

Abstract Submitted
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Electrical and structural properties of chemically modified graphene sheets¹ DMITRIY A. DIKIN, Northwestern University, Evanston, IL, INHWA JUNG, RODNEY S. RUOFF, University of Texas at Austin, Austin, TX, USA — The chemical exfoliation of graphite through oxidation and then dispersion in a solvent is one of the methods of achieving scalable production of single graphene sheets. We use this method for making chemically modified graphene (CMG) sheets with tunable electronic properties, which can be placed flat on any surface or dispersed in various matrices. CMG sheets share some similarities with pristine graphene and with carbon nanotubes, e.g. tunable electron- and hole-type conductivity is observed in single CMG sheets just above the percolation threshold. CMGs may also be considered as a template for a bottom up development of a new class of materials. We have performed electrical measurements of individual CMG sheets and will discuss their electronic properties and the possible mechanisms of the charge transport in relation to their atomic structure and chemical composition.

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