

Abstract Submitted  
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**Electrical conductivity of graphene oxide sheets and networks of such sheets**<sup>1</sup> DMITRIY DIKIN, INHWA JUNG, GEOFFREY DOMMETT, SASHA STANKOVICH, Northwestern University, Evanston, Illinois, ROD RUOFF, The University of Texas at Austin — Electrical transport through individual flat graphene oxide sheets and through networks of crumpled graphene oxide sheets has been studied at different temperatures and strengths of the electrical field. Conductivity of individual graphene oxide sheets on silica/silicon substrate were measured with a 4-electrode configuration at room and elevated temperatures (up to 520 K) in steady state conditions and at different states of reduction and oxidation. Crumpled graphene oxide sheets in a powdered form and graphene oxide sheets dispersed inside of a dielectric matrix at different packing densities were also electrically measured in a wide temperature range (between 520 and 20 K). Possible mechanisms of an electrical charge transport through these systems and the electronic properties of graphene oxide sheets will be discussed.

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Dmitriy Dikin  
Northwestern University

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