Supporting Information

Is the boundary layer of an ionic liquid equally lubricating at higher temperature?

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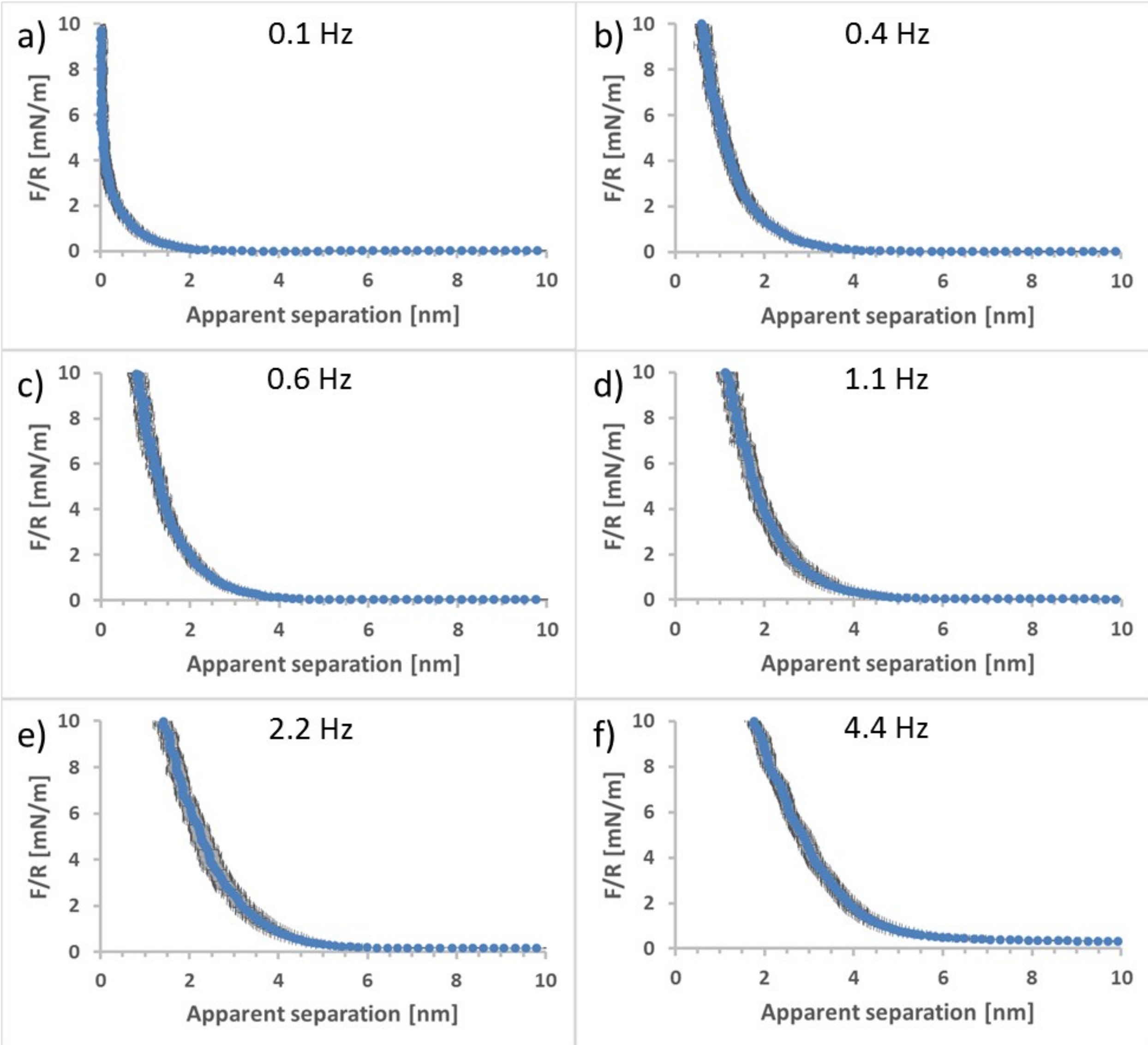

Figure S1. Averaged force profiles at room temperature in a mica-EAN-silica system for increasing approach rates: 0.1 (a), 0.4 (b), 0.6 (c), 1.1 (d), 2.2 (e), and 4.4 Hz (f). The experiment was performed using a colloidal probe (silica, radius 3.4 μm) glued to the free end of a tipless cantilever (spring constant 0.92 N m^{-1}).

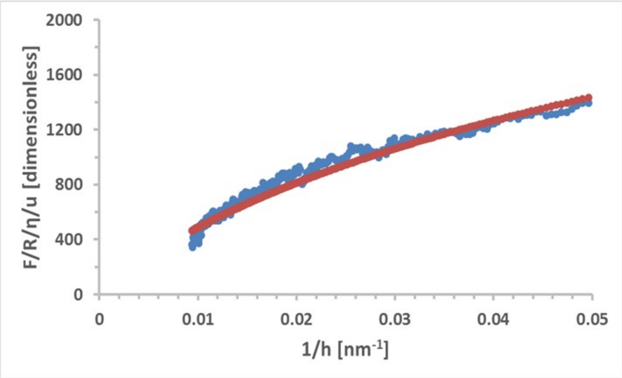

Figure S2. Example fit of fluid dynamic force (Eq.3, red points) to experimental data (room temperature, 4.4 Hz, blue points). A bulk viscosity of 40 mPa·s and slip length of 18 nm was used. The approach follows the procedure of Henry *et al*.[1] where the force is divided with viscosity and speed and plotted as a function of inverse separation. A straight line (passing through origin) represents a fluid dynamic force with no slip whereas a curved line (which is the case here) indicates slip.

References

1. C. L. Henry and V. S. J. Craig, *Phys Chem Chem Phys*, 2009, **11**, 9514-9521.