Abstract Submitted
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Magnetotransport in graphene and other two dimensional materials[1] SHAFFIQUE ADAM, Yale-NUS College, Center for Advanced 2D materials and Graphene Research Center, and Department of Physics, National University of Singapore, INDRA YUDHISTIRA, Center for Advanced 2D materials and Graphene Research Center, and Department of Physics, National University of Singapore — In this work we address theoretically the classical and quantum magnetotransport in graphene [1] and other two dimensional materials [2]. We demonstrate that at room temperature, the largest contribution to the magnetoresistance arises from the disorder-induced carrier density inhomogeneity that gives a quadratic magnetoresistance at low magnetic fields and linear magnetoresistance at larger fields. At lower temperatures, quantum phase-coherent effects can be observed in the magnetotransport, and this provides information about the dominant scattering mechanism in these materials. References: [1] J. Ping, I. Yudhistira, N. Ramakrishnan, S. Cho, S. Adam, M. S. Fuhrer, *Phys. Rev. Lett.* **113,** 047206 (2014); [2] H. Schmidt, S. Wang, L. Chu, M. Toh, R. Kumar, W. Zhao, A. H. Castro Neto, J. Martin, S. Adam, B. Özyilmaz, and G. Eda, *Nano Letters*, **14**, 1909 (2014).

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