Abstract Submitted
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Dirac Fermions in a Magnetic Forest[1] ANDRES CONCHA, Johns Hopkins University — Recent experimental progress have made it possible to study of a single layer of carbon atoms, i.e. *graphene*. This newly synthetized material seems to be a promising candidate for building up nano-devices as well as a useful experimental tool to study exotic properties of its low energy excitations. In this work we consider the effect of a vortex lattice in the adjacent superconductor on the transport properties of a graphene sheet. We show that the transport properties of graphene sheets of various geometries can be substantially altered and manipulated by changing the vortex lattice structure and the amount of magnetic flux. A relatively straightforward experimental test of our results is suggested.

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Andres Concha
Johns Hopkins University

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