# Interfacial Rheology of Polymer/Carbon Nanotube Films Co-Assembled at the Oil/Water Interfaces

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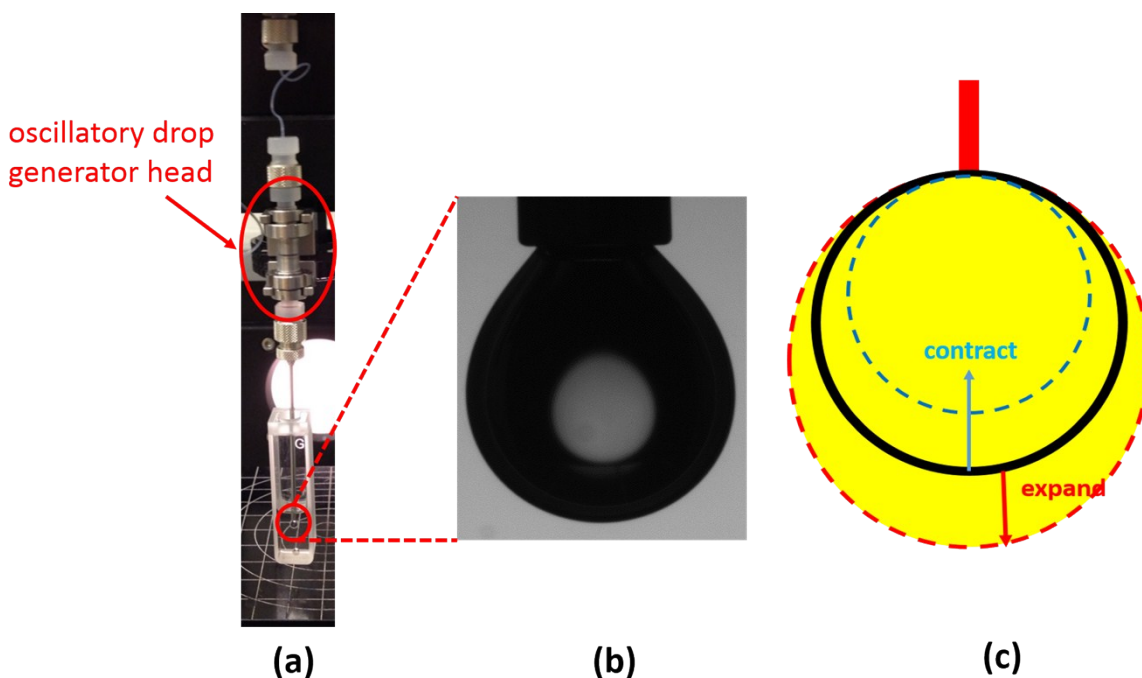
Figure S1. (a) Apparatus for oscillatory pendant drop rheometry; (b) axisymmetric profile of an aqueous droplet created in the oil phase; and (c) scheme for generating dilatational strain by drop expansion and contraction.
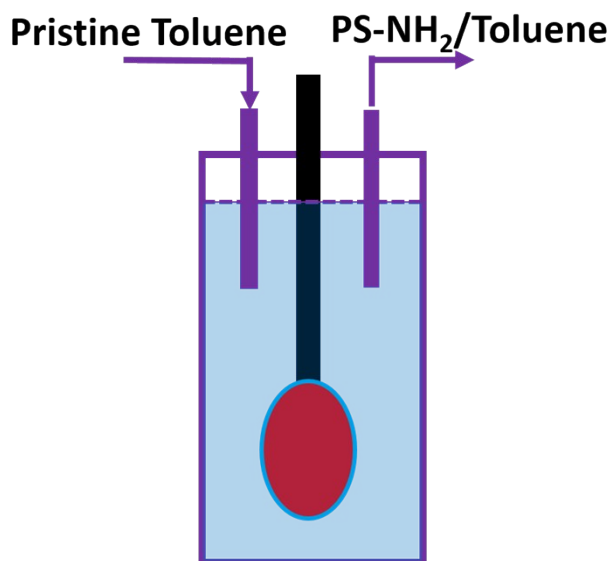
**Figure S2.** Apparatus for PS-NH2 desorption by bulk phase exchange.
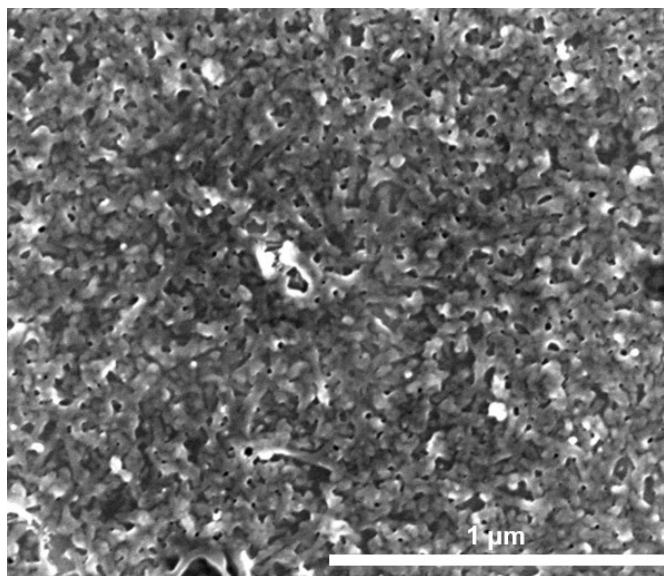
Figure S3. SEM micrograph of a dried co-assembled film on a Si substrate. (The condition of film formation: C_{SWCNT}=0.08 mg/ml; C_{PS-NH2}=0.2 mg/ml, pH=3.1) (Scale bar: 1 μm).
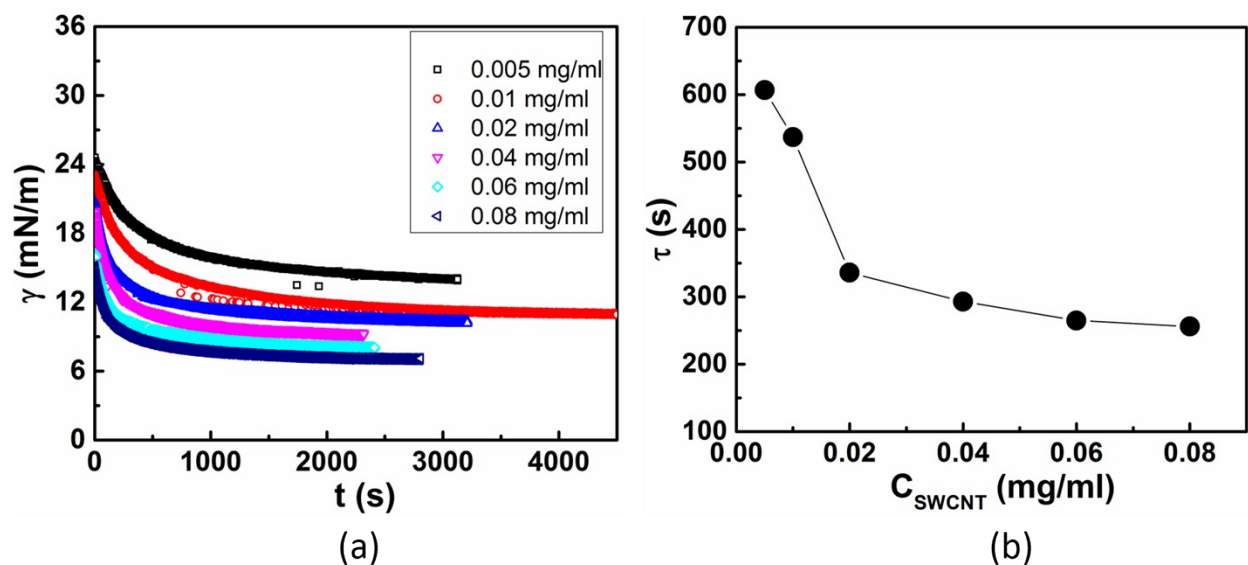
Figure S4. (a) $\gamma(t)$ for co-assembled film as a function of C_{SWCNT} (C_{PS-NH2}=0.2 mg/ml, PS-NH$_2$ *Mn* ~2,800 g/mol, pH=3.0). (b) Characteristic timescale τ of SWCNT adsorption deduced by fit to a single exponential decay.
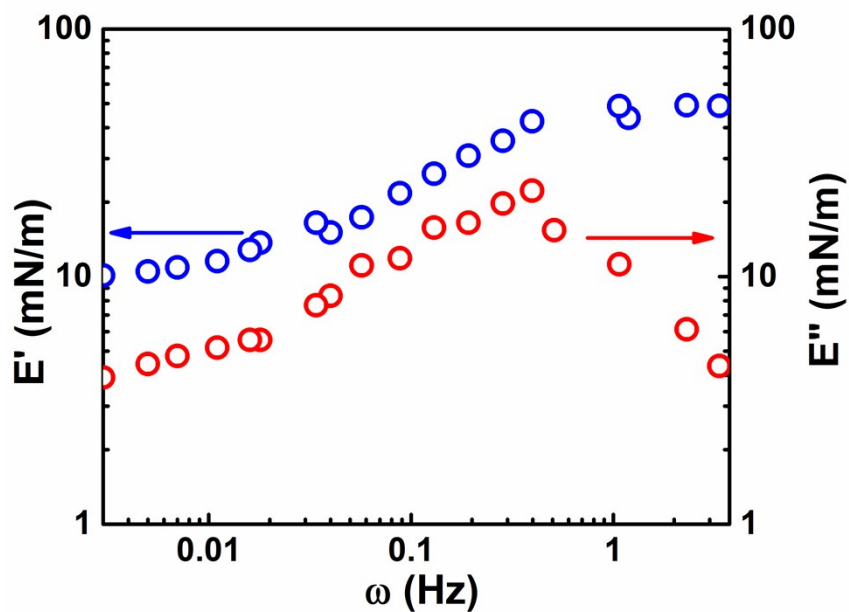
Figure S5. $E'(\omega)$ and $E''(\omega)$ for an Au NP/PS-NH$_2$ co-assembled film (5 nm, multiply carboxylated Au NPs; $C_{Au\ NPs}$=0.05 mg/ml; C_{PS-NH2}=0.2 mg/ml; PS-NH$_2$ *Mn*~2,800 g/mol; pH=3.0).
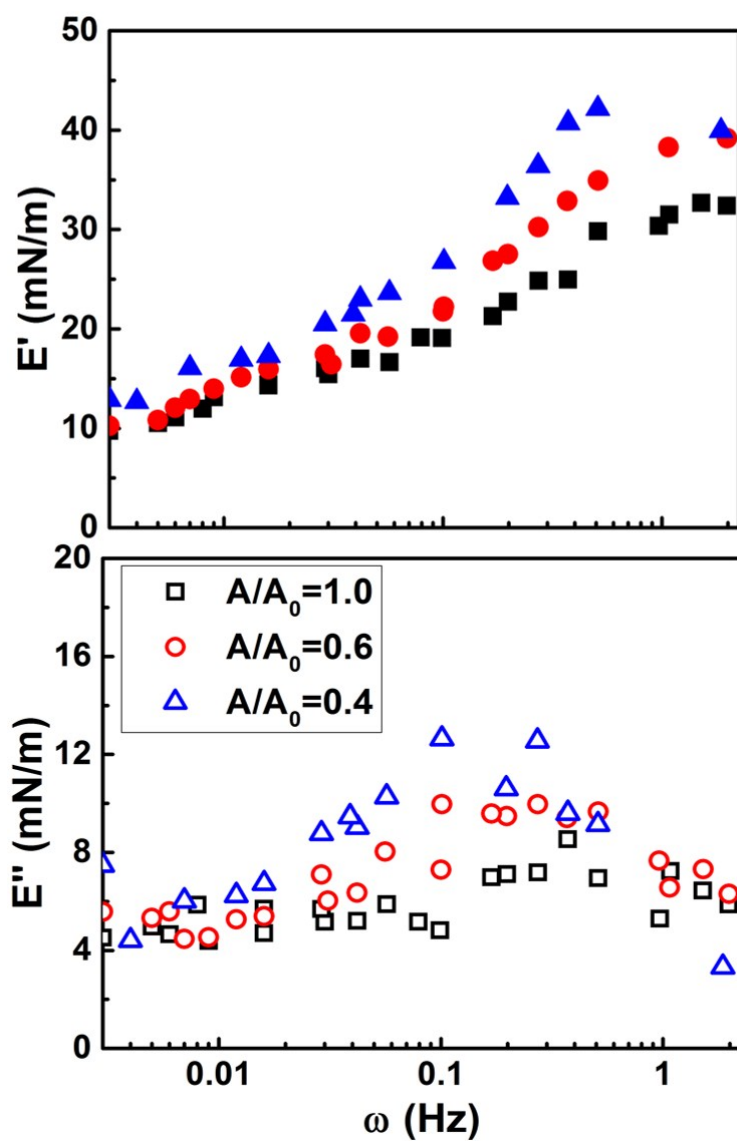
Figure S6. $E'(\omega)$ and $E''(\omega)$ at different compressed areal density for a $C_{PS\text{-}NH2}$ below saturation ($C_{PS\text{-}NH2}$=0.05 mg/ml, PS-NH$_2$ Mn~2,800 g/mol, pH=3.0).