Supporting Information

Water/Ionic Liquid Interfaces as Fluid Scaffolds for Two-Dimensional Self-Assembly of Charged Nanospheres

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Figure S2. (a-f) CLSM images of nanoparticle monolayers taken at different focus planes at water/C_4minPF_6 interface. (g) a schematic representation of the focus plane. RhB was dissolved in C_4minPF_6 (concentration, 4×10^{-5} M mM), on which aqueous solution of fluorescent nanoparticles was layered. The distance between each focus plane in (a)-(f) is approximately 200 nm. As RhB is more stably dissolved in C_4minPF_6 layer and does not show diffusion into the aqueous phase, the change in colors in (a-f) reflect the presence of water/C_4minPF_6 interface within a thickness of adsorbed nanosphere monolayer. This observation is in contrast with the CLSM image observed at the water/C_6mimBF_4 interface (Figure S4) which is discussed later. The brighter spots are ascribed to larger latex particles co-existed in the commercial sample, as discussed in the manuscript.

Figure S3. CLSM image of a monolayer of fluorescent particles of 1 μm at the water/C_4minPF_6 interface. RhB is not contained in the IL phase.

Figure S4. CLSM images of nanospheres adsorbed at water/ILs interfaces. (a)C_4mimTFSA, (b)C_6mimPF_6 and (c)C_6mimBF_4 as IL phases. Scale bar = 10 μm.

Figure S5. A CLSM image and their cross-sectional images of nanospheres adsorbed at the water/C_6mimBF_4 interface. The IL phase was dyed with RhB. Unlike the water/C_4mimPF_6 interface shown in Figures 3 and S2, the cross-sectional images show coexistence of green (FITC-labeled nanospheres) and orange (RhB in C_6mimBF_4 phase) fluorescence, indicating uneven feature of the water/C_4mimPF_6 interface.

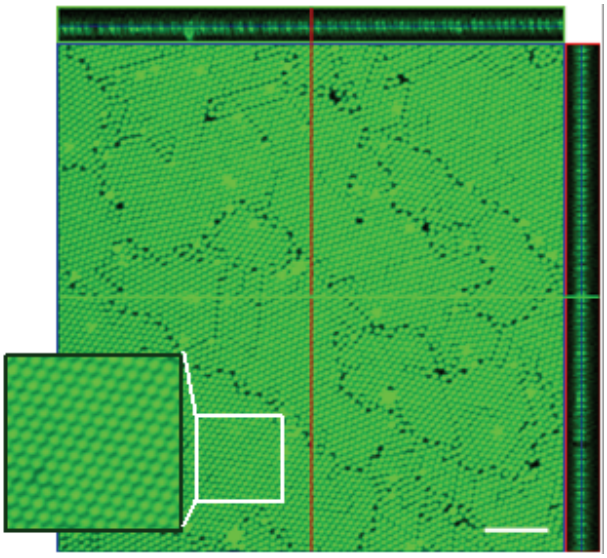


Figure S1. CLSM image of a monolayer of fluorescent nanospheres at the water/C_4minPF$_6$ interface. RhB is not contained in the IL phase.

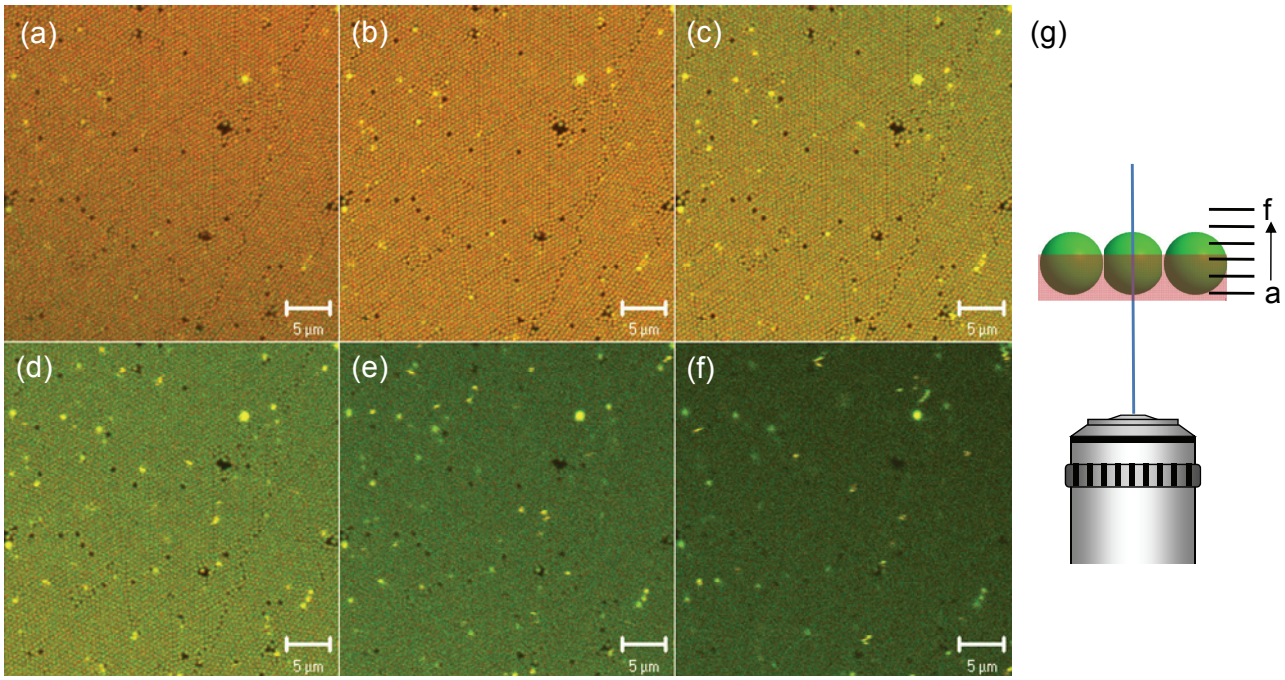


Figure S2. (a-f) CLSM images of nanoparticle monolayers taken at different focus planes at water/C_4minPF$_6$ interface. (g) a schematic representation of the focus plane. RhB was dissolved in C_4minPF$_6$ (concentration, 4×10^{-5} M mM), on which aqueous solution of fluorescent nanoparticles was layered. The distance between each focus plane in (a)-(f) is approximately 200 nm. As RhB is more stably dissolved in C_4minPF$_6$ layer and does not show diffusion into the aqueous phase, the change in colors in (a-f) reflect the presence of water/C_4minPF$_6$ interface within a thickness of adsorbed nanosphere monolayer. This observation is in contrast with the CLSM image observed at the water/C_6mimBF$_4$ interface (Figure S4) which is discussed later. The brighter spots are ascribed to larger latex particles co-existed in the commercial sample, as discussed in the manuscript.

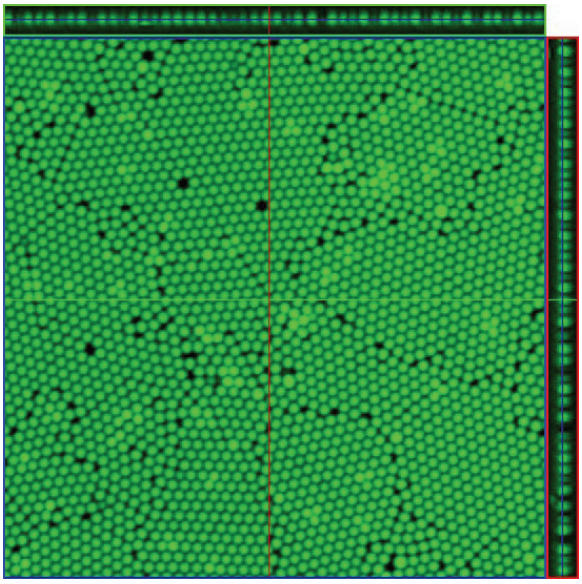


Figure S3. CLSM image of a monolayer of fluorescent particles (diameter, 1 μm) formed at the water/C_4minPF_6 interface. RhB is not contained in the IL phase.

The monolayer image for 200 nm-sized nanopartices could not be observed clearly because of the resolution limit of CLSM.

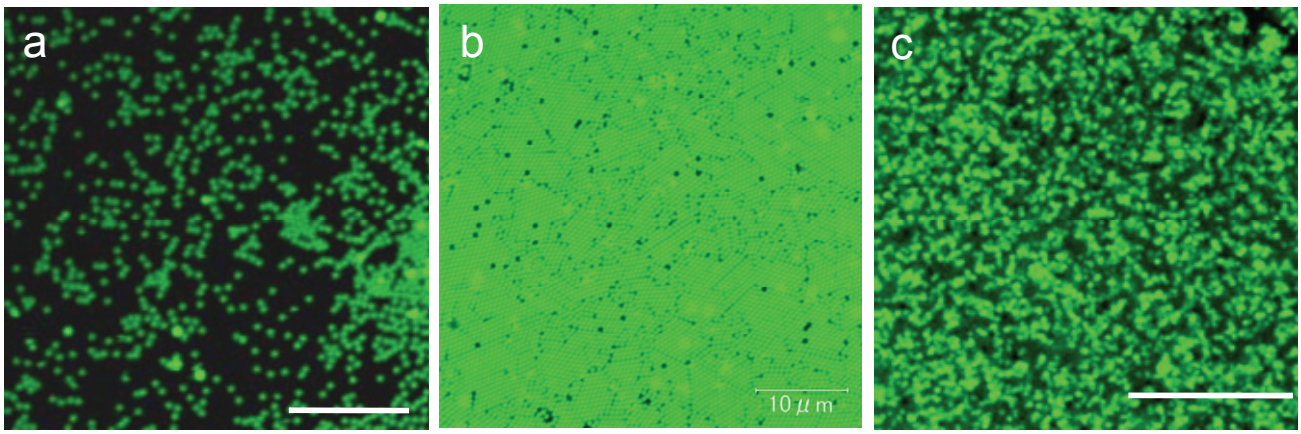


Figure S4. CLSM images of nanospheres adsorbed at water/ILs interfaces. (a)C_4mimTFSA, (b)C_6mimPF_6 and (c)C_6mimBF_4 as IL phases. Scale bar = 10 μm.

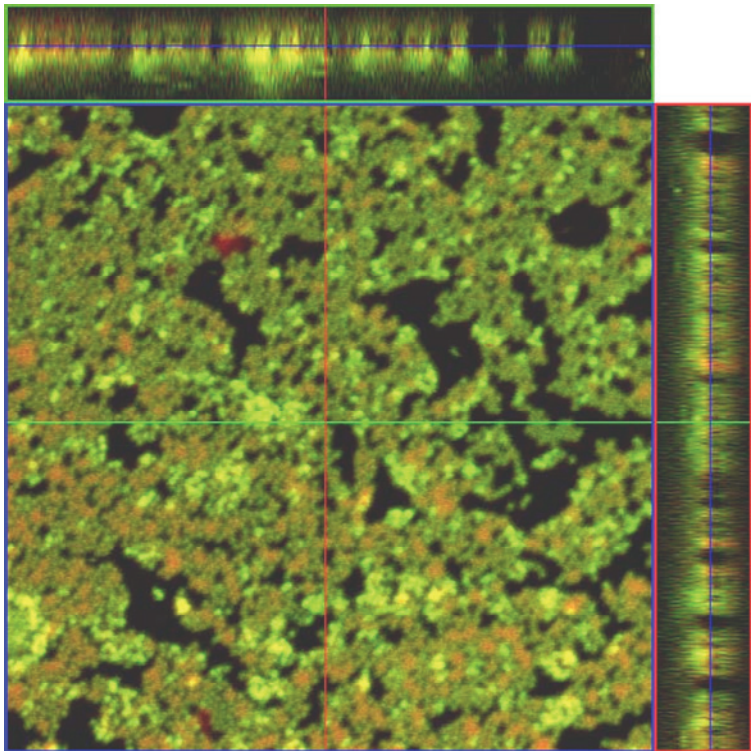


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