Abstract Submitted
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Friction, Adhesion, and Elasticity of Grahene Edges[1] D. PATRICK HUNLEY, TYLER FLYNN, TOM DODSON, ABHISHEK SUNDARARAJAN, MATHIAS BOLAND, DOUGLAS STRACHAN, University of Kentucky, Department of Physics and Astronomy — Frictional, adhesive, and elastic characteristics of graphene edges are determined through lateral force microscopy. Measurements reveal a significant local frictional increase at exposed graphene edges, whereas a single overlapping layer of graphene removes this local frictional increase. Comparison of lateral force and atomic force microscopy measurements shows that local forces on the probe are successfully modeled with a vertical adhesion in the vicinity of the atomic-scale graphene steps. Lateral force microscopy performed with carefully maintained probes shows evidence of elastic straining of graphene edges which are consistent with out-of-plane bending of the edges.

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