

Abstract Submitted
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Temperature-dependent Transport Properties of CVD grown Graphene with Pd Functionalization BOCHEN ZHONG, Department of Physics and Astronomy, University of South Carolina, AHSAN UDDIN, AMOL SINGH, Department of Electrical Engineering, University of South Carolina, GOUTAM KOLEY, Department of Electrical and Computer Engineering, Clemson University, RICHARD WEBB, Department of Physics and Astronomy, University of South Carolina — We have investigated the temperature dependence of carrier density and mobility of CVD grown graphene before and after 2nm Pd deposition by Hall effect measurement. In our samples, Hall mobility increases as temperature increases, indicating that Coulomb scattering is the most important scattering mechanism. The Pd functionalization layer scattering limited carrier mobility is calculated as a function of temperature, and a least-square fit is done. Furthermore, Hall mobility of the Pd-functionalized graphene enhances significantly after exposure to H₂ and the dominant scattering mechanism switches to thermal excited substrate optical phonon scattering.

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