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Coulomb Oscillations and Hall Effect in Quasi-2D Graphite Quantum Dots SCOTT BUNCH, YUVAL YAISH, MARKUS BRINK, KIRILL BOLOTIN, PAUL MCEUEN, Cornell University — We perform low temperature electrical transport measurements on gated, quasi-2D graphite quantum dots. In devices with low contact resistances, we use longitudinal and Hall resistances to extract carrier densities of $9.2\text{-}13 \times 10^{12} \text{ cm}^{-2}$ and mobilities of $200\text{-}1900 \text{ cm}^2/\text{V}\cdot\text{s}$. In devices with high resistance contacts, we observe Coulomb blockade phenomena and infer the charging energies and capacitive couplings. These experiments demonstrate that electrons in mesoscopic graphite pieces are delocalized over nearly the whole graphite piece down to low temperatures.

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