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Cantilever mechanics and Atomic Force Microscopy study of TEHOS SHAH KHAN, PETER HOFFMANN, Wayne State University — Properties of nanoconfined liquids have long been shown to be significantly different from the bulk, but the introduction of AFM has dramatically changed the pace of progress in this field. In this report, we present AFM study of a model liquid, tetrakis (2-ethylhexoxy) silane (TEHOS), using a state of the art small amplitude AFM. Besides calculating the stiffness of TEHOS, Derjaguin approximation has been used to calculate the size and sharpness of an unknown tip with the help of a standard spherical tip of precisely known diameter. Magnitude and oscillatory profiles of the force-versus- distance have been obtained using two different simultaneously measured sets of signals. Also, identical oscillating patterns of elastic modulus of TEHOS against the distance of approach have been obtained by complementary methods using the static deflection signal and the amplitude of the cantilever.

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