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Theory for disorder-induced magnetodrag in one-channel model for graphene¹ NAVNEETH RAMAKRISHNAN, DEREK HO, Center for Advanced 2D Materials, SHAFFIQUE ADAM, Yale-NUS College — Recent work has shown the presence of disorder induced magnetoresistance that persists far away from charge neutrality, even in effective one-band systems [1]. This effect manifests itself in the magnetic field dependence of Coulomb drag, an effect that existing theoretical treatments have not considered [2]. In the presence of disorder, we calculate the magnetodrag as a function of the parameters of the disorder distribution and compare our results with the available experimental data in graphene and 2D electron gases. We comment on the relevance of these results in explaining the large magnetodrag at charge neutrality in graphene.

References

- [1] J. Ping, I. Yudhistira, N. Ramakrishnan, S. Cho, S. Adam, and M. S. Fuhrer, Phys. Rev. Lett. 113, 047206 (2014).
- [2] B. N. Narozhny, A. Levchenko, arXiv:1505.07468 (2015).

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