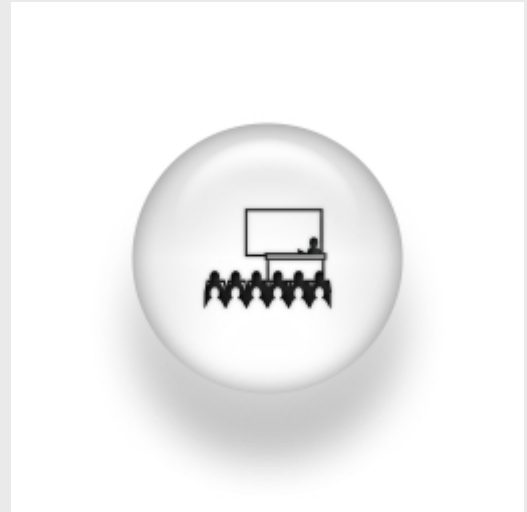


Quantum pumping in graphene

Wednesday, 26 May 2010, 12:00-13.00



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ABSTRACT:

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 in the minimal conductivity in ballistic transport. In contrast, evanescent modes contribute negligibly to normal pumps. Our findings add an incentive for the exploration of graphene-based nanoelectronic devices.