

## Supplementary Information

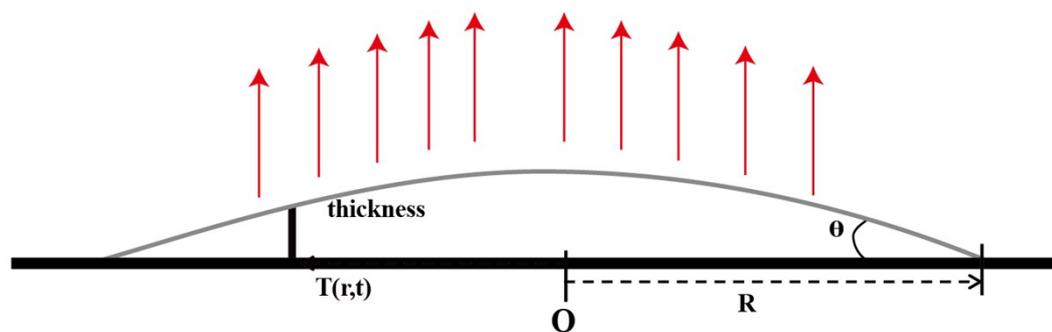
# Controllable and Large-Scale Fabrication of Flexible ITO-free Electrochromic Devices by Crackle Pattern Technology

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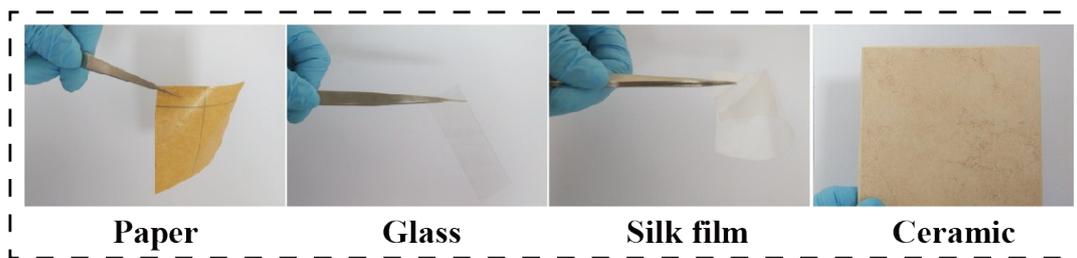
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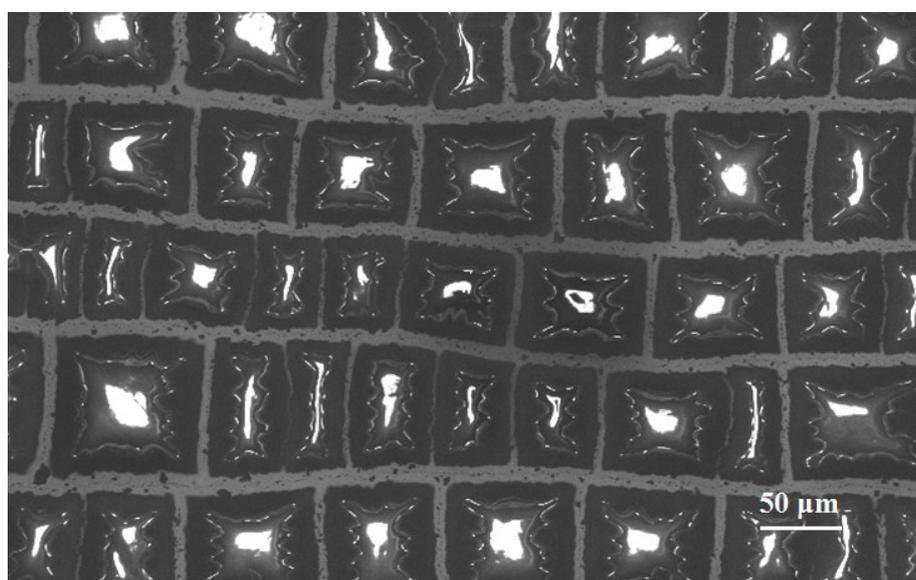
<sup>c</sup>Institute of Metal Research, Chinese Academy of Sciences, Shenyang, 110016, China.



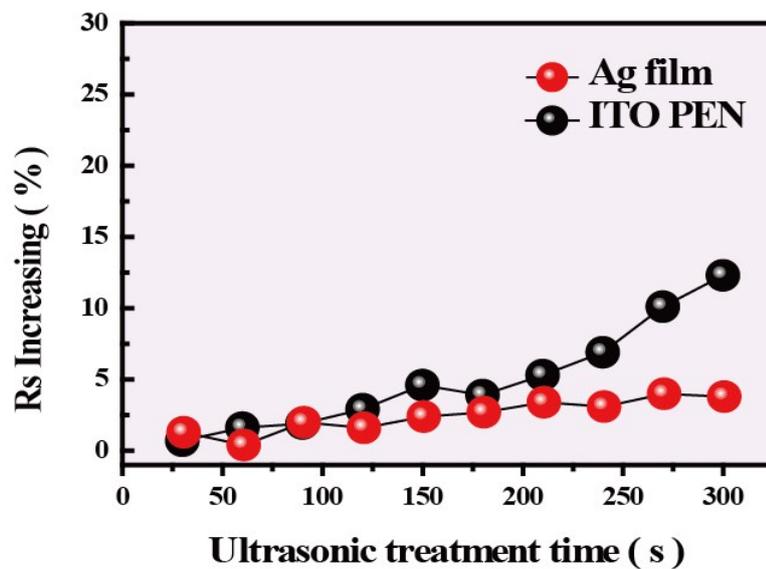
**Figure S1.** Mechanism model of the formation process of the rectangular colloidal pattern.



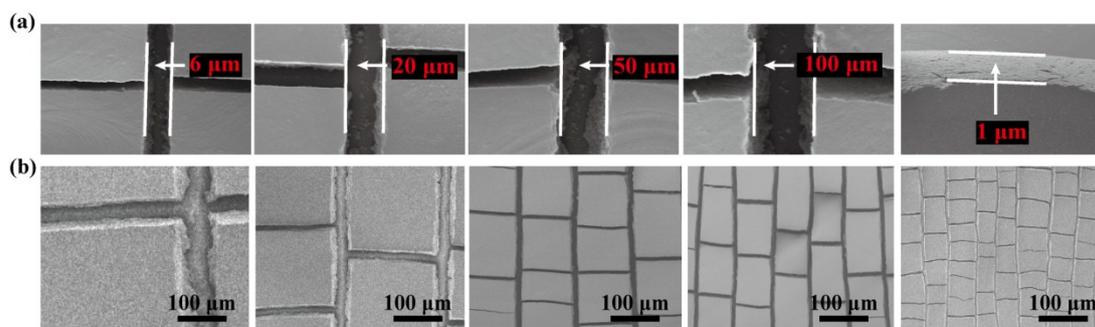
**Figure S2.** Ag networks TCFs fabricated on different substrates.



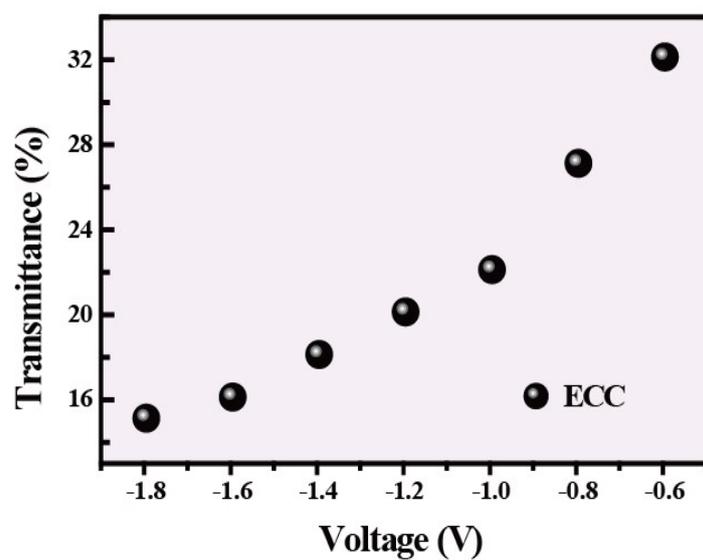
**Figure S3.** SEM images of Ag networks film after 1000 cycles.



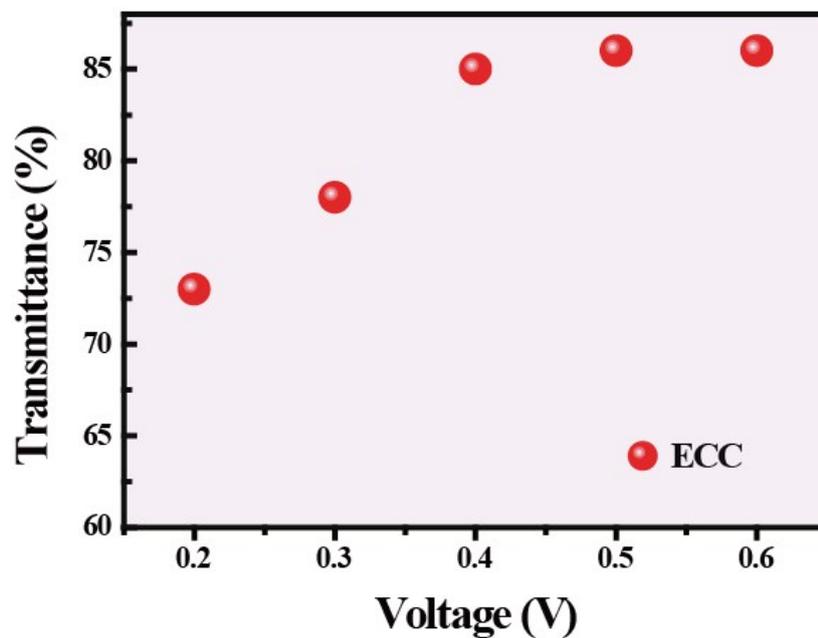
**Figure S4.** The relationship between ultrasonic treatment time and the  $R_s$  increasing of flexible Ag networks TCF and ITO film.



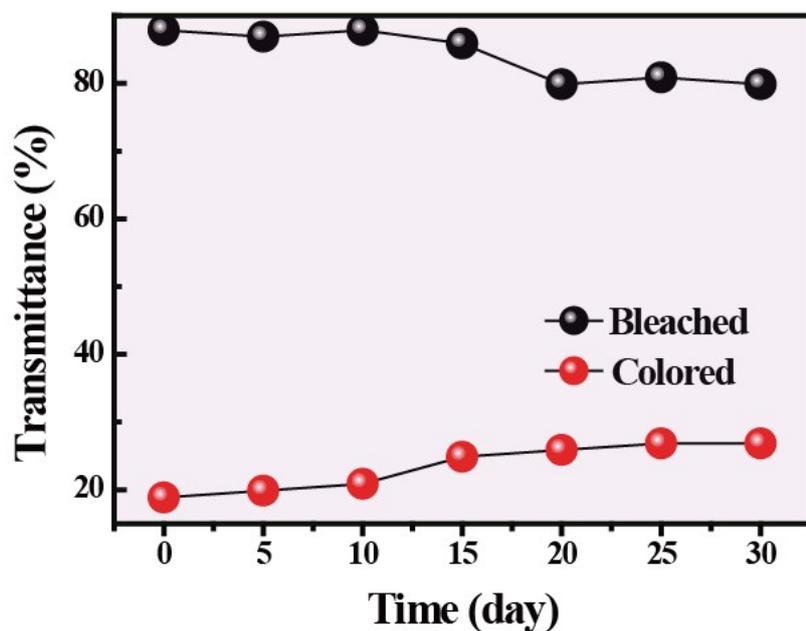
**Figure S5.** (a) SEM images of the controllable crackle patterns with different crackle width and density when the film thickness is 1  $\mu\text{m}$ ; (b) the SEM images of the rows of crackle patterns in a fixed field of vision (0.5 mm width in SEM image).



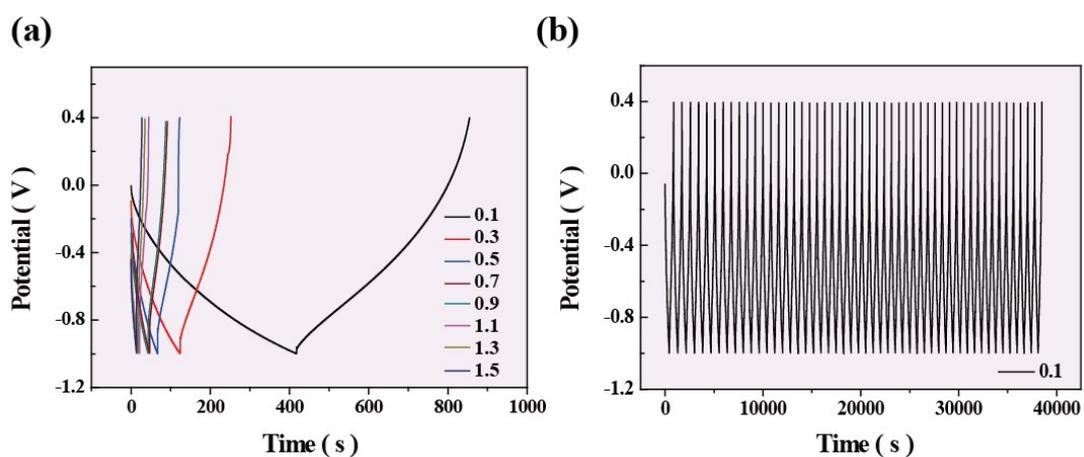
**Figure S6.** The relationship between negative voltages and the transmittance of the flexible ECD in colored state.



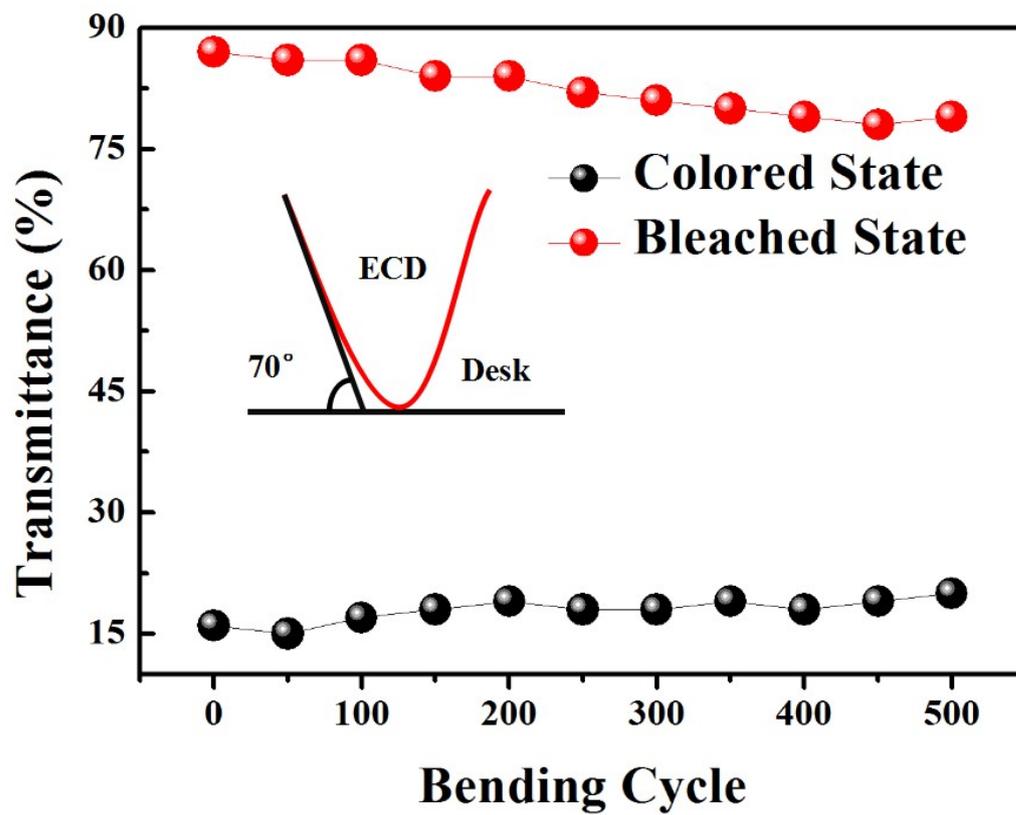
**Figure S7.** The relationship between positive voltages and the transmittance of the flexible ECD in bleached state.



**Figure S8.** The relationship between the placing days of the flexible ECD in air and the optical modulations.



**Figure S9.** (a) Galvanostatic charge-discharge curves at different current densities; (b) cyclic charge and discharge curve for 40000 s.



**Figure S10.** The relationship between the bending cycles and optical modulation range of electrochromic device.