

Abstract Submitted  
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**Morphology and electrical characterization of polymer nanocomposite based on chemically modified graphene sheets**<sup>1</sup> DMITRIY DIKIN, SASHA STANKOVICH, KEVIN KOHLHAAS, GEOFFREY DOMMETT, ERIC ZIMNEY, RODNEY RUOFF, Department of Mechanical Engineering, OLEKSANDR CHERNYASHEVSKYY, Department of Physics and Astronomy, SONBINH NGUYEN, Department of Chemistry, Northwestern University — Graphite particles may be oxidized yielding graphene (one atom thick graphite layer) oxide sheets. Furthermore surface modification allows controllable engineering of their properties including recovery of the electrical conduction and homogeneous dispersion in different polymers. Formation of percolative network for electrical transport at very low threshold in the dielectric polymer matrix will be discussed in relation to the composite samples morphology, chemical modification of graphene sheets, and their topological states. DC and AC electrical measurements in combination with scanning electron microscopy (surface and sub-surface imaging) were used for composites characterization.

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