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Transport studies of highly oriented pyrolytic graphite ARUNA N. RAMANAYAKA, BHASKAR KAVIRAJ, RAMESH G. MANI, Department of Physics & Astronomy, Georgia State University — Highly Oriented Pyrolytic Graphite (HOPG) consists of stacked sheets of single layers of carbon with weak interlayer interactions, which gives rise to anisotropic transport with striking differences between in-plane and perpendicular transport. Transport studies of single layers of carbon, known as Graphene, have shown striking new features in two dimensional transport, arising from the linear dispersion relation and analogies to quantum electrodynamics. A question of interest for our experiments is to examine the crossover from Graphite to Graphene and trace the three-dimensional to two-dimensional evolution in the transport properties of the layered carbon system. Hence, we report here on our efforts to fabricate specimens starting from commercially available HOPG, and present measurements in magnetic fields upto 12 Tesla, down to 1.5 K.

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