Supporting information

Semitransparent superoleophobic coatings with low sliding angles for hot liquids based on silica nanotubes

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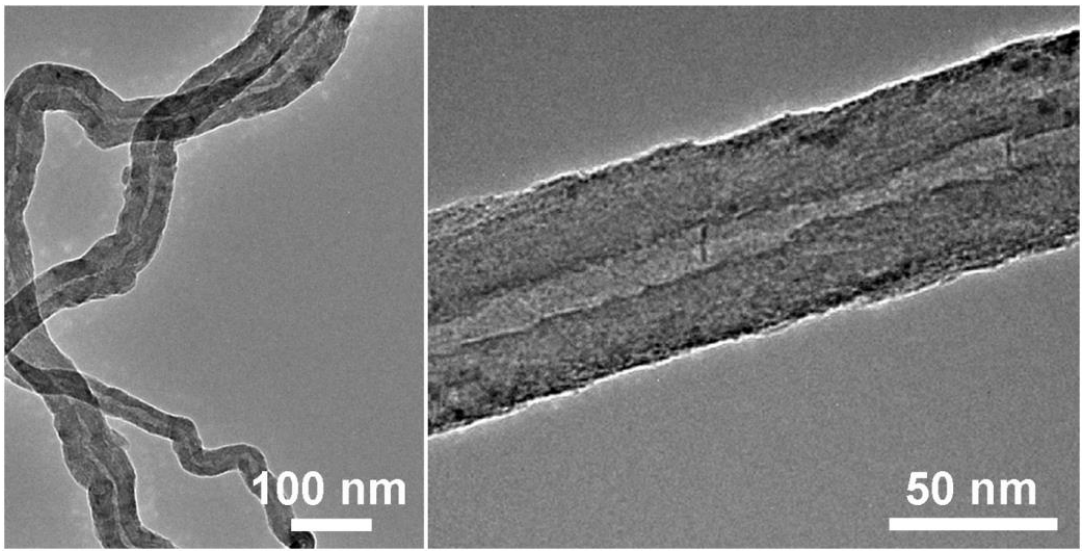

Fig. S1. TEM images of acid activated MWCNTs.

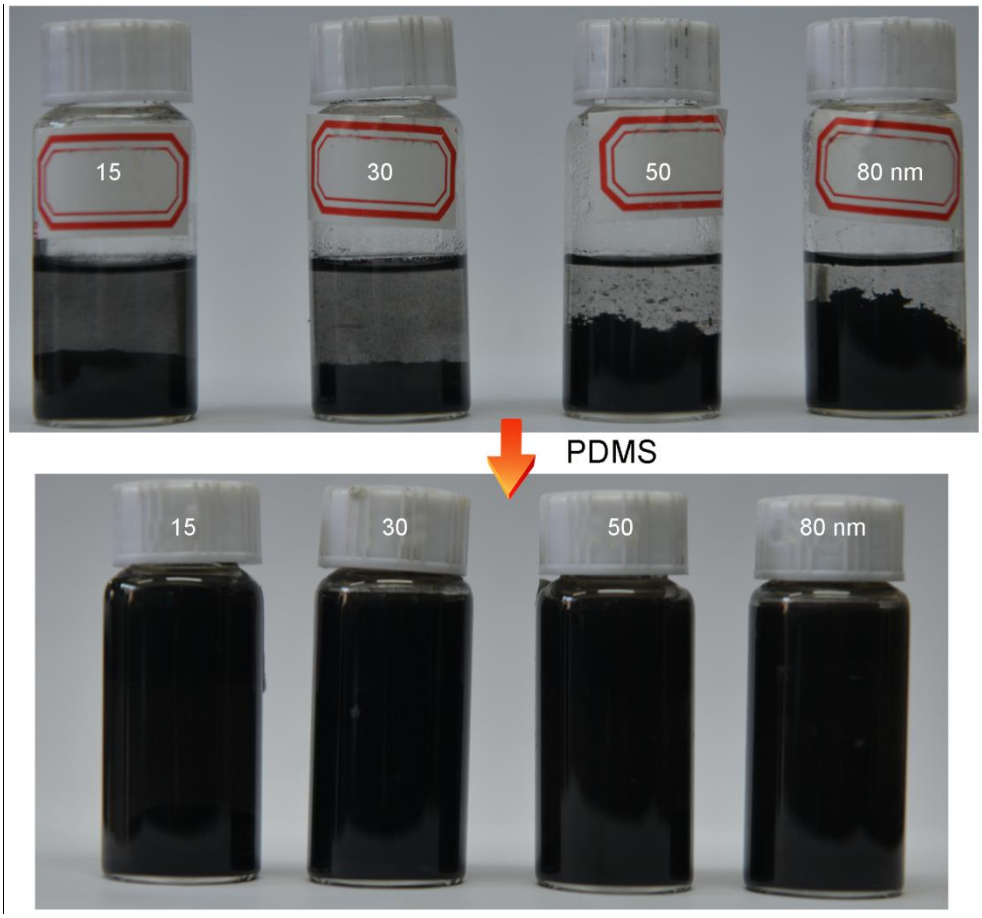

Fig. S2. Images of M-MWCNTs and M-MWCNTs@PDMS in *n*-hexane. $C_{\text{M-MWCNTs}}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL in the suspension of M-MWCNTs@PDMS.

Table S1. Surface chemical composition of M-MWCNTs@PDMS, SNTs and SNTs@PFDTCS coatings. D_{MWCNTs} = 50 nm, $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL.

Atomic (%)	Coatings		
	M-MWCNTs@PDMS	SNTs	SNTs@PFDTCS
C	56.37	16.88	26.89
O	24.37	54.75	13.57
Si	19.26	28.37	9.67
F	0	0	49.88

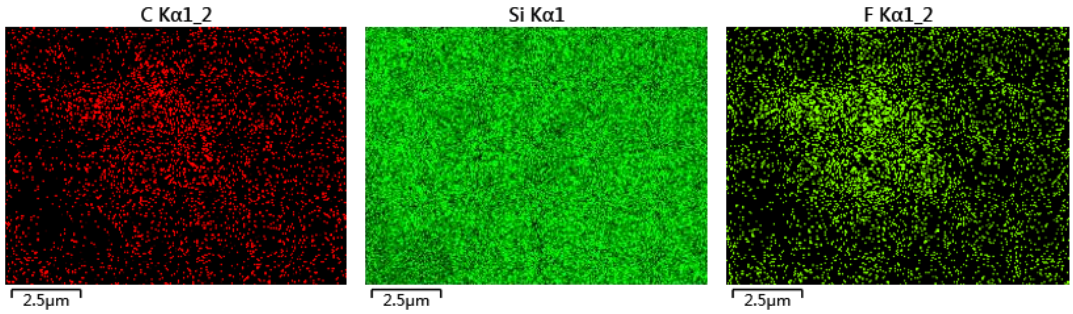

Fig. S3. (a) EDS elemental maps of C, Si and F in the SNTs@PFDTCS coating. D_{MWCNTs} = 50 nm, $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL.

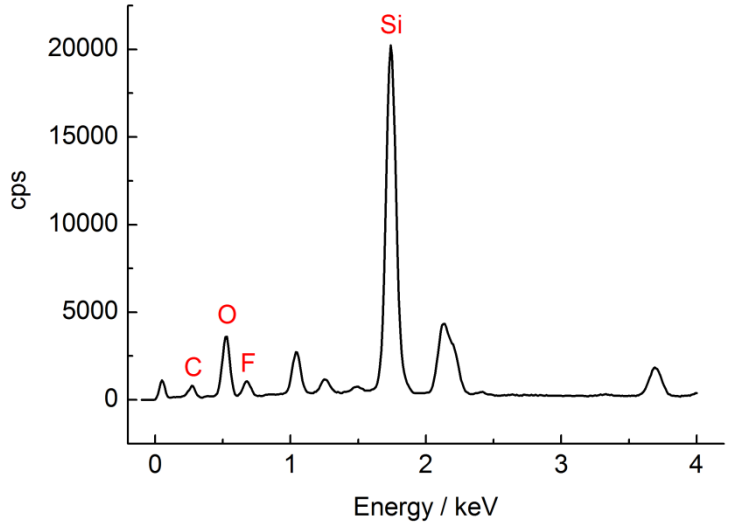

Fig. S4. EDS spectrum of the SNTs@PFDTCS coating. D_{MWCNTs} = 50 nm, $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL.

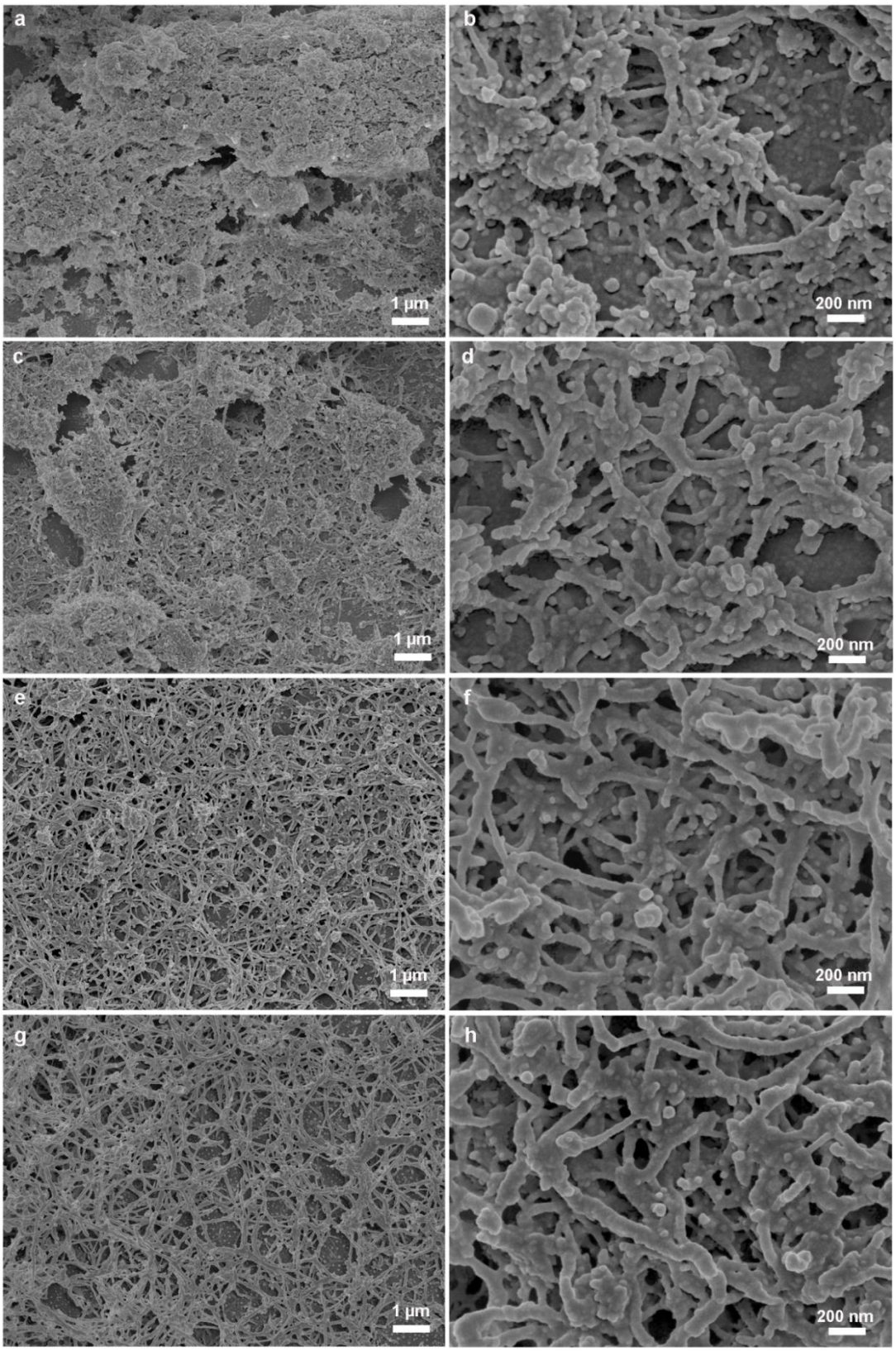

Fig. S5. SEM images of the SNTs@PFDTCS coatings prepared with a D_{MWCNTs} of (a, b) 15 nm, (c, d) 30 nm, (e, f) 50 nm and (g, h) 80 nm. $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL.

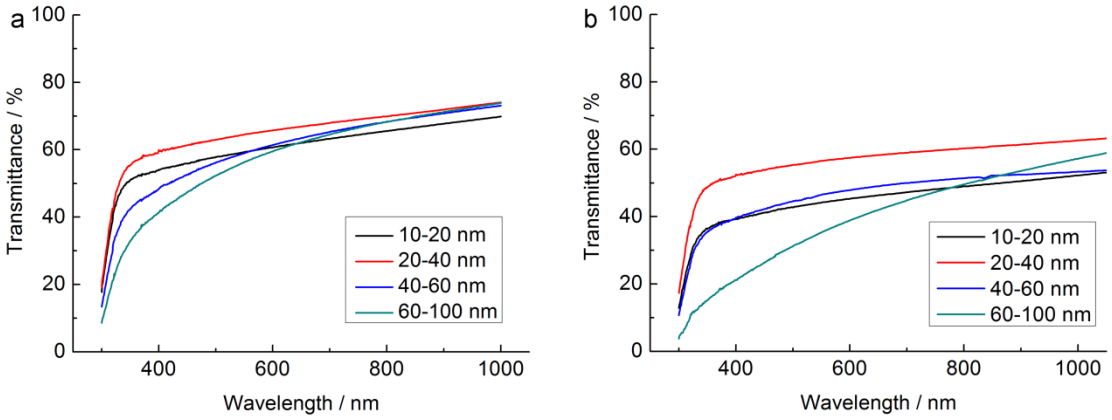

Fig. S6. Variation of transmittance of the (a) SNTs-coated glass slides and (b) SNTs@PFDTCS-coated glass slides with D_{MWCNTs}. $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL.

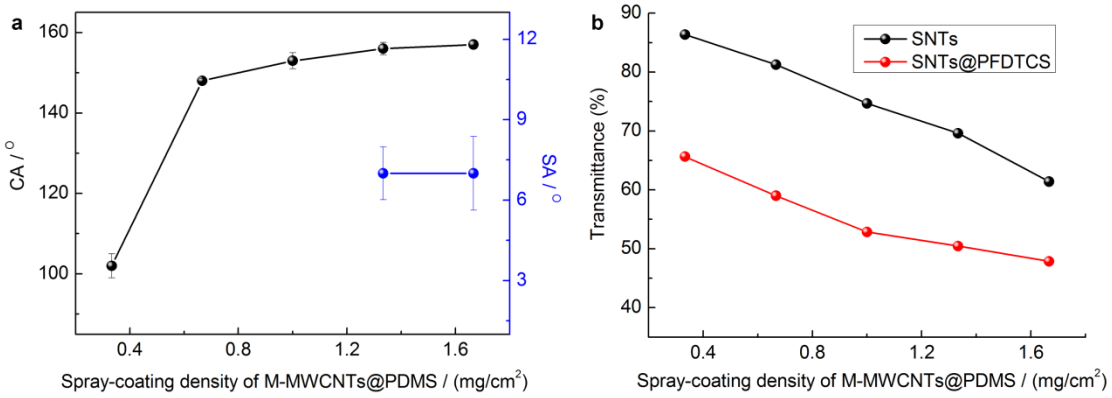

Fig. S7. (a) Variation of $CA_{n\text{-decane}}$ and $SA_{n\text{-decane}}$ of the SNTs@PFDTCS coatings with spray-coating density of M-MWCNTs@PDMS on glass slides and (b) variation of transmittance of the SNTs- and SNTs@PFDTCS-coated glass slides at 600 nm with spray-coating density of M-MWCNTs@PDMS on glass slides. D_{MWCNTs} = 50 nm, $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL.

Movie S1. Slide of various liquid droplets off the tilted SNTs@PFDTCS coating. D_{MWCNTs} = 50 nm, $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL. This video highlights the excellent superoleophobicity of the coating.

Movie S2. Removal of sand microparticles on the SNTs@PFDTCS coating using *n*-hexadecane. D_{MWCNTs} = 50 nm, $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL. This video highlights the self-cleaning property of the coating using organic liquid.

Movie S3. Slide of hot water and *n*-hexadecane droplets off the tilted SNTs@PFDTCS coating. D_{MWCNTs} = 50 nm, $C_{M\text{-}MWCNTs}$ = 1.0 mg/mL and C_{PDMS} = 1.0 mg/mL. This video highlights the excellent superoleophobicity of the coating for hot liquids.