

Abstract Submitted
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Temperature and size dependent friction of gold nanoislands on graphene¹ BEN D. DAWSON, MICHAEL S. LODGE, ZACHARY WILLIAMS, MASA ISHIGAMI, Department of Physics and Nanoscience Technology Center, University of Central Florida, Orlando, FL 32816 — Nanoscale motors and machines require the ability to tune frictional properties at the nanoscale. Yet a fundamental understanding of frictional processes of nanoislands still remains unknown. We have performed a quartz crystal microbalance study to investigate the role of temperature and island size on frictional energy dissipation for gold nanoislands on graphene. Significant frictional dissipation is observed even at room temperature, consistent with activated friction on the graphene surface. We will discuss these results and compare them to previously predicted models for thermally activated and size dependent friction.

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