

Abstract Submitted
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Frictional Characteristics of graphene CHANGGU LEE, Columbia University, ROBERT CARPICK, University of Pennsylvania, JAMES HONE, Columbia University — The frictional characteristics of graphene were characterized using friction force microscopy (FFM). The frictional force for monolayer graphene is more than twice that of bulk graphite, with 2,3, and 4 layer samples showing a monotonic decrease in friction with increasing sample thickness. Measurements on suspended graphene membranes show identical results, ruling out substrate effects as the cause of the observed variation. Likewise, the adhesion force is identical for all samples. The frictional force is independent of load within experimental uncertainty, consistent with previous measurements on graphite. We consider several possible explanations for the origin of the observed thickness dependence.

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