Electronic Supplementary Information for

Droplet Manipulation with Polarity-dependent Low-voltage Electrowetting on Open Slippery Liquid Infused Porous Surface

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The supplementary information including:

1. SEM surface topography images for four prepared membranes.

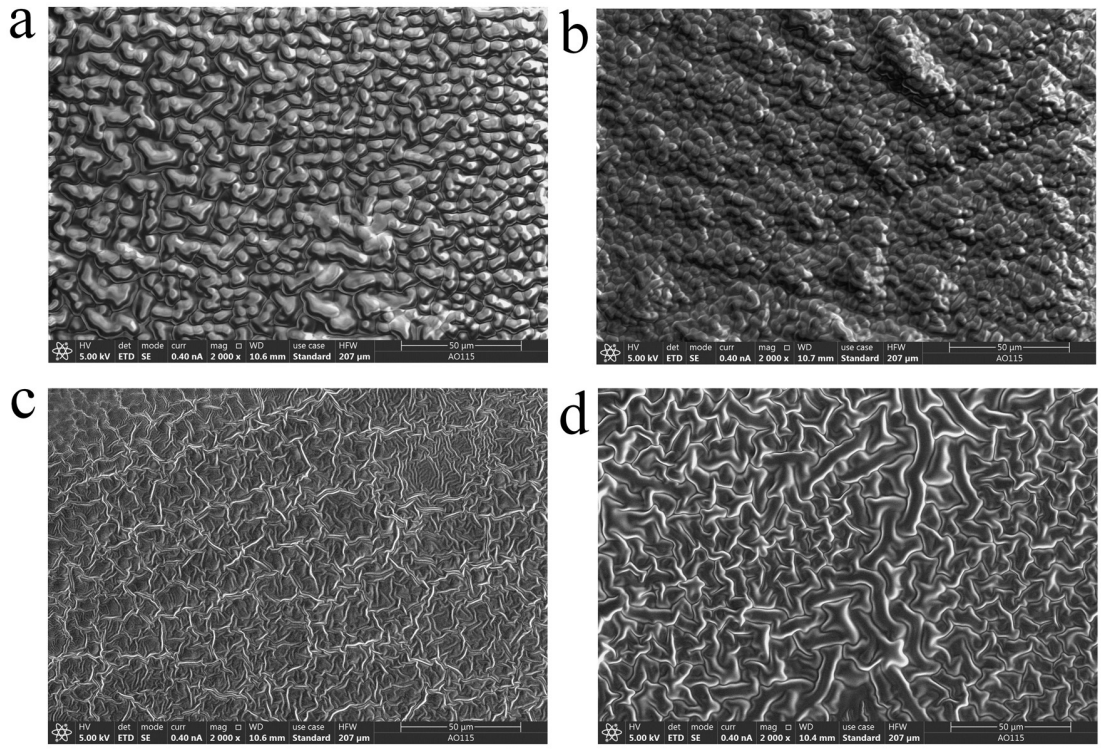

Figure S1. SEM surface topography images for 4 prepared membranes, scale bar is 50 μm for all. The average pore size of PTFE nanofibrous networks is 100 nm. All of the PTFE were modified with 0.03 wt% PFOTS ethanol solution for 1 hour firstly. (a) 10 cSt silicone oil lubricated modified PTFE membrane, and placed vertically 2 hours. (b) 10 cSt silicone oil lubricated modified PTFE membrane, and placed vertically 24 hours. (c) 50 cSt silicone oil lubricated modified PTFE membrane, and placed vertically 24 hours. (d) 350 cSt silicone oil lubricated modified PTFE membrane, and placed vertically 24 hours. The sample for placing vertically 2 hours creates more smooth troughs structures compared with placing vertically 24 hours sample. The low silicone oil viscosity sample creates deeper and more troughs structures compared with the high viscosity silicone oil samples.

2. Video Ⅰ This video corresponds to the Fig. 6. The movements of droplet from positive electrode to negative electrode were recorded in this video under 8V, 15 V, 55 V and 95 V applied voltage, respectively. The activation voltage for driving a 10 μl deionized water droplet movement is only 8 V.

3. Video Ⅱ This video corresponds to the Fig. 8. A 6 μl droplet continuous anticlockwise movements on modified SLIPS were recorded in this video under 50 V, 100 V, 200 V, 300 V, 400 V, 500 V applied voltages, respectively. The sample 1 was placed vertically for 2 hours; the sample 2 was placed vertically for 12 hours.

4. Video Ⅲ This video corresponds to the Fig. 10. Multi-droplet manipulations in anticlockwise direction and clockwise direction were recorded in this video, including two-droplet and four-droplet manipulations.