

## Supporting Information

### *Effect of Polymer Capping Agent on Electrodeposited Silver Nanoparticles in a Silver Deposition-based Electrochromic Device*

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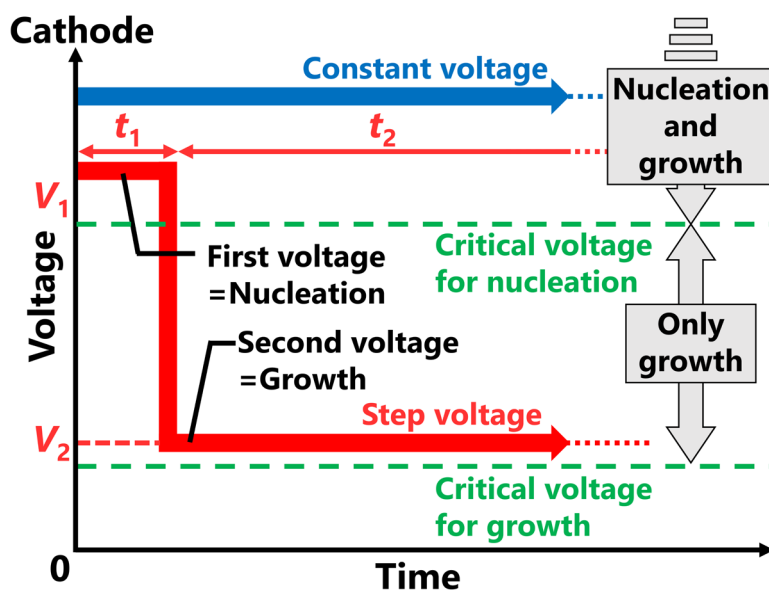


Fig. S1 Schematic diagram of the voltage-step method.

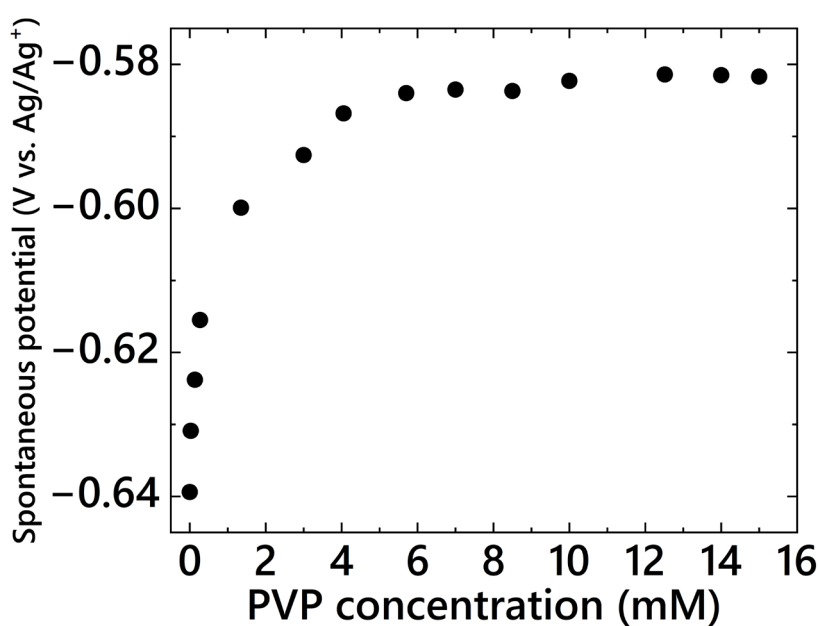


Fig. S2 Changes in spontaneous potential with PVP concentration in the electrolyte (indicating electrode: AgS wire, reference electrode: Ag/Ag<sup>+</sup>).

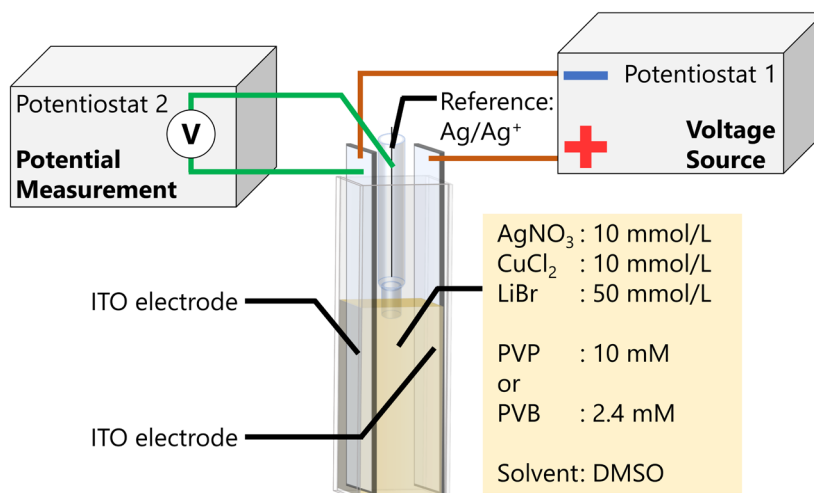


Fig. S3 Schematic diagram of two-electrode EC cell and electrode potential measurements.

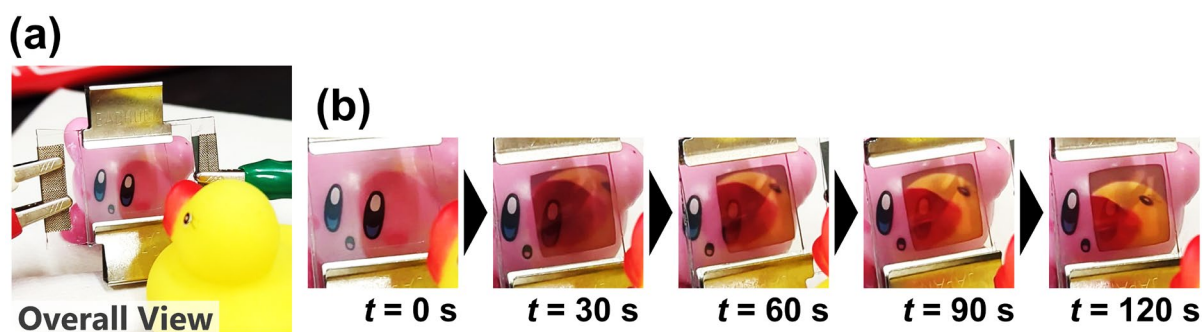


Fig. S4 Device images of the B-ECD, (a): overall view before voltage application and (b): color changes during constant voltage application ( $V = -2.5$  V,  $t = 120$  s).

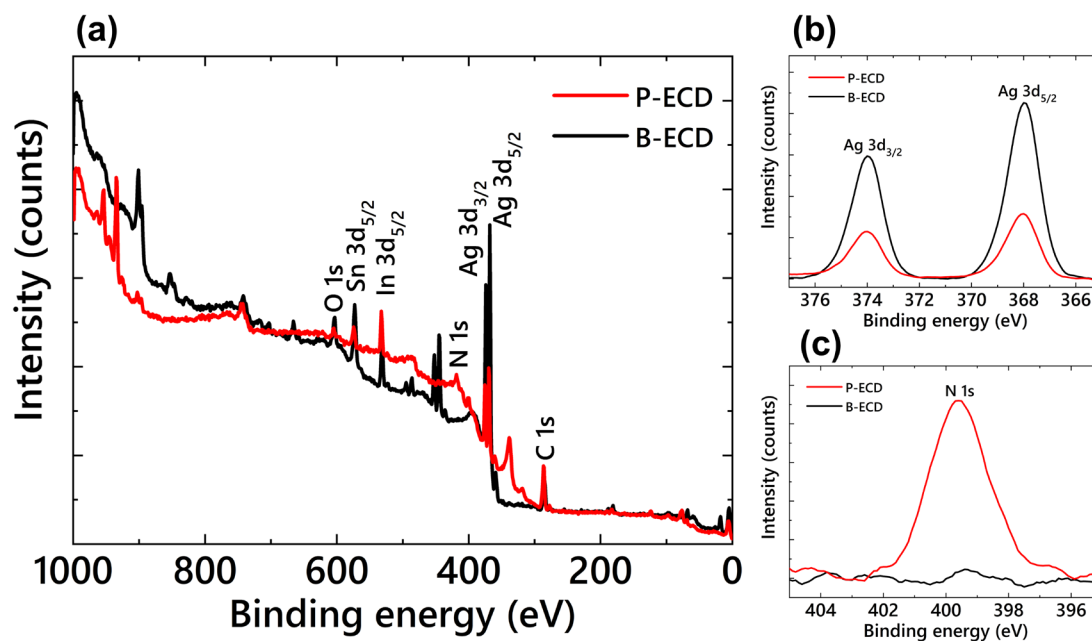


Fig. S5 XPS spectra in the (a): 0–1000 eV range, (b): Ag 3d, and (c): N 1s of the P-ECD and B-ECD after voltage application for cyan coloration (P-ECD:  $V = -2.5$  V,  $t = 120$  s and B-ECD:  $V_1 = -3.5$  V,  $t_1 = 100$  ms,  $V_2 = -1.6$  V,  $t_2 = 60$  s). Backgrounds were removed in Figure S5(b) and (c) by the Shirley method.