

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Measuring Adhesion of Freestanding Polymer Nano-fibers** XIN WANG, Northeastern University, JOHNNY NAJEM, SHING-CHUNG WONG, University of Akron, KAI-TAK WAN, Northeastern University — A novel method is used to measure directly adhesion between two freestanding polymer nano-fibers. A single fiber is attached to two microspheres readily glued to an atomic force microscope (AFM) cantilever. Another freestanding fiber is similarly prepared on a mica substrate. The fibers are arranged in orthogonal crossed-cylinder geometry. External load is applied to deform the two fibers into complementary V-shapes, and the force response allows determination of elastic modulus. At a critical tensile load, “pull-off” occurs and the adhering fibers spontaneously detach from each other, yielding the interfacial adhesion energy. Loading-unloading cycles are performed to investigate fiber degradation and repeated adhesion-detachment.

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Date submitted: 29 Nov 2011

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