Abstract Submitted
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Magneto-transport studies of hydrogenated graphene[1] BERNARD MATIS, National Research Council/Naval Research Laboratory, FELIPE BULAT, Sotera Defense Solutions, Inc., ADAM FRIEDMAN, BRIAN HOUSTON, JEFFREY BALDWIN, Naval Research Laboratory — We study the magnetoresistance of hydrogenated graphene devices on a SiO_2 substrate. A large negative magnetoresistance of up to 30% in a field of 2.5T is observed at low temperatures and at the film's charge neutrality point without any sign of saturation. A detailed analysis of the gate voltage dependence demonstrates a suppression of the large, negative magnetoresistance, which appears to be driven by a crossover from strong localization at low carrier concentrations to weak localization at higher carrier concentrations. Evidence of electron-hole symmetry breaking is found in the magnetic field traces at low temperature.

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