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A study of the quantum Hall effect in CVD graphene synthesized on Cu TIAN SHEN, Department of Physics, Purdue University, West Lafayette, IN, 47907 / PML, NIST, Gaithersburg, MD, 20899, WEI WU, Center for Advanced Materials, and ECE, University of Houston, Houston, Texas, 77204, HELIN CAO, YONG CHEN, Department of Physics, Purdue University, West Lafayette, IN, 47907, DAVID NEWELL, CURT RICHTER, PML, NIST, Gaithersburg, MD, 20899, QINGKAI YU, Center for Advanced Materials, and ECE, University of Houston, Houston, Texas, 77204 — Graphene films grown by Chemical Vapor Deposition (CVD) have provided a viable way to large area, low cost graphene-based electronics. Graphene CVD grown on Cu was transferred to SiO2/Si substrates and Hall-bar devices with sizes as large as 150 μm were fabricated, exhibiting carrier mobility of $\sim$3000cm^2/Vs. At low temperatures, the half integer quantum-Hall effect (QHE) and Shubnikov-de Haas (SdH) oscillations confirmed the single layer quality of the transferred graphene films. Systematic measurements in the quantum Hall region such as the DC/AC current dependence, temperature dependence, and AC frequency dependence were carried out, and their impact on the breakdown of the QHE was investigated. From weak localization peak fitting, the phase coherence length of the CVD graphene is determined to be $\sim$3μm at 1.6K.

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