Abstract Submitted
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Thermopower of Few-Layer Graphene Devices PENG WEI, WENZHONG BAO, YONG PU, CHUN NING LAU, JING SHI — We report thermopower measurements of few-layer graphene (FLG) devices at low temperatures. FLG flakes are separated by mechanical exfoliation and then connected to form devices using electron beam lithography. FLG devices are fabricated on a 300 nm-thick SiO2 layer which separates from the heavily-doped silicon substrate used as a gate. As the gate voltage is swept from -55 V to 55 V, the electrical conductivity of FLG devices undergoes a minimum. In the meantime, the Seebeck coefficient changes the sign near the conductivity minimum, marking the transition from p- to n-type in graphene. By directly comparing the derivative of the logarithmic conductivity with the measured Seebeck coefficient, we have experimentally validated the Mott relation. We have also measured the Seebeck coefficient and electrical conductivity under magnetic fields up to 8T. Detailed analysis of the experimental data will be presented.

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