

## Support Information

### **Fabrication of Flexible Transparent Superomniphobic Polydimethylsiloxane Surface with Micropillar Array**

Shengyang Pan, Min Chen and Limin Wu\*

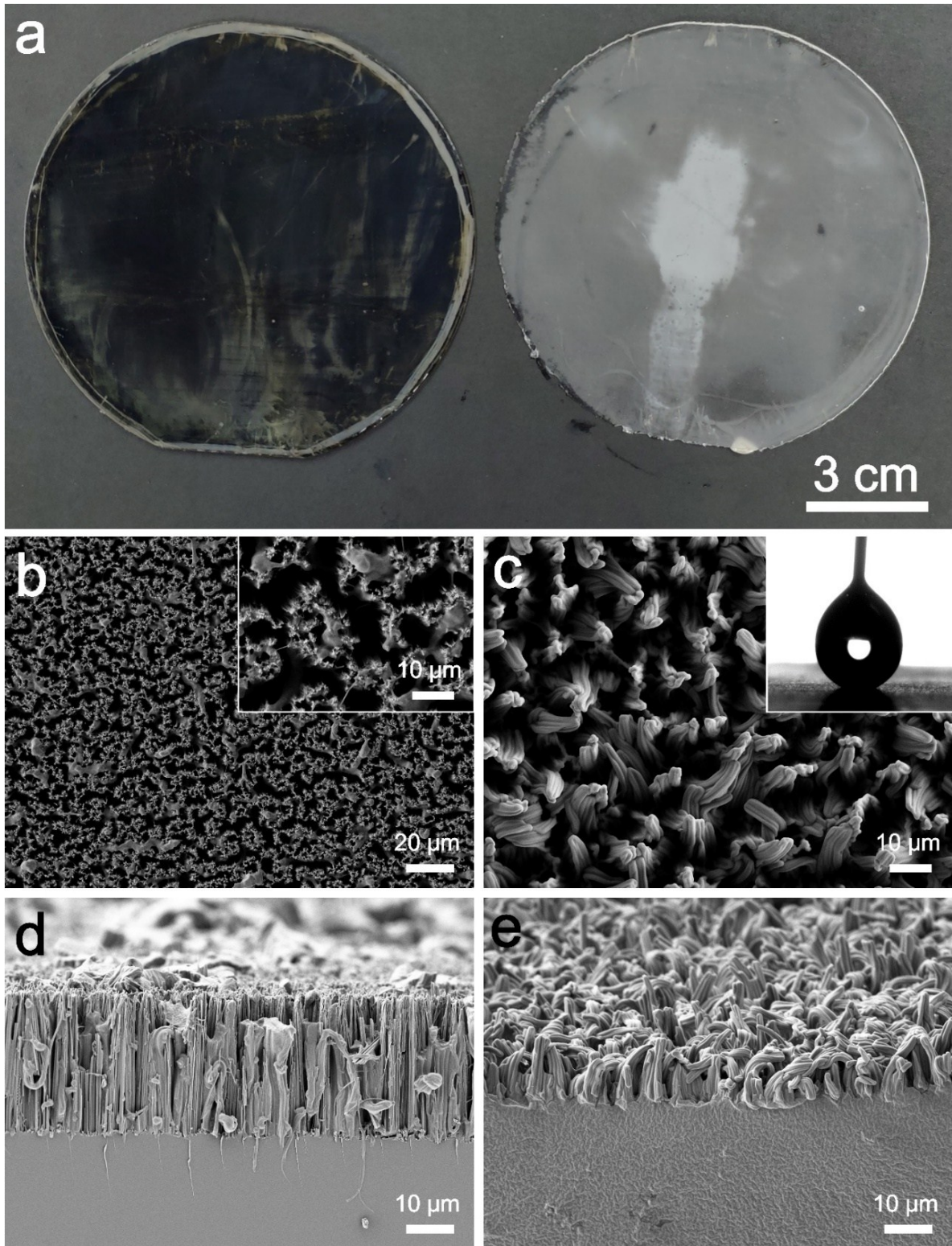
Department of Materials Science and Advanced Coatings Research Center of Ministry of  
Education, Fudan University, Shanghai 200433, China

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\* Corresponding author.  
E-mail address: [lmw@fudan.edu.cn](mailto:lmw@fudan.edu.cn) (L. Wu)

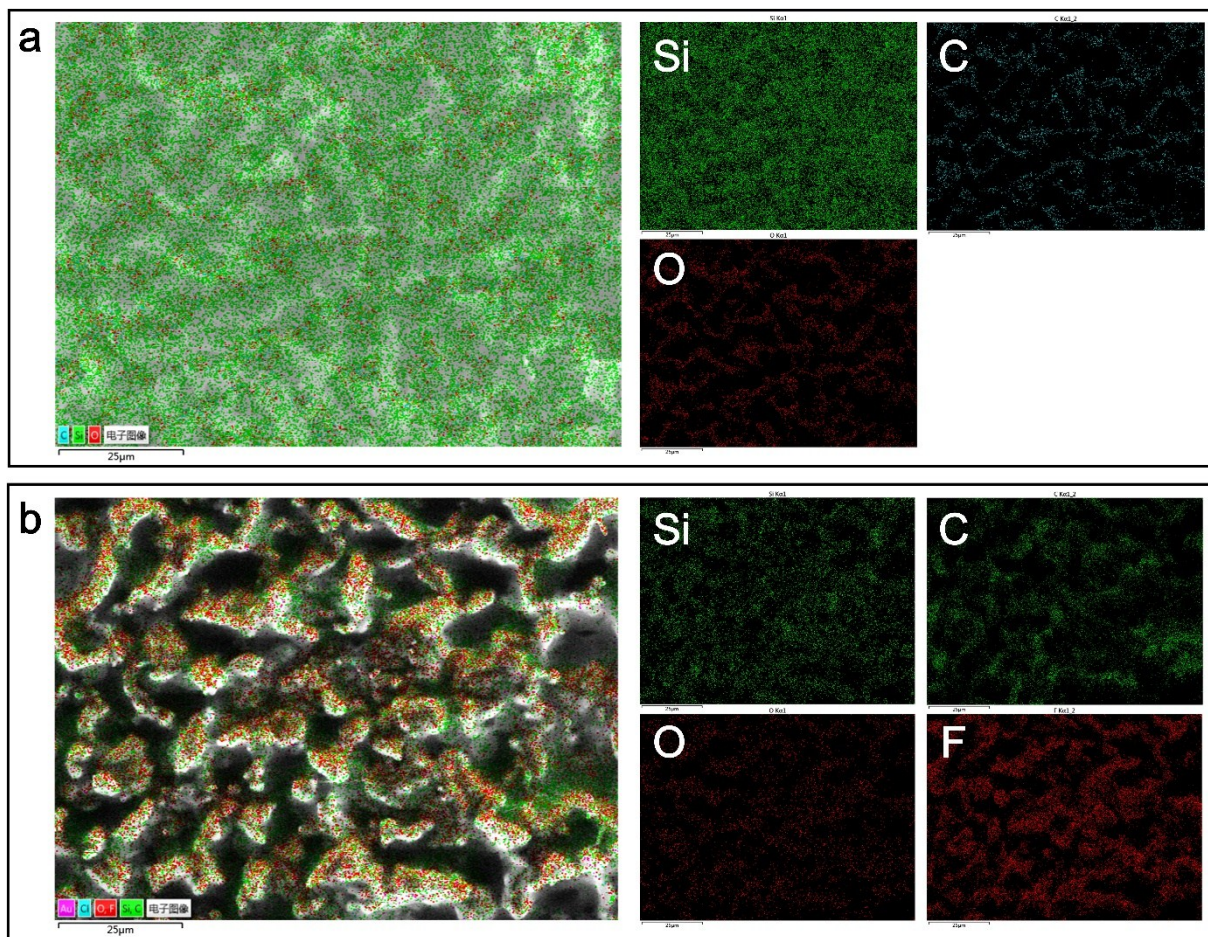
**Table S1** CAs and CAH of various liquids on PDMS-based surface with different pillar heights

CA (CAH) of PDMS replicas with different pillar heights (H) / °	Water	(CH <sub>2</sub> OH) <sub>2</sub>	Glycerol	Castor oil	Peanut oil	Rapeseed oil	Olive oil
H <sub>1</sub> ~ 2 μm: (f) in Fig. S3	138.3 (50)	126.4	131.1	122.7	121.5	118.0	110.1
H <sub>2</sub> ~ 5 μm: (g) in Fig. S3	141.5 (30)	135.3	136.8	127.2	129.3	127.4	129.7
H <sub>3</sub> ~ 10 μm: (h) in Fig. S3	153.8 (16.2)	140.2	148.6	134.8	138.0	139.7	133.9
H <sub>4</sub> ~ 20 μm: (i) in Fig. S3 (replica from 5min-plating SiNW)	162.6 (2.6)	158.1 (4.4)	164.7 (3.9)	164.5 (2.1)	162.7 (2.1)	155.0 (6.8)	158.0 (3.1)
No obvious pillar: (j) in Fig. S3	125.9 (>50)	121.6	126.3	113.5	115.2	104.5	101.9

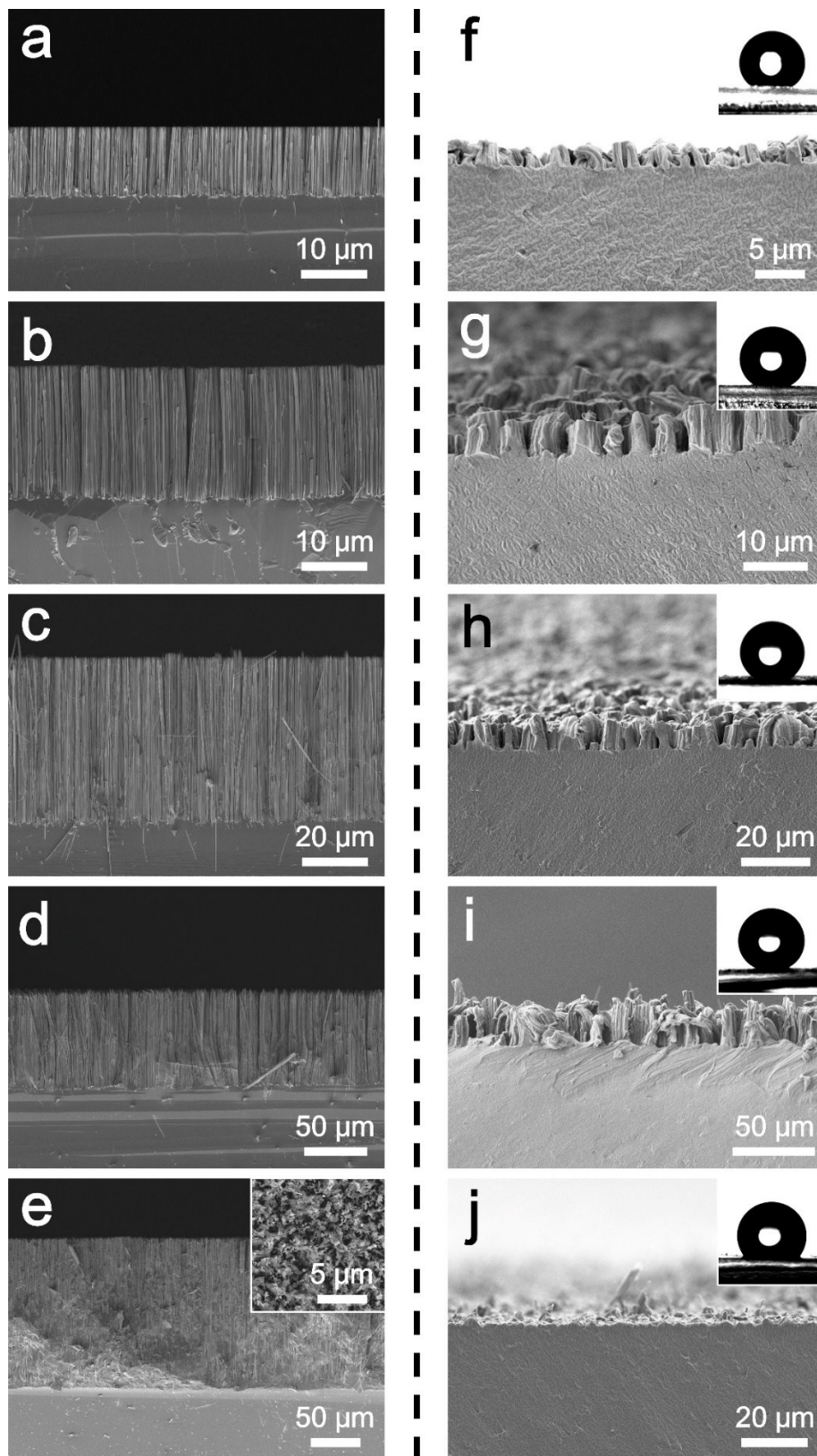


**Fig. S1** (a) Images of reusable SiNW template (left) used for 3<sup>rd</sup> time and the demoulded PDMS surface (right). (b) and (d) FESEM top-view and cross-sectional images of SiNWs after twice moulding process of PDMS. Insets of (b): magnified image of pores and spacings between SiNWs. (c) and (e) FESEM top-view and cross-sectional images of demoulded PDMS micropillar using reusable SiNW template. Insets of (c): olive oil droplet (4  $\mu$ L) sitting on the surface of PDMS micropillar with an OCA of 155.2  $^{\circ}$



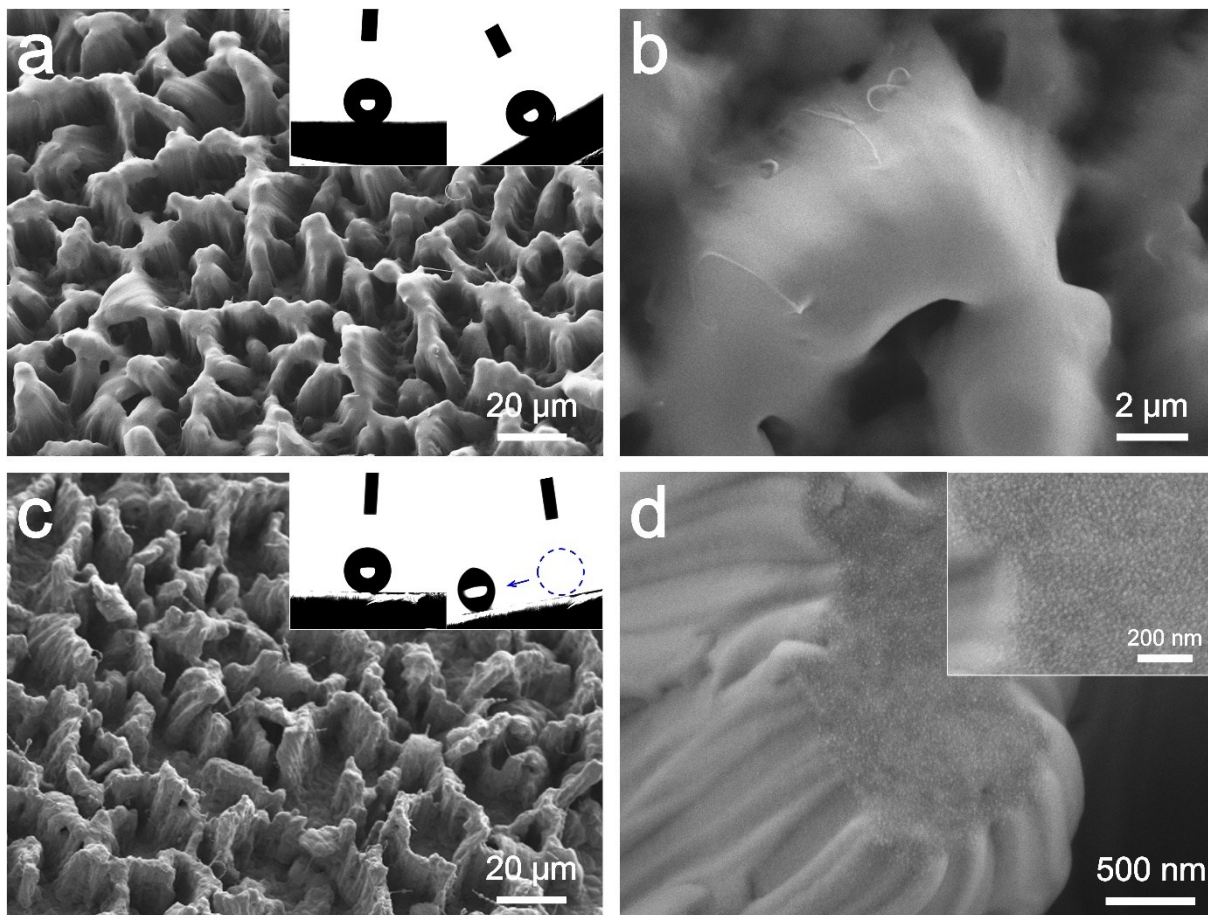


**Fig. S2** EDS mapping of PDMS replica surface before (a) and after (b) surface modification of PFOTS

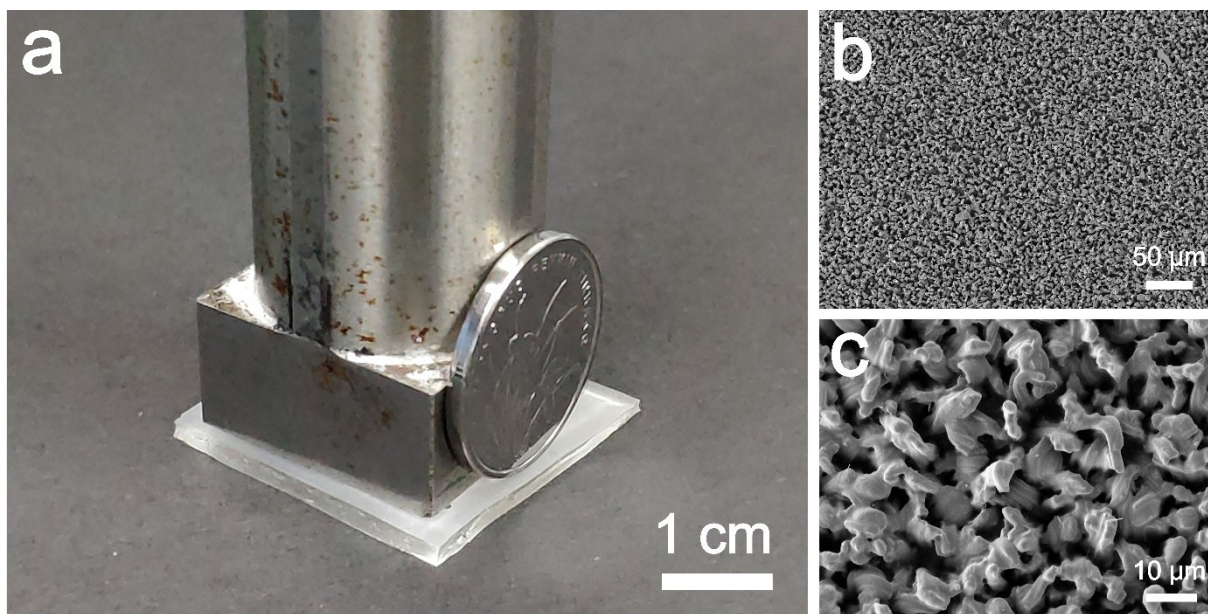


**Fig. S3** (a)-(e) Cross-sectional FESEM images of SiNWs etched with different time: 30 min, 1 h, 3 h, 6 h, 9h, respectively. Insets of (e): surface morphology of Si wafer etched for 9 h. (f)-(j) Cross-sectional FESEM images of PDMS micropillar with different pillar heights after the replication from (a)-(e) respectively. Insets of (f)-(j): water droplet (4  $\mu$ L) sitting on the PDMS surfaces





**Fig. S4** (a) and (b) FESEM bird view images of PDMS replica without nanopattern, removed from SiNW template without nanosilica decoration. Insets of (a): water droplet anchored by the surface when tilted to 30 °. (c) and (d) FESEM bird view images of PDMS replica with nanopattern, removed from nanosilica-decorated SiNW template. Insets of (c): water droplet (3  $\mu$ L) slide when surface tilt angle approaching 12 °. Inset of (d): Magnified nanopattern of PDMS replica



**Fig. S5** (a) Image of a 300 g weight rested on the micropillar array surface. A Chinese coin 1 Jiao was also attached to the weight, for a more localized and greater stress to the surface. (b) and (c) FESEM images of the micropillar morphologies of PDMS surface after compressive test

### Supplementary Videos

**Movie S1** Dynamic video of contact angle hysteresis measurement of various liquids on PDMS-based surface

**Movie S2** Dynamic video of liquid droplet probe test on PDMS-based surface

**Movie S3** Various liquid droplets rolling down the slope surface of PDMS-based film

**Movie S4** Slow motion video of water droplet bounce on PDMS-based surface captured by high-speed camera

**Movie S5** Compressive test of 300 g weight rested to the PDMS-based surface