

## Electronic Supplementary Information

### **Superhydrophobic and superoleophilic miniature mesh box for oil spill clean up**

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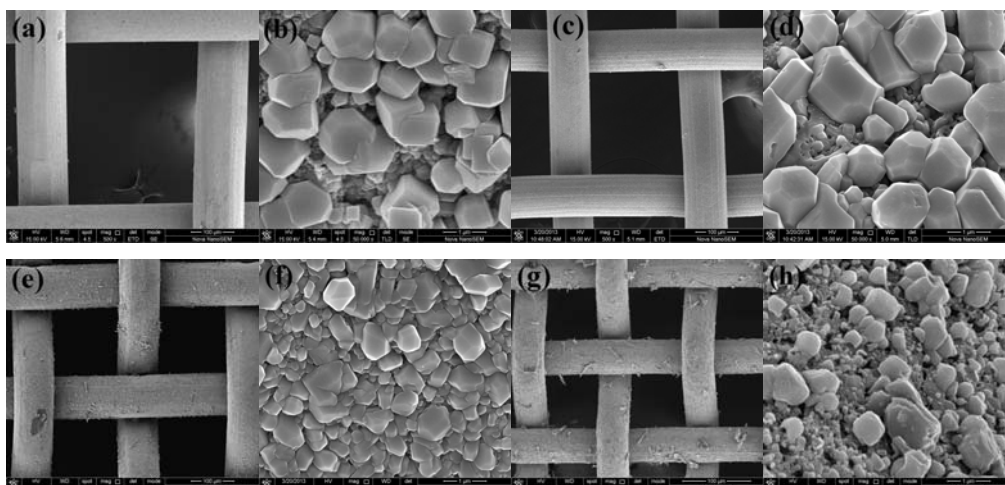


Figure S1. SEM images of the  $\text{Cu}_2\text{O}$  film coated Cu meshes with different mesh number. (a) and (b) mesh number is 60#; (c) and (d) mesh number is 80; (e) and (f) mesh number is 120; (g) and (h) mesh number is 200. (a), (c), (e) and (g) the magnification is 500. (b), (d), (f) and (h) the magnification is 50,000.

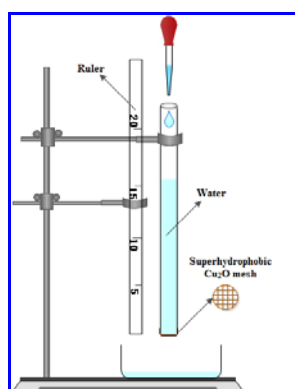


Figure S2. Water pressure resistance measurement of the  $\text{Cu}_2\text{O}$  film coated Cu meshes as a function of mesh number.

Table 1. Dimensions of the  $\text{Cu}_2\text{O}$  film coated Cu meshes with different mesh number and their water pressure resistance.

Mesh number (#)	Average pore size ( $\mu\text{m}$ )	Average wire diameter ( $\mu\text{m}$ )	Water pressure resistance (mm)
60	$300 \pm 4.2$	$120 \pm 3.2$	$19 \pm 4$
80	$213 \pm 3.8$	$93 \pm 3.1$	$45 \pm 6$
120	$135 \pm 3.2$	$90 \pm 3.1$	$105 \pm 11$
200	$77 \pm 2.4$	$51 \pm 2.7$	$174 \pm 18$

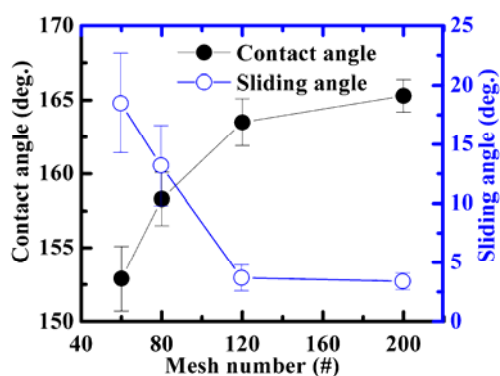


Figure S3. WCA and WSA measurement of the  $\text{Cu}_2\text{O}$  film coated Cu meshes as a function of mesh number.

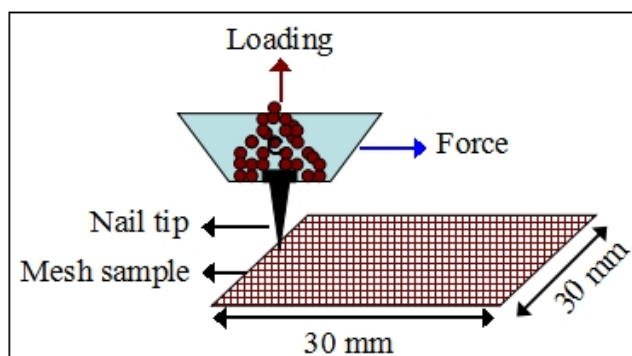


Figure S4. Schematic illustration of the methodology of the scratch test.

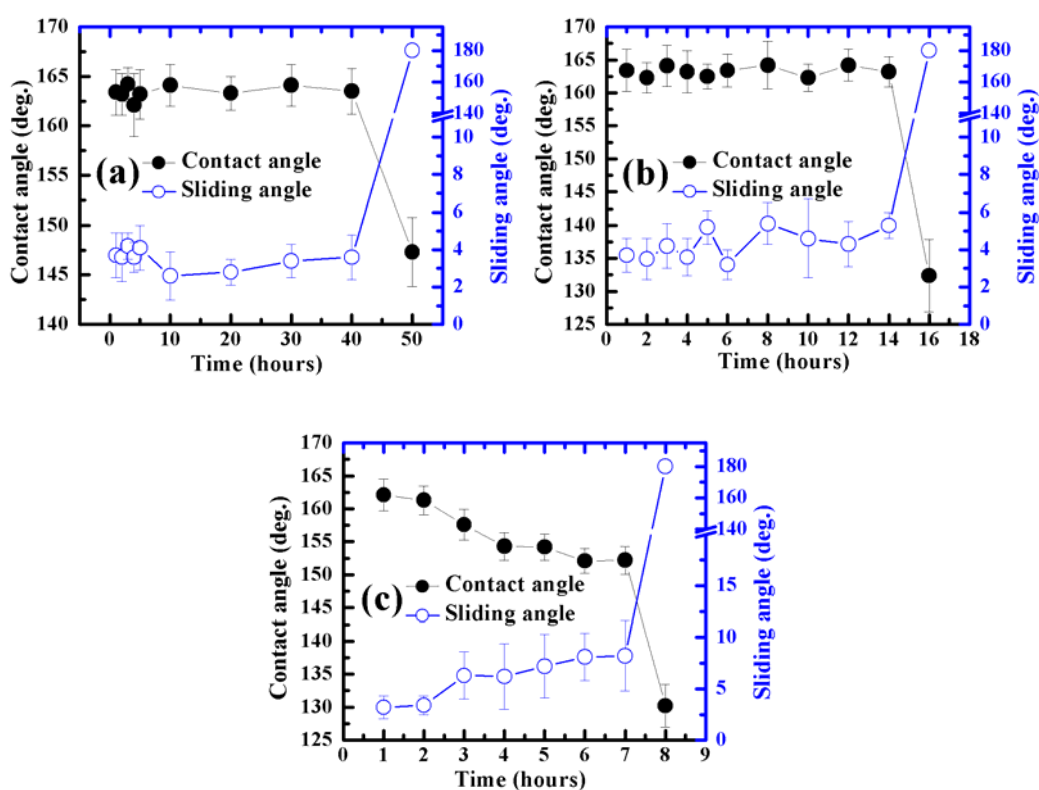


Figure S5. WCA and WSA measurements of the superhydrophobic mesh surface after immersing in salt, acid and alkali solutions for different time. (a) 3.5 wt% aqueous solution of NaCl aqueous solution; (b) 0.1 M of NaOH aqueous solution; (c) 0.1 M of HCl aqueous solution.