## Abstract Submitted for the MAR14 Meeting of The American Physical Society

Temperature-dependent Transport Properties of Graphene BOCHEN ZHONG, Department of Physics and Astronomy, University of South Carolina, Columbia, SC 29208, USA, AMOL SINGH, AHSAN UDDIN, GOUTAM KO-LEY, Department of Electrical Engineering, University of South Carolina, Columbia, South Carolina 29208, USA, RICHARD WEBB, Department of Physics and Astronomy, University of South Carolina, Columbia, SC 29208, USA — Temperaturedependent transport properties of graphene synthesized by chemical vapor deposition (CVD) on a Cu thin sheet have been investigated. Raman spectra of our samples show good quality of the CVD graphene. We have measured the temperature dependence of conductivity, charge-carrier density and Hall mobility of graphene by patterning them into micrometer-sized Hall bars. Quantum Hall effect has been observed when the temperature is about 60 Kelvin, which is the evidence for single-layer graphene. Furthermore, the results of temperature dependence of Hall mobility indicate that impurity and defect scattering is the primary scattering mechanism at low temperature, while substrate surface polar phonon scattering is dominant at high temperature.

> Bochen Zhong Department of Physics and Astronomy, University of South Carolina, Columbia, SC 29208, USA

Date submitted: 15 Nov 2013 Electronic form version 1.4