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Localization and resistance oscillations in n-layer graphene NEAL STALEY, HAOHUA WANG, CONOR PULS, JEREMY FORSTER, KELLY MCCARTHY, BEN CLOUSER, YING LIU, Department of Physics, The Pennsylvania State University — Single and double-layer graphene have attracted much attention recently because of their unusual electronic band structures and novel physical properties. Theoretical calculations on n-layer graphene (nLG) revealed varying electronic properties, either semiconducting or semimetallic, depending on n as well as the stacking pattern. We have prepared nLG devices, with n ranging from 1 to 5, using a lithography-free, “all-dry” process, and measured the conductance of these devices as a function of the temperature, magnetic field, and the gate voltage. The conductance was found to exhibit quantum oscillations and magnetic field dependence that appear to have resulted from weak localization effects. Results of other measurements will also be presented.

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