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Structural and Physical Properties of Ionic Liquid Mixtures SEONCHEOL CHA, DOSEOK KIM, Department of Physics, Sogang University — Ionic liquids are the materials consisting of only cations and anions and existing at liquid phase below 100 C. They are called designer solvent as the physical properties of the materials can be tuned by changing their constituent ions. Mixing ionic liquids is a new way of maximizing this advantage because the material properties can be changed continuously in the mixture. The excess molar volumes, a difference between the molar volumes of the mixtures and a linear interpolation between the volumes of pure components, have been found to differ significantly for some ionic liquid mixtures, but the origin of this difference is not well understood. The different microstructures of the mixtures, which can range from a simple mixture of two different consisting ionic liquids to a different structure from those of pure materials, have been suggested as the origin of this difference. We investigated ionic liquid mixture systems by IR spectroscopy by utilizing a particular peak in the IR spectrum for the moiety participating in the hydrogen bonding (νC(2)-H) that changes sensitively with the change of the anion in the ionic liquid. The absorbance of νC(2)-H changed proportionally to the composition for the mixtures consisting of halide anion. By contrast, the absorbance changed nonlinearly for the mixtures of which one of the anion had multiple interaction sites

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