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Evidence of the role of contacts on the observed electron-hole asymmetry in graphene¹ NIMROD STANDER, BENJAMIN HUARD, JOSEPH SULPIZIO, DAVID GOLDHABER-GORDON, Stanford University — Most experiments on graphene devices show a clear difference between the conductances at exactly opposite densities, a phenomenon that has been attributed to different scattering cross sections off charged impurities for opposite carrier polarities. In this talk, we show that properties of the interface between graphene and metal contacts can also lead to such an asymmetry even when bulk graphene transport is particle-hole symmetric. By performing electrical transport measurements in graphene with several sample geometries, with both “invasive” probes and “external” probes, and with different metal contacts, we associate the asymmetry to p - n or p - p junctions forming at the interface graphene-metal.

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