Electronic Supplementary Material (ESI) for Soft Matter.


# Supporting Information

# Improved Ordering and Lubricating Properties by Graphene on Lamellar Liquid Crystals of Triton X-100/$C_n$mim$NTf_2$/$H_2O$

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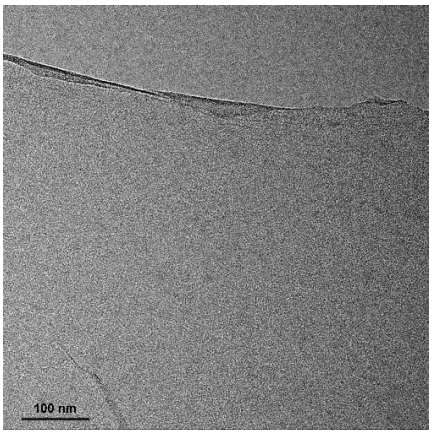


**Figure. S1** TEM images of graphene nanosheets

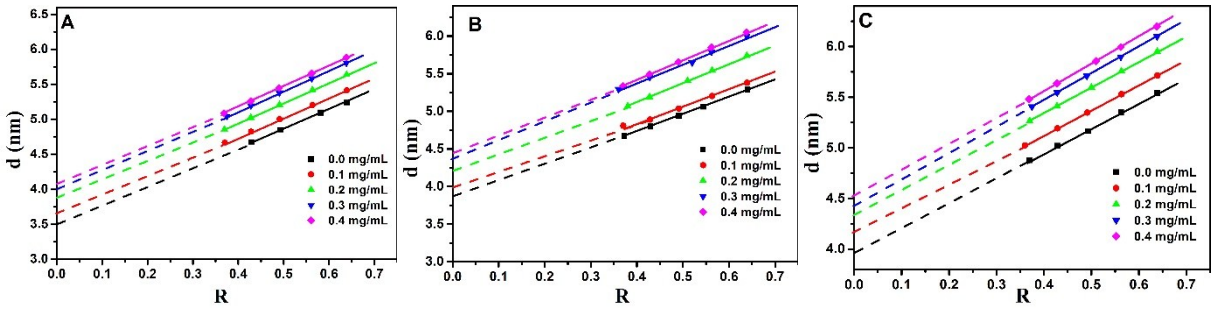


**Figure. S2** Dependence of the interlayer thickness *d* on water content R in the graphene/Triton X-100/$C_n$mim$NTf_2$/$H_2O$ LLCs systems with different graphene content (A) n=8, (B) n=12, and (C) n=16.

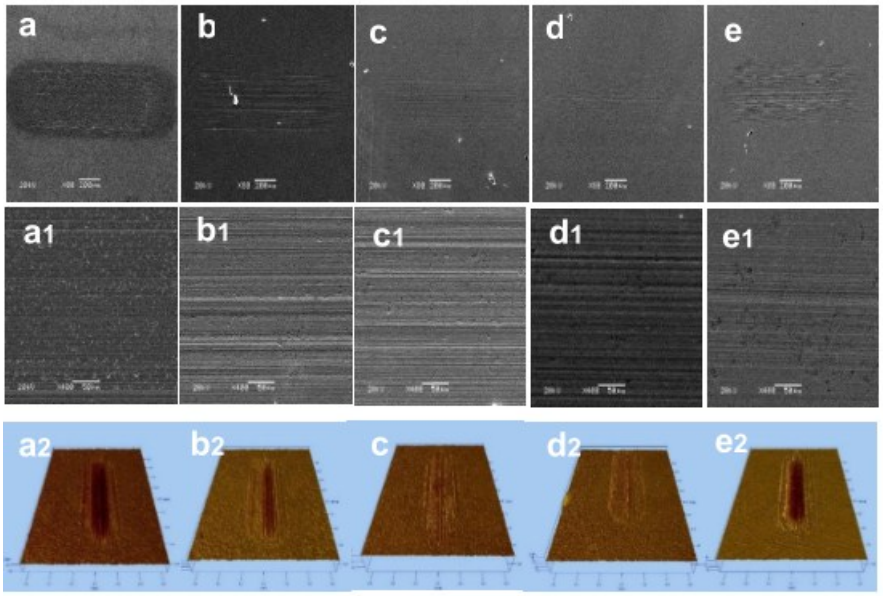


**Figure S3.** SEM and 3D images of the worn surfaces of the samples lubricated by LLCs doped with various concentrations of graphene at at room temperature (a: 0 mg/mL; b: 0.10 mg/mL; c: 0.20 mg/mL; d: 0.30 mg/mL; e: 0.40 mg/mL; $a_1$, $b_1$, $c_1$, $d_1$ and $e_1$ are enlarged images corresponding to a, b, c, d and e, respectively; $a_2$, $b_2$, $c_2$, $d_2$ and $e_2$ are 3D images corresponding to a, b, c, d and e, respectively).