

Abstract Submitted  
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**Investigation of liquid properties in extended nanospaces using streaming potential/current system** KYOJIRO MORIKAWA, Tokyo Institute of Technology, YUTAKA KAZOE, CHI-CHANG CHANG, The University of Tokyo, TAKEHIKO TSUKAHARA, Tokyo Institute of Technology, KAZUMA MAWATARI, TAKEHIKO KITAMORI, The University of Tokyo — Understanding liquid properties in extended nanospace (10-1000 nm) is important for the evolution of nanofluidic devices. Liquid properties are expected to be changed by the nano-confinement, because the extended nanospace represents a transitional regime from single molecules to the bulk condensed phase. In this study, we developed non-probe measurement system of dielectric constant and electric conductivity of water in the extended nanospaces using streaming potential/current system. The results showed that dielectric constant in extended nanospaces was approximately 3 times lower than that in bulk, and that conductivity in extended nanospace was approximately 500 times higher than that in bulk. The measured conductivity was consistent with the calculated one, which was determined using dielectric constants measured in extended nanospaces and electric double layer (EDL) model. It will be important information for nanofluidics.

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