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Electrical transport in indium-decorated graphene sheets U. CHANDNI, E.A. HENRIKSEN, J.P. EISENSTEIN, Cal Inst of Tech (Caltech) — Heavy adatoms on graphene are expected to alter its intrinsic properties in many novel ways. Here we report magneto-transport measurements on single layer graphene sheets which have been decorated with dilute concentrations of indium adatoms. These measurements are made using a custom-built evaporator housed in an ultra-high vacuum cryostat. This apparatus allows for the annealing of the graphene sample, the controlled deposition and removal of the In adatoms, and the actual transport measurements to all be done *in situ*. As expected, we find that the In adatoms donate electrons to the graphene sheet, thereby shifting the location of the Dirac peak. More interestingly, our measurements clearly reveal how the In adatoms influence the scattering environment experienced by the Dirac electrons. Beyond merely reducing the sample mobility via enhanced charged impurity scattering, we find that the In adatoms alter the "puddle" landscape near the Dirac point and modify the low field magneto-resistance signatures of weak localization and anti-localization.

U. Chandni
Cal Inst of Tech (Caltech)

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