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Electron mobility in liquid-gated graphene biosensors CHRISTINA HARMON, Linfield College, MORGAN BROWN, ETHAN MINOT, Oregon State University, MICHAEL CROSSER, Linfield College — We report measurements of the electron mobility in liquid-gated graphene. Graphene field-effect transistor (GFET) biosensors are more sensitive to changes in external fields when the mobility is high; therefore, increasing mobility will improve sensitivity. Mobility can be calculated from the ratio of sheet conductivity to carrier density. Sheet conductivity was measured using a van der Pauw geometry and carrier density was determined from measurements of the liquid-gate capacitance. We show that mobility improves after the graphene surface is cleaned by an annealing process.

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