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**Investigation of MEMS force sensors for nano-scale water measurements**[1] SOYOUNG KWON, WONHO JHE, COREY STAMBAUGH, Seoul National University — Nanoscale water formed by capillary condensation has typically been studied by means of an atomic force microscope (AFM). While this approach can provide details about the dynamic visco-elastic properties, it is limited in the type of information that can be measured. Here we propose replacing the fixed sample surface generally used in AFM systems with movable micro-mechanical force sensors (MEMS) fabricated specifically for tapping mode or shear mode. By incorporating a MEMS device we can directly measure the adhesion force, pull-in distance and capillary force of nano confined water while the AFM collects information pertaining to the dynamic visco-elastic properties. In this talk, we will characterize the force measurement in the system and discuss the behavior of the device in the presence of nano-scale water.

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