

Supporting Information

Direct observation of the double-layering quantized growth of mica-confined ionic liquids

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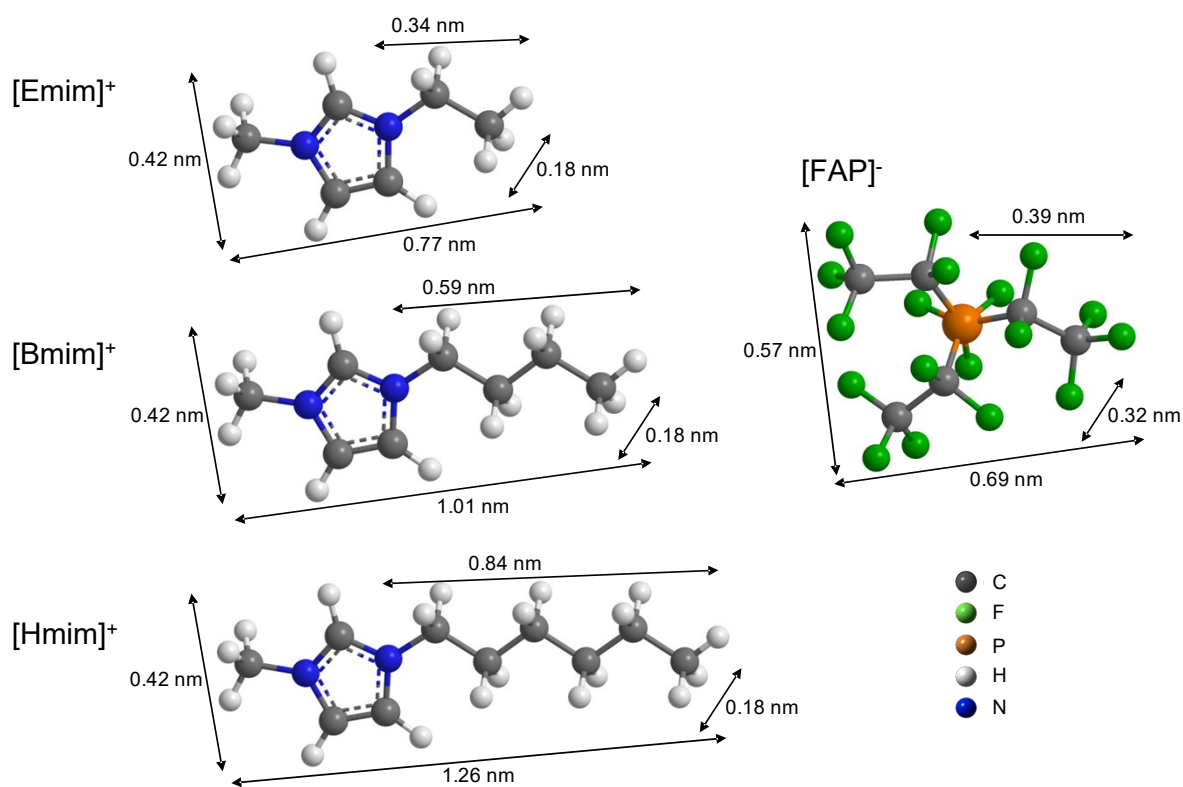


Fig. S1 3D chemical structures of the imidazolium cations with various alkyl chain length and the [FAP] anion. Energy minimization was performed using the MMFF94 force field.

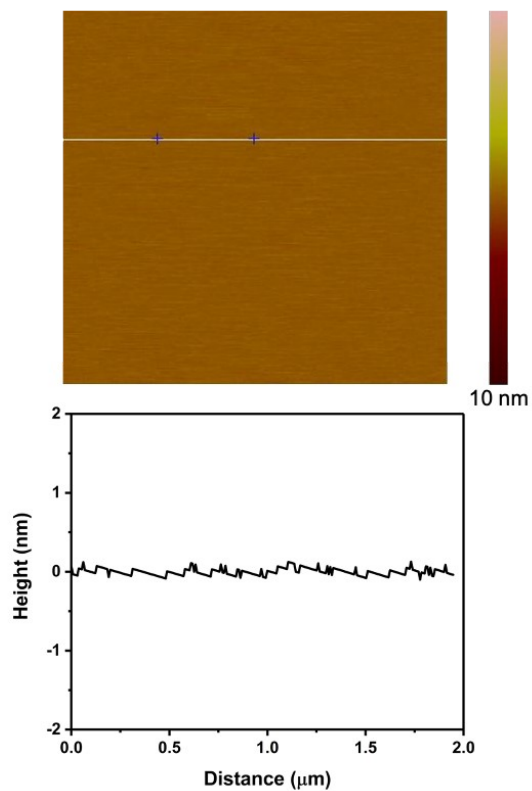


Fig. S2 AFM image and the corresponding line profile of the fresh mica surface. The scan area is $2\ \mu\text{m}$ by $2\ \mu\text{m}$, and the inset scale bar is for the z-direction.

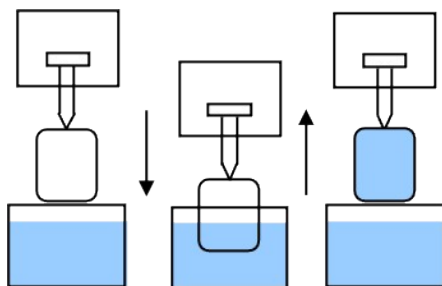


Fig. S3 Fabrication of IL nanofilms on mica by dipcoating.

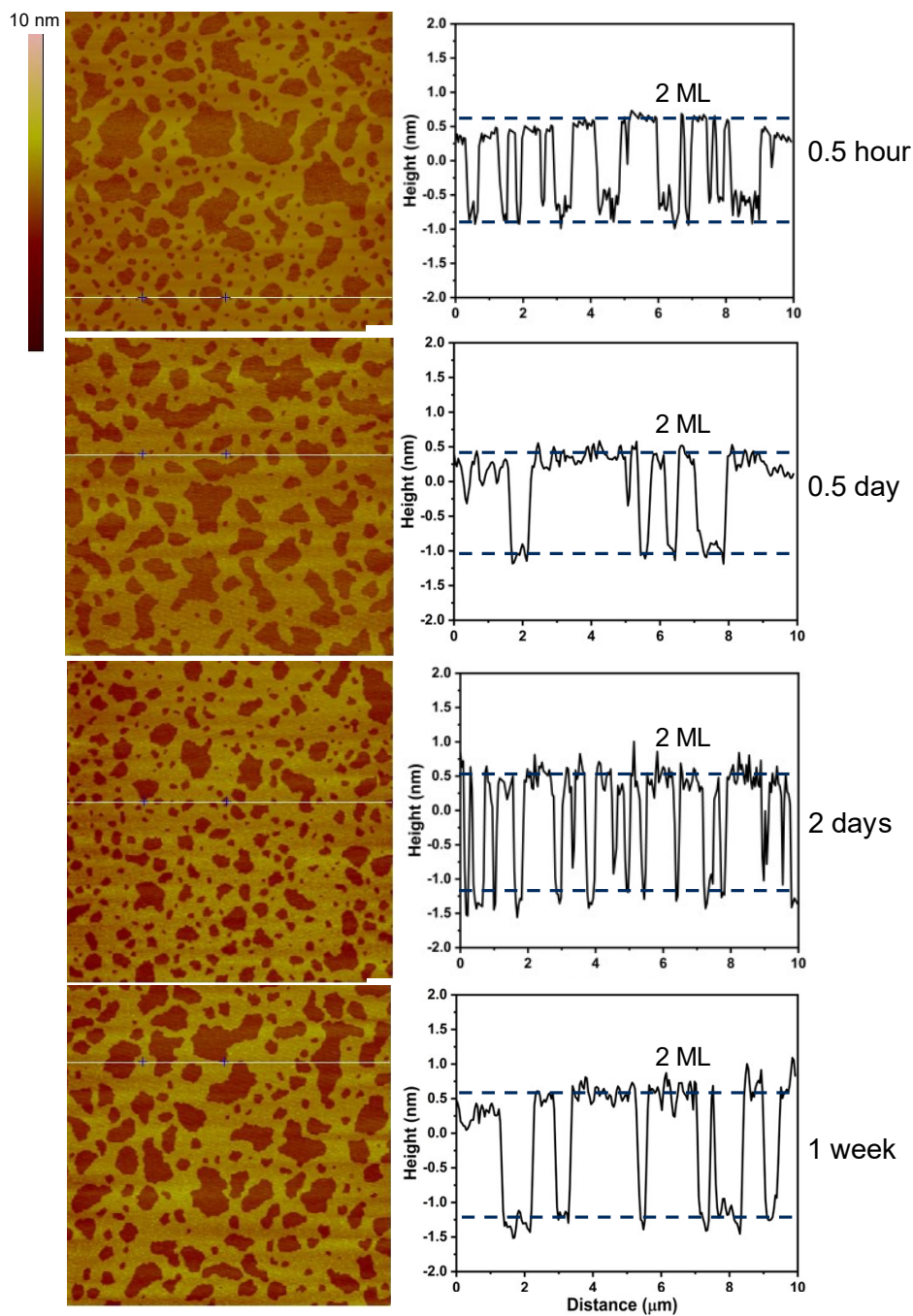


Fig. S4 AFM images and their corresponding line profiles of time-dependent nanofilms of [Emim][FAP] fabricated from the concentration of 0.75 g/L. The ambient RH was 12-20% the whole time. The AFM scan areas are 10 μm by 10 μm , and the inset scale bar is for the z-direction. The x-axis and y-axis for the line profiles are the distance along the cut in the horizontal direction (μm) and the height in the vertical direction (nm), respectively.

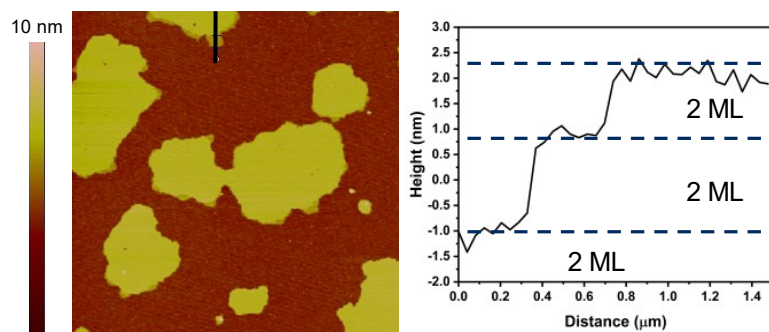


Fig. S5 AFM image and the corresponding line profile of mica-confined [Hmim][FAP] fabricated from the concentration of 0.75 g/L. The scan was taken 1 week after the sample fabrication. The AFM scan areas are 10 μm by 10 μm , and the inset scale bar is for the z-direction.