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Reduction of Graphene Oxide studied with FTIR HEIKE GEISLER, JACOB BACHOR, NICOLAS LASCALA, State Univ of NY - Oneonta — Graphite oxide was successfully synthesized from graphite powder using the modified Hummers method*. The graphite oxide was then exfoliated to yield graphene oxide, which was subsequently reduced to give reduced graphene oxide. This employed two different chemical reduction methods, and one effective combination of the two. The two methods being a weaker sodium borohydride/calcium chloride catalyst and a hydrogenation through hydrogen produced from the reaction of hydrochloric acid and aluminum. This can be seen through the removal of various functional groups from our graphene oxide sample after each reduction method, as shown in FTIR spectra of each sample. While the reduction methods employed did remove a number of oxygenated functional groups on the graphene oxide sheet, we still observe the presence of hydroxyl and some carboxylic acids that persist through. We also notice the appearance of a well-defined peak at ˜1600 cm-1 representing the conjugated system in the combined reduction method. * W. S. Hummers and R. E. Offeman, J. Am. Chem. Soc., 1958, 80, 1339

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