Supporting Information for

Efficient Direction-Independent 3D Spiral Fog Collector

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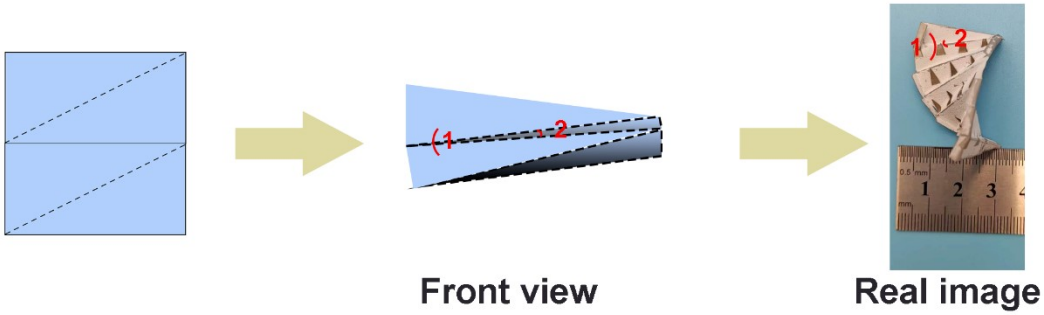


Figure S1 Preparation progress of SASST. Different dihedral angles can lead to DNA-like helical structures with varying twist angles[1].

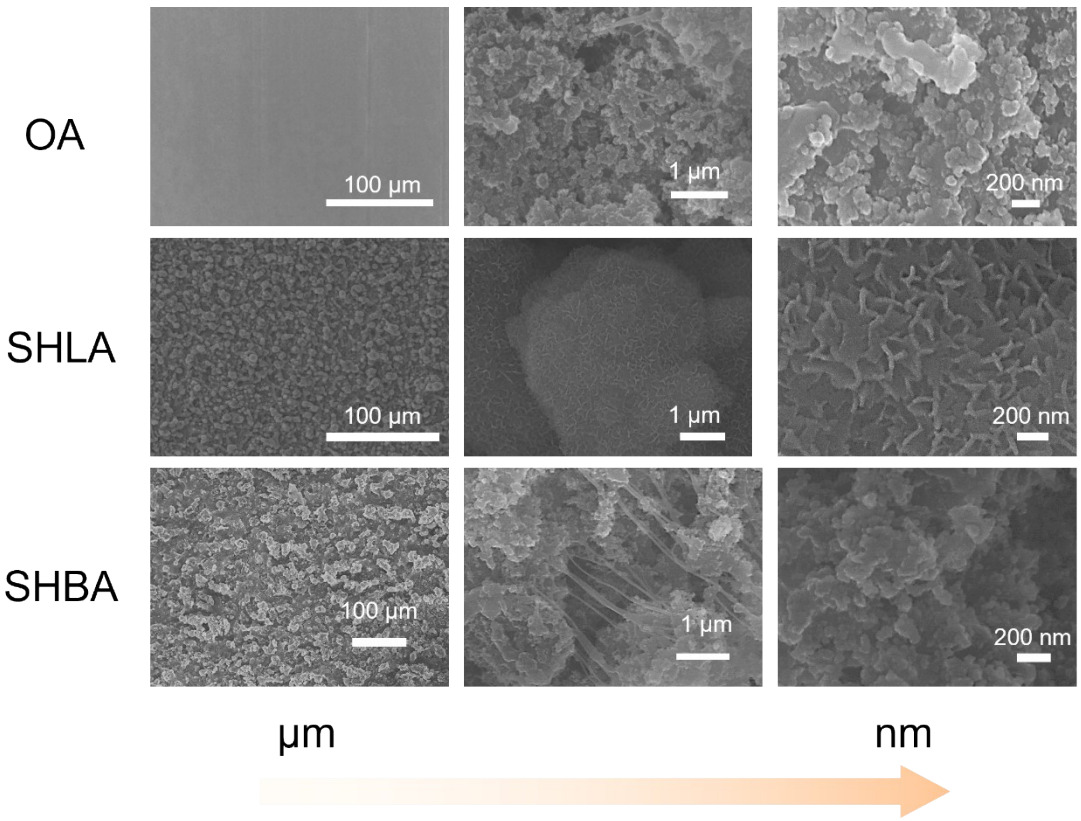


Figure S2 SEM images of three samples from micron to nanometer.

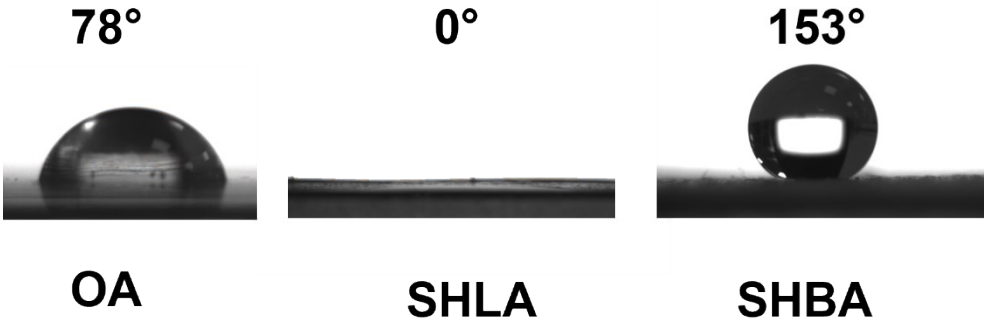


Figure S3 Contact angle of three samples.

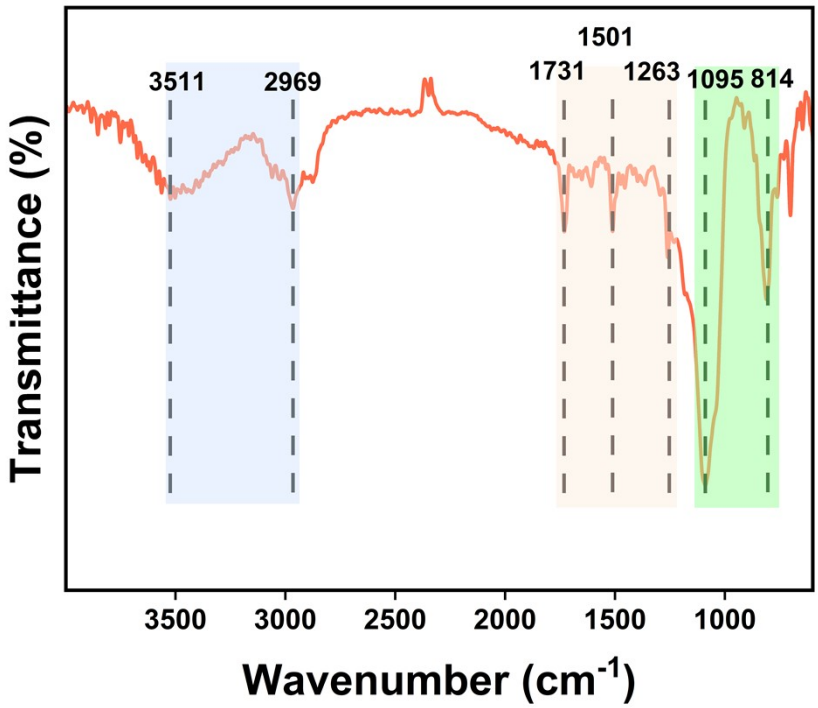


Figure S4 FTIR of SHBA.

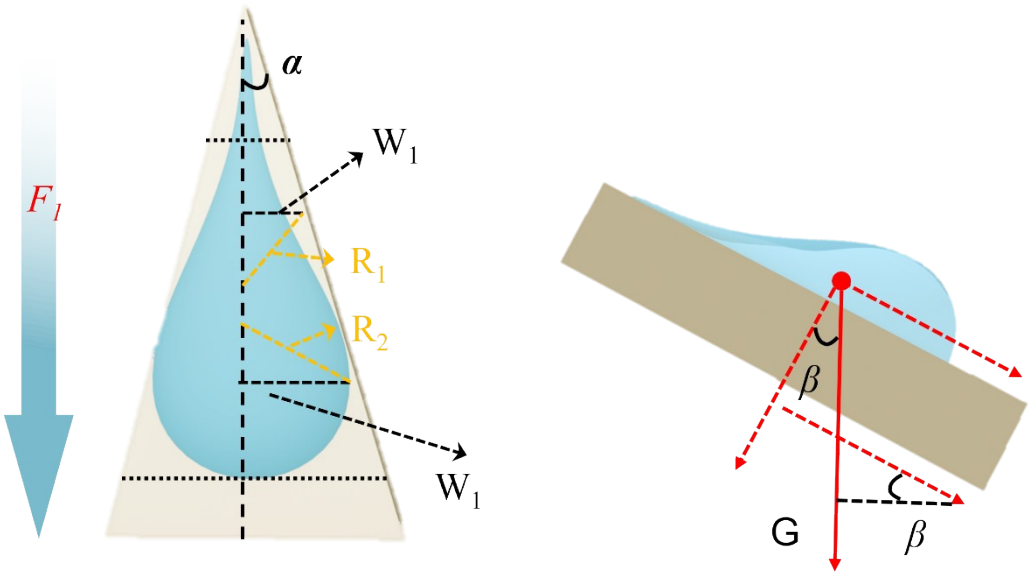
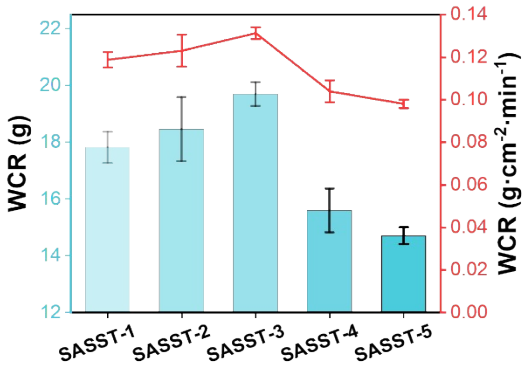


Figure S5 Mechanical analysis diagram of SSAST.

Sample	Size (mm)
SASST-1	1.5*3
SASST-2	2*4
SASST-3	2.5*5
SASST-4	3*6
SASST-5	3.5*7

Sample	Triangles Number
SASST-6	15
SASST-7	18
SASST-8	21
SASST-9	23
SASST-10	27



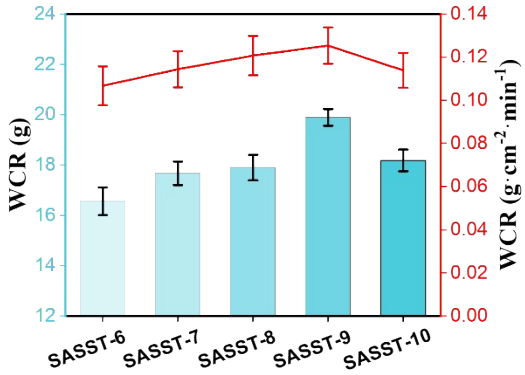


Figure S6 Experimental parameterization of superhydrophilic triangles

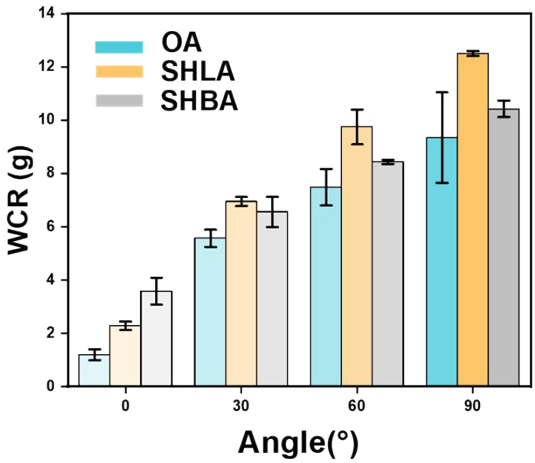


Figure S7. Collection efficiency of OA, SHLA and SHBA at different rotational angles.

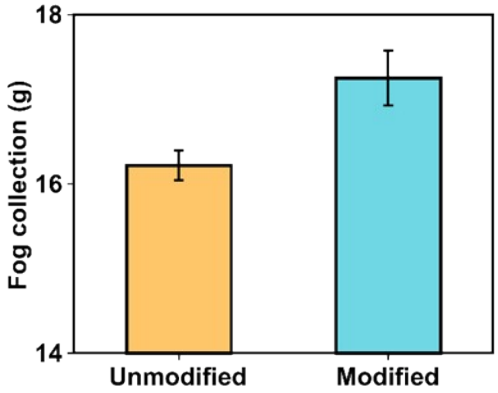


Figure S8 Collection efficiency of fog water before and after modification of SD-60

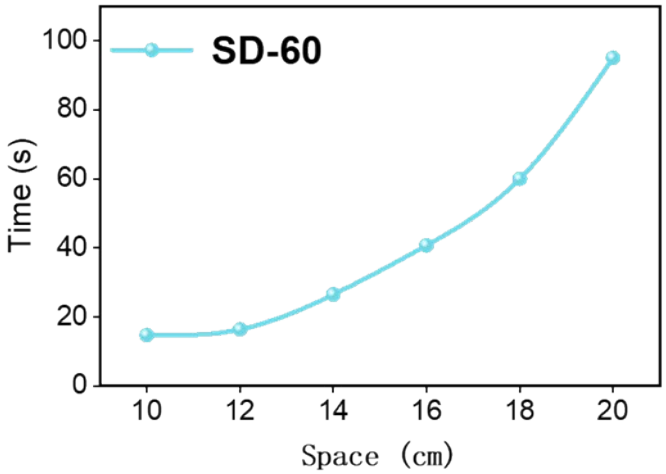


Figure S9. SD-60 Start-up time at different distances.

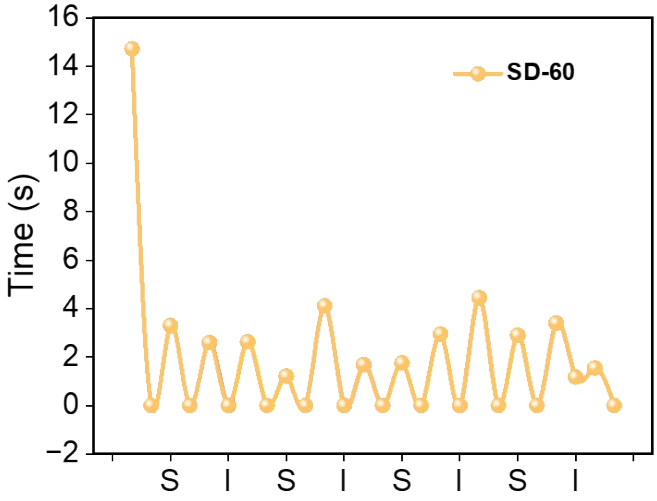


Figure S10 SD-60 Continuous Starting time of water drop at 10cm, where S stand for start time and I stand for interval

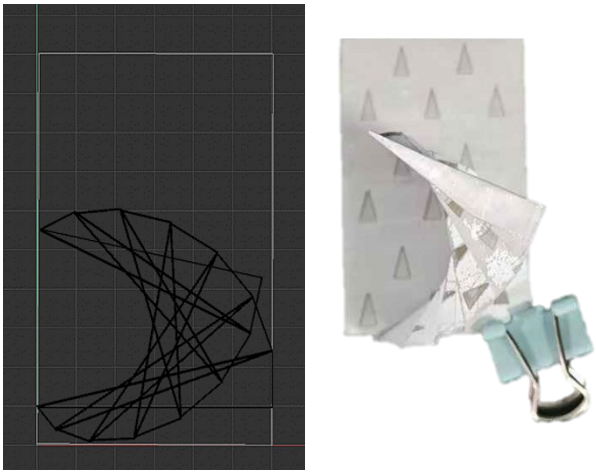


Figure S11 The calculation method of projection area is to compare the original aluminum sheet with the folded aluminum sheet in 3D software.

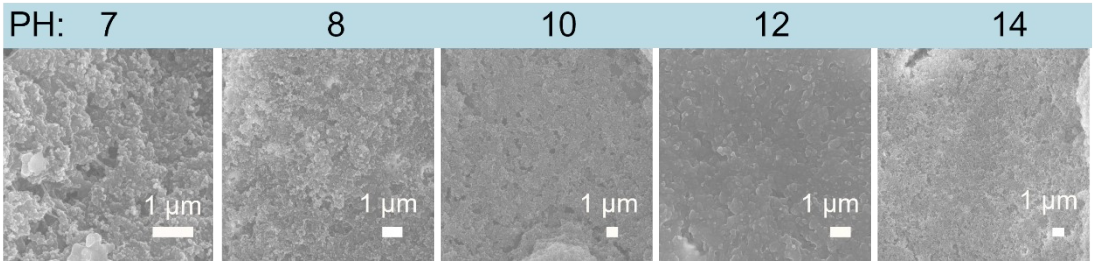


Figure S12. SEM pictures of samples at different pH

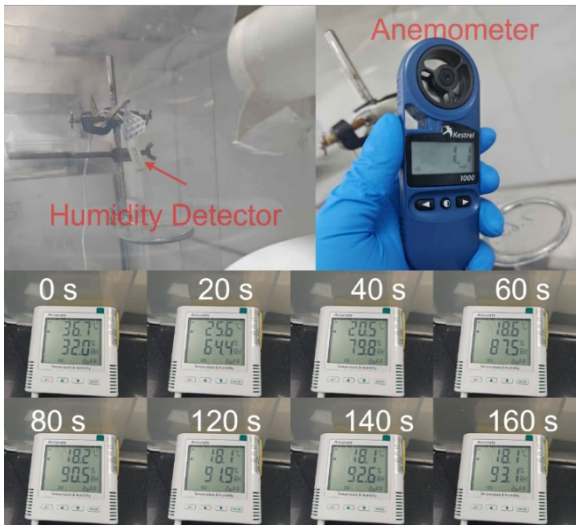


Figure S13 Schematic Diagram of Humidity Detector, Fog Flow Rate, and Humidity, along

Table S1 Comparison of research efforts on harvesting fog

Humidity	Velocity	Distance	Efficiency	Reference
90 ± 2 %	3-5 $m \cdot s^{-1}$	15 cm	0.001 $g \cdot cm^{-2} \cdot min^{-1}$	Ref [2]
45-90 %	1.3-3.3 ±0.3 $m \cdot s^{-1}$	1 cm	0.02 $g \cdot cm^{-2} \cdot min^{-1}$	Ref [3]
90-95%	1..36-2.33 $m \cdot s^{-1}$	10-20 cm	0.5027 $g \cdot cm^{-2} \cdot min^{-1}$	Ref [4]
~90%	1.83-2.24 $m \cdot s^{-1}$	15 cm	0.462 $g \cdot cm^{-2} \cdot min^{-1}$	Ref [5]
~90%	2-3.5 $m \cdot s^{-1}$	10–20 cm	0.29 g·min−1·cm−2	Ref [6]
~90%	2.11-2.54 $m \cdot s^{-1}$	10-20 cm	0.5057 $g \cdot cm^{-2} \cdot min^{-1}$	This work

Movie. S1 Movie of the dynamic behavior of liquid droplets on the surface

Movie. S2 Movie of the dynamic behavior of liquid droplets on the surface of OA

Movie. S3 Movie of the dynamic behavior of liquid droplets on the surface of SHLA

Movie. S4 Movie of the dynamic behavior of liquid droplets on the surface of SHBA

Movie. S5 Movie of the dynamic behavior of liquid droplets on the surface of SASST

Reference

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