

Abstract Submitted  
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**Structural study of graphene oxide (GO) and reduced and annealed graphene oxide (raGO) using aberration-corrected TEM<sup>1</sup>** WILL GANNETT, Physics Department, UC Berkeley and Materials Sciences Division, Lawrence Berkeley National Lab, KRIS ERICKSON, Chemistry Department, UC Berkeley and Materials Sciences Division, Lawrence Berkeley National Lab, ROLF ERNI, ZONGHOON LEE, National Center for Electron Microscopy, Lawrence Berkeley National Lab, NASIM ALEM, ALEX ZETTL, Physics Department, UC Berkeley and Materials Sciences Division, Lawrence Berkeley National Lab — Owing to its solubility compared to graphene, graphene oxide (GO) has become popular in recent years as a potentially scalable precursor to graphene in devices. After the GO's oxidation and defects are chemically and thermally removed, reduced and annealed graphene oxide (raGO) remains. Using aberration-corrected transmission electron microscopy, we examine both GO and raGO with single-atom resolution. The GO appears heavily oxidized and disordered, but interestingly many isolated graphitic regions persist. Observation of the raGO shows that while reduction is nearly complete, the process causes significant damage to the sheet, making it structurally unstable and electronically disordered.

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