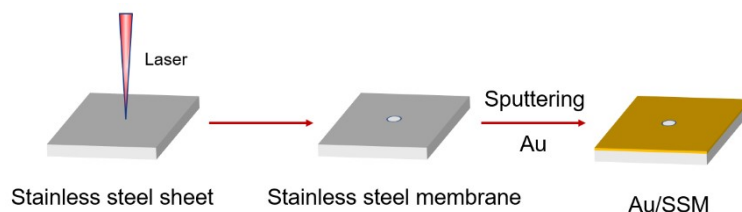


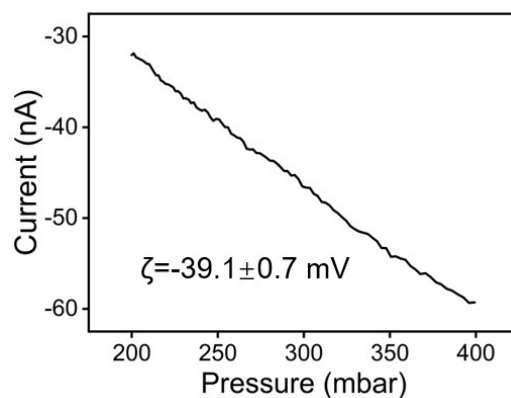
## Supplementary Information

### Electrostatically responsive liquid gating system for controlled microbubble generation

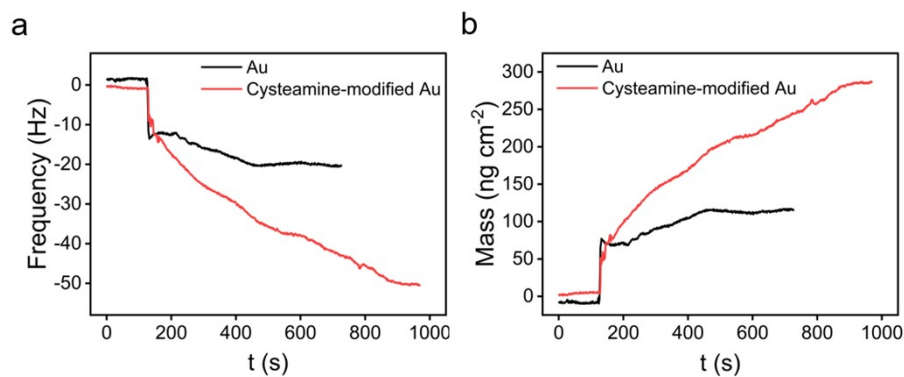
Guochao Zeng,<sup>‡a</sup> Yunmao Zhang,<sup>‡b</sup> Zhongyi Fang,<sup>a</sup> Lejian Yu,<sup>a</sup> Yawen Zhang,<sup>a</sup> Shaojie Wang<sup>\*c</sup> and Xu Hou<sup>\*abd</sup>



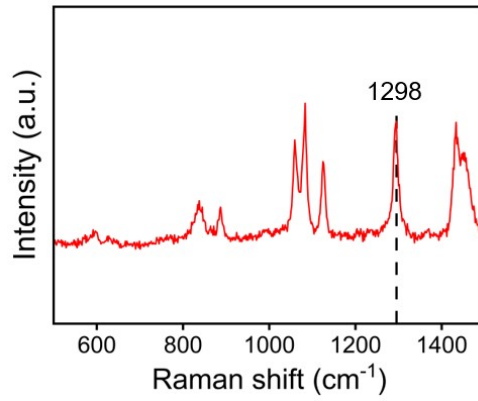
**Supplementary Fig. 1** Preparation of the microporous membrane.



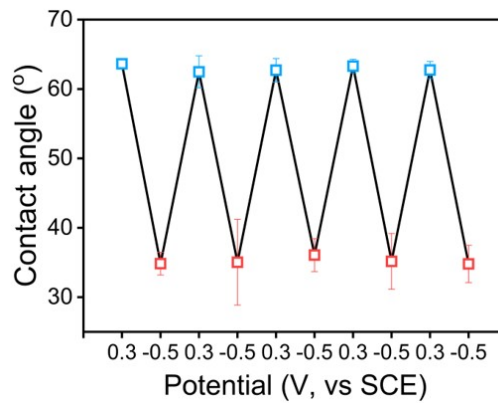
**Supplementary Fig. 2** Zeta potential of the Au surface in 1 mmol L<sup>-1</sup> KNO<sub>3</sub> solution.



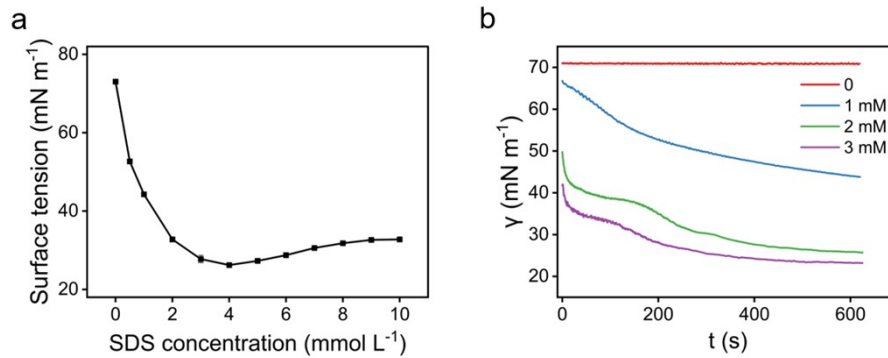
**Supplementary Fig. 3** Comparison of SDS adsorption behavior on the negatively charged Au surface and cysteamine-modified, positively charged Au surface.



**Supplementary Fig. 4** Raman spectrum of pure SDS powder.



**Supplementary Fig. 5** Reversible wettability switching of the functional liquid on Au/SSS during alternative electrode potentials.



**Supplementary Fig. 6** (a) Surface tensions of solutions with different SDS concentrations. (b) Change of surface tensions of the freshly generated bubbles in SDS solutions.