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Interfacial Assembly of Graphene Oxide Films. CAIN VALTIER-REZ, Department of Physics, Augsburg College, ISSAM ISMAIL, CHRISTOPHER MACOSKO, Department of Chemical Engineering and Materials Science, University of Minnesota Twin Cities, BENJAMIN STOTTRUP, Department of Physics, Augsburg College — Controlled assembly of monolayer graphene-oxide (GO) films at the air/water interface is of interest for the development of transparent conductive thin films of chemically-derived graphene. We present experimental results from investigations of the assembly of polydisperse GO sheets at the air-water interface. GO nanosheets with lateral dimensions of greater than 10 microns were created using a modified Tour synthesis (Dimiev and Tour, 2014). GO films were generated with conventional Langmuir trough techniques to control lateral packing density. Film morphology was characterized *in situ* with Brewster angle microscopy. Films were transferred onto a substrate via the Langmuir-Blodgett deposition technique and imaged with fluorescence quenching microscopy. Through pH modulation of the aqueous subphase, it was found that GO's intrinsic surface activity to the interface increased with increasing subphase acidity. Finally, we found a dominant elastic contribution during uniaxial film deformation as measured by anisotropic pressure measurements. A. M. Dimiev, and J. M. Tour, "Mechanism of GO Formation," ACS Nano, **8**, (2014)

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