Electronic Supplementary Information

Directional Anchoring Patterned Liquid-Infused Superamphiphobic Surfaces for High-Throughput Droplet Manipulation

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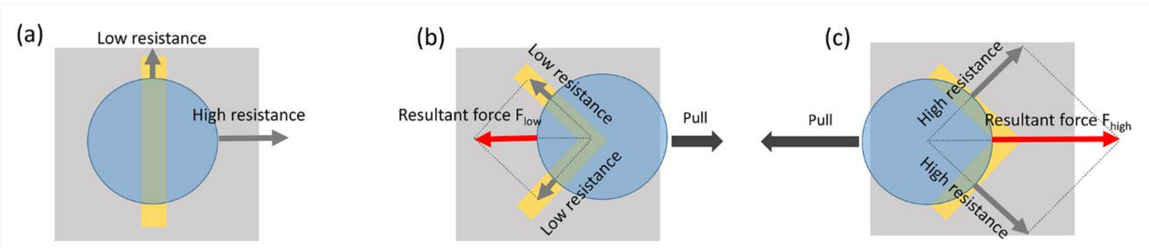

Figure S1. The design blueprint of directional-anchoring liquid-infused superamphiphobic surface.

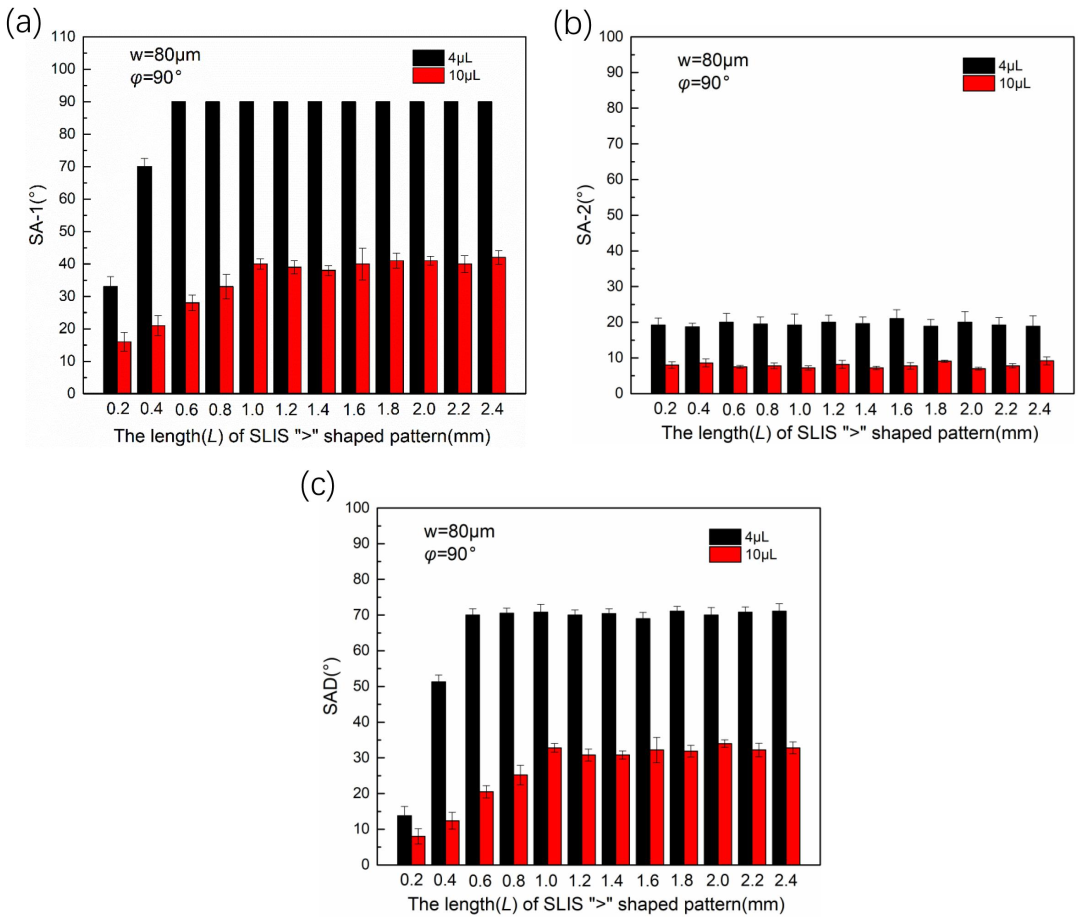

Figure S2. The influence of the length (L) on the sliding angle and sliding angle difference. (a) The sliding angle of 4 μL and 10 μL droplets along the direction 1 (D1) on the surfaces with SLIS “>” shaped patterns. (b) The sliding angle of 4 μL and 10 μL droplets along the direction 2 (D2) on the surfaces with SLIS “>” shaped patterns. (c) The sliding angle difference along two directions.

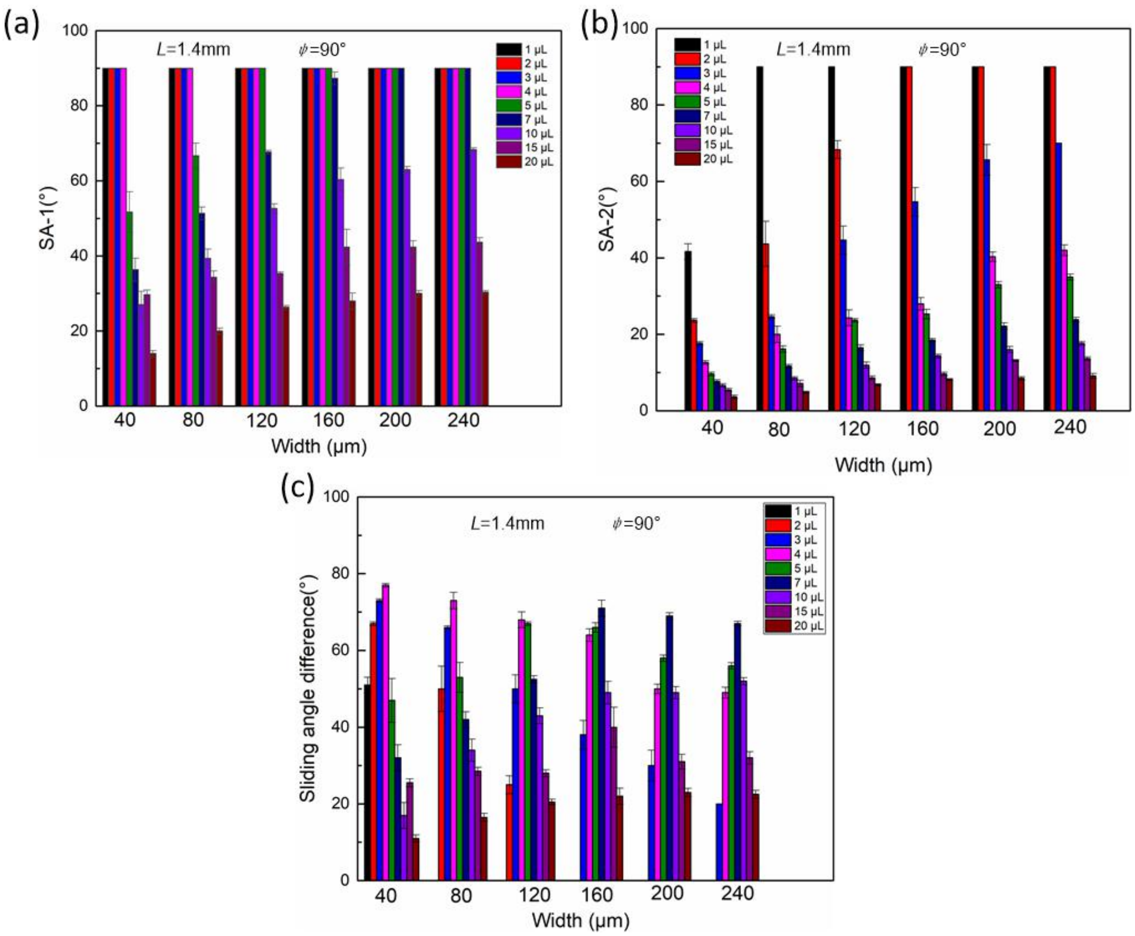

Figure S3. The sliding angles and sliding angle differences of the SDAs with the width from 40 μm to 240 μm as the droplet volumes increase from 1 μL to 20 μL. (a) The sliding angles along direction 1 (D1). (b) The sliding angles along direction 2 (D2). (c) The sliding angle differences.

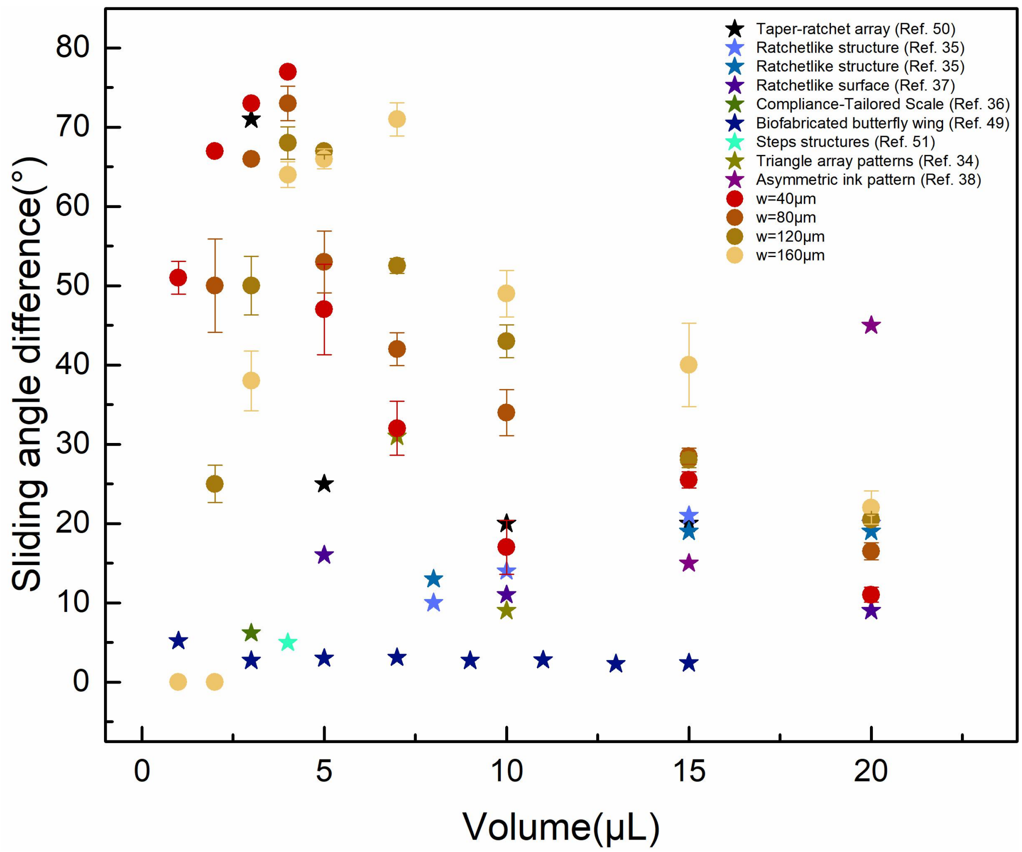

Figure S4. The comparison between the DASs and other related works. The DASs show superior sliding angle difference as the droplet volume increase from 1 μL to 20 μL. Especially, when the volume is 4 μL, the sliding angle difference can achieve as high as ~77°.

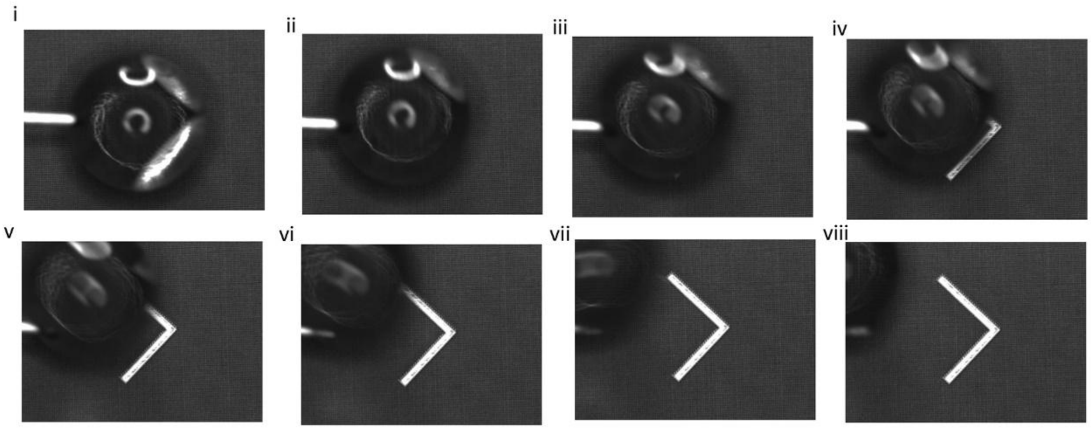

Figure S5. The time-lapsed images of droplet being pulled along D1 on the superamphiphobic surface with hydrophobic “>” shaped patterns.

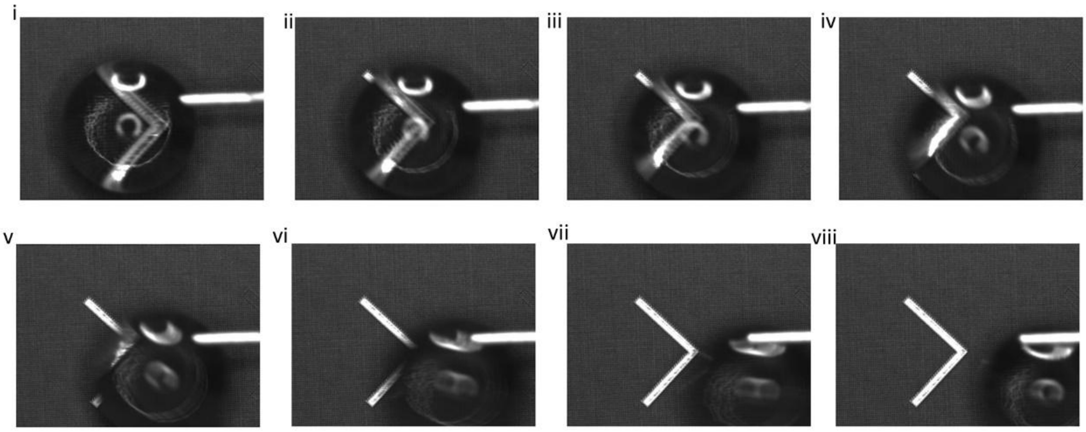

Figure S6. The time-lapsed images of droplet being pulled along D2 on the superamphiphobic surface with hydrophobic “>” shaped patterns.

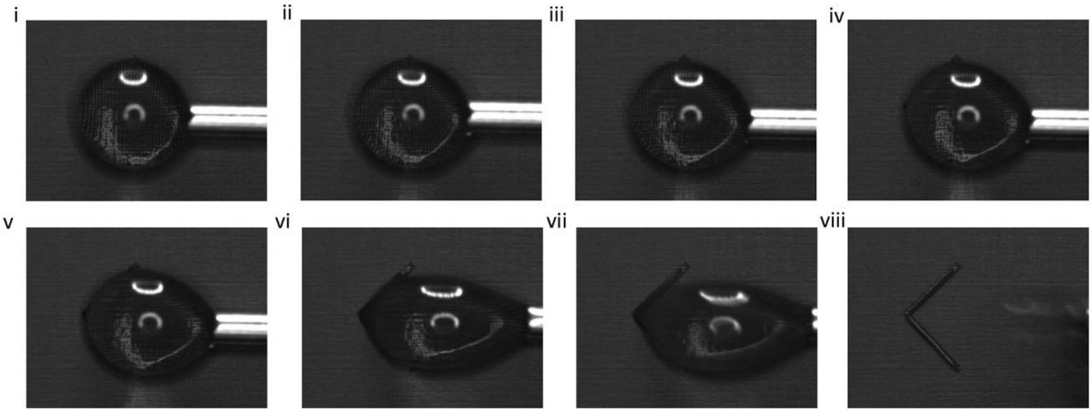

Figure S7. The time-lapsed images of droplet being pulled along D1 on the superamphiphobic surface with SHL “>” shaped patterns.

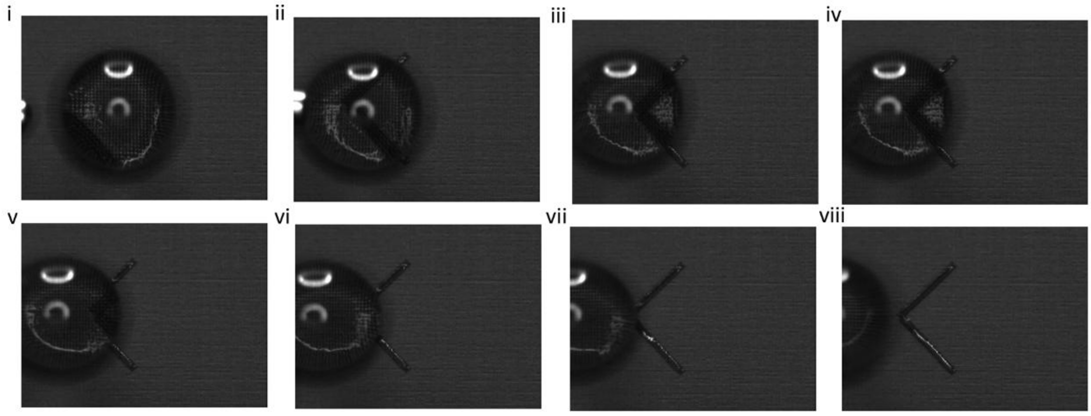

Figure S8. The time-lapsed images of droplet being pulled along D2 on the superamphiphobic surface with SHL ">" shaped patterns.

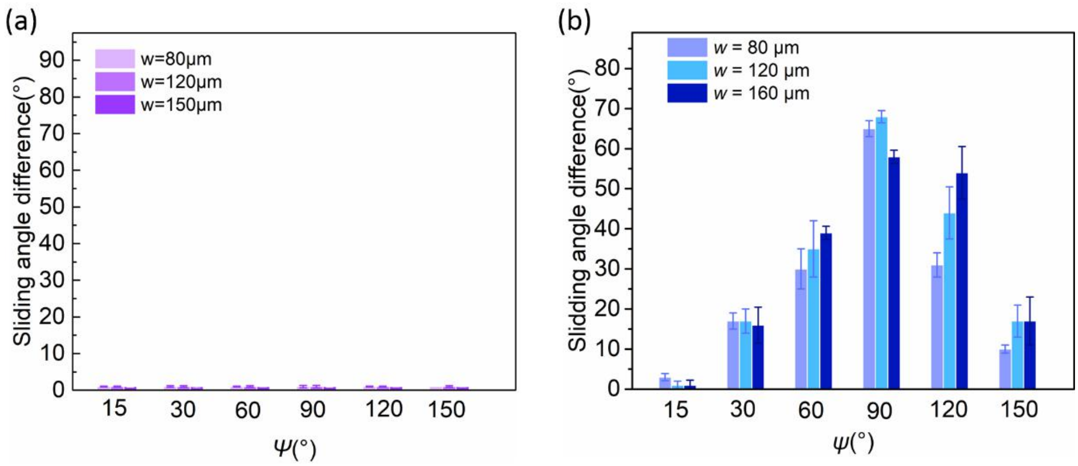

Figure S9. (a) The sliding angle differences (SADs) of the superamphiphobic surfaces with SHL ">" shaped patterns after being stored in atmosphere for 30 days. (b) The SADs of DASs after being stored in atmosphere for 30 days.

Table S1. The contact angles and sliding angles of different liquid on superamphiphobic (SAB) surface.

Liquid	Surface energy(J/m2)	Contact angle(°)	Sliding Angle(°)
Water	72.8	158~160	0.8~1.1
Glycerol	64	152~153	0.9~1.2
Glycol	48.4	152~153	1.8-2.7
Peanut oil	34.5	154~155	3.9-4.6
Hexadecane	27.5	150~151	6.5~7.2
Tetradecane	26.6	151~152	9.5~10.3
Dodecane	25.4	152~154	10.0-11.2