Abstract Submitted
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Magnetically induced low density phases near the Dirac point[1]
XU DU, IVAN SKACHKO , EVA Y. ANDREI, Rutgers, The State University of New Jersey — We demonstrated techniques for suspending graphene that isolate the charge carriers from substrate-induced potential fluctuations. The suspended samples provide access to the intrinsic properties of pristine graphene close to the Dirac point. Magneto-transport measurements on these samples show low temperature mobilities exceeding 200,000 cm^2/Vs for carrier densities below $5x10^9$ cm^{-2}, values not attainable in semiconductors or non-suspended graphene*. At sub-Kelvin temperatures and in magnetic fields up to 7T, we observed unconventional quantum Hall plateaus indicative of interaction effects. Near the Dirac point, coulomb blockade-like transmission was observed. *_Xu Du, Anthony Barker, Ivan Skachko, and Eva Y. Andrei, *Nature Nanotechnology*, Vol.3, 491, 2008

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