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Investigation of the Static and Dynamic Mechanical Properties of Nano-scale Water[1] COREY STAMBAUGH, SOYOUNG KWON, WONHO JHE, Seoul National University — The behavior of liquids on the nano-scale has become an area of interest as new fabrication techniques have allowed for increasingly smaller structures to be made. While much work has been done on the interactions forces at liquid and solid interfaces, questions still remain regarding the behavior of nano-scale liquids. By incorporating a micro-electromechanical force sensor (MEMS) into the quartz tuning fork based atomic force microscope (QTF-AFM) probe setup we are able to both manipulate and measure nano-scale water, which in turn provides information beyond the standard AFM approach. Here we look at both the static and dynamic mechanical properties of water formed between the tip of a (QTF-AFM) probe and the polysilicon surface of a MEMS device.

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