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Thermoelectric effect in high mobility single layer epitaxial graphene¹ XIAOSONG WU, YIKE HU, MING RUAN, NERASOA K. MADIOMANANA, CLAIRE BERGER, WALT A. DE HEER, School of Physics, Georgia Tech — The thermoelectric response of high mobility single layer epitaxial graphene on silicon carbide substrates as a function of temperature and magnetic field have been investigated. For the thermopower, a strong deviation from the Mott relation, i.e. a quadratic correction to the linear temperature dependence, has been observed even when the carrier density is high. In the quantum Hall regime, the amplitude of the TEP peaks is lower than a quantum value predicted by theories, despite the high mobility of the sample. A systematic reduction of the amplitude with decreasing temperature suggests that the suppression of the TEP is intrinsic to Dirac electrons in graphene.

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