Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Air-liquid interface of ionic liquid-water binary system studied by surface tension measurement and sum-frequency generation spectroscopy JAEHO SUNG, YOONNAM JEON, DOSEOK KIM, Department of Physics, Sogang University, TAKASHI IWAHASHI, TOSHIFUMI IIMORI, KAZUHIKO SEKI, YUKIO OUCHI, Deparment of Chemistry, Nagoya University — Surface of room-temperature ionic liquid (RIL)+water mixture is investigated using surface tension measurement and surface sum- frequency generation (SFG) vibrational spectroscopy. Results indicate the liquid surface is mostly covered by the cations at a very low bulk concentration (less than 0.02 bulk mole fraction). Increase of surface tension from 0.016 up to $\sim$0.05 mole fraction suggested that the anions start to appear at the surface from $\sim$0.016 mole fraction until the anions and cations are equally populated at c$\sim$0.05 or higher. From the analysis of the SFG spectra, the terminal CH_3 group of the butyl chain is polar-oriented with its symmetry axis aligning rather vertical to the surface for the whole range of concentration.

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Date submitted: 28 Nov 2004 Electronic form version 1.4