

# Supplementary Materials: Enhanced Electrochromic Performance of All-Solid-State Electrochromic Device Based on W-Doped NiO Films

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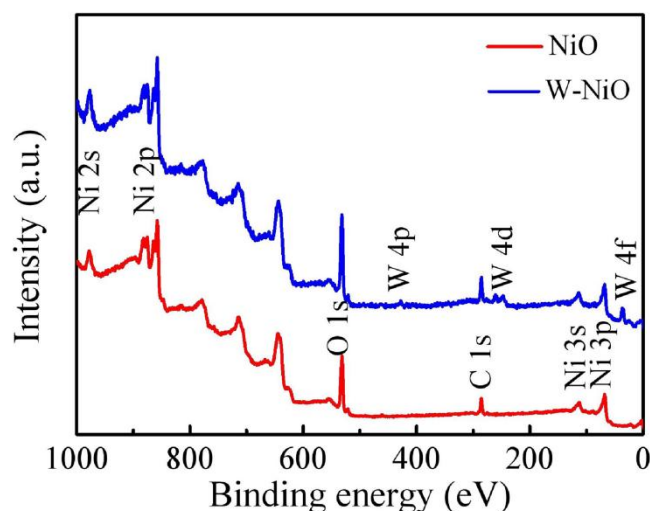
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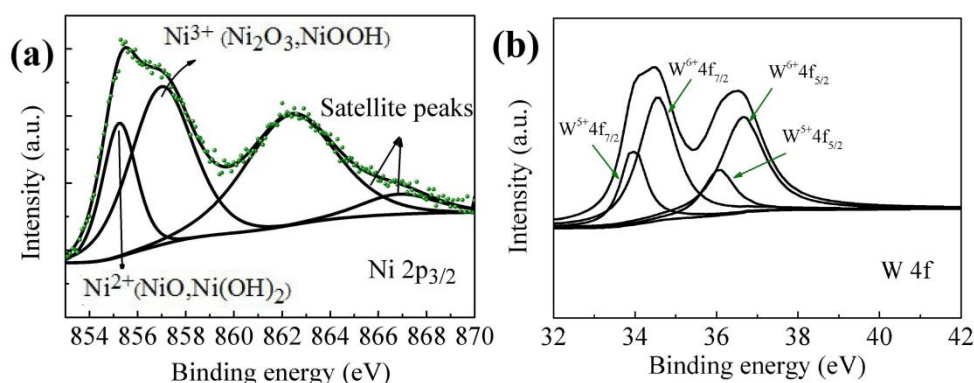
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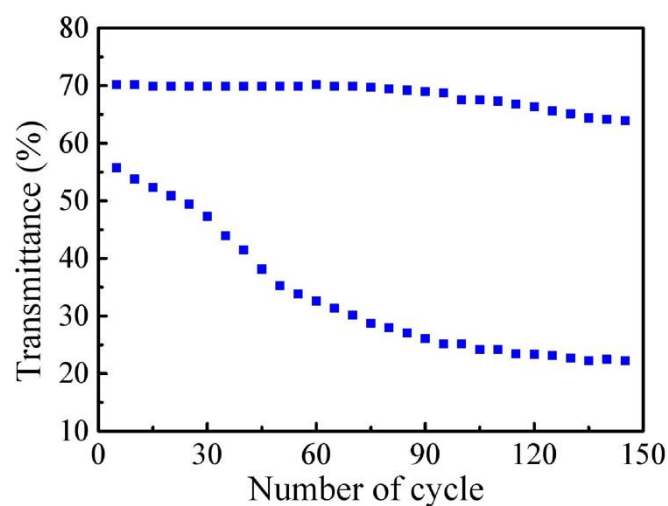
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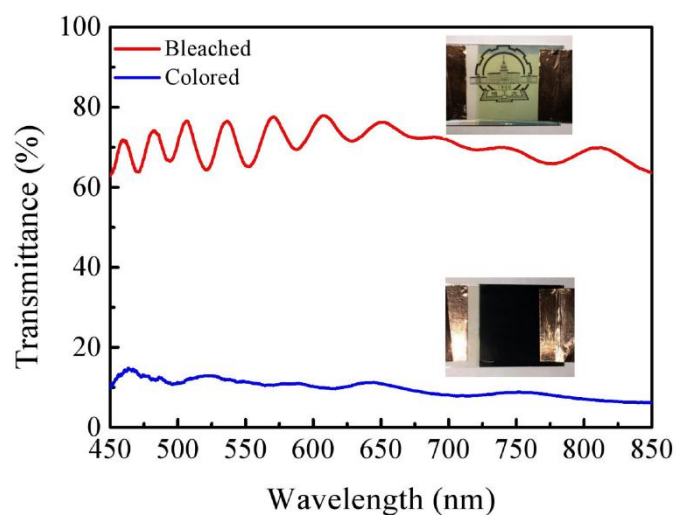
**Figure S1.** XPS spectra of the NiO and W-NiO films.



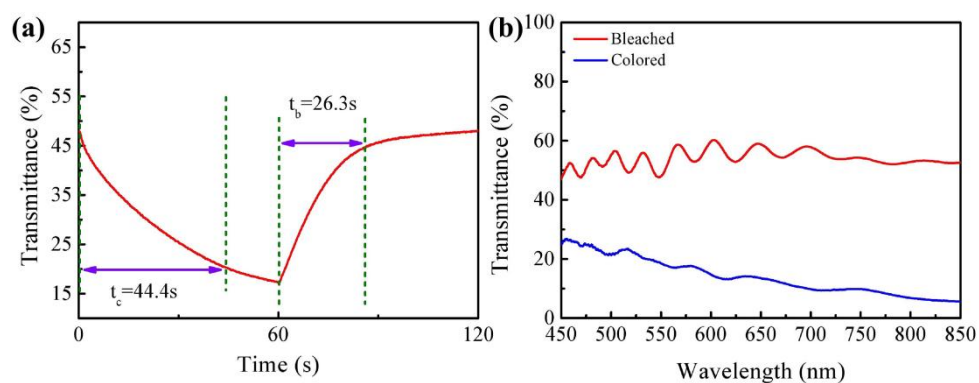
**Figure S2.** (a) High-resolution spectra of Ni 2p. (b) High-resolution spectra of W 4f.



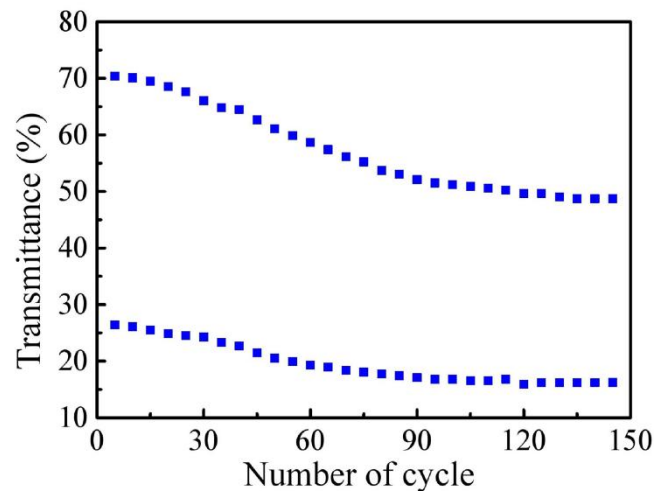
**Figure S3.** Cyclic stability of the ECD with W-NiO measured at  $\pm 3$  V with a duration of 60 s.



**Figure S4.** Transmittance spectra and digital photos of the ECD with W-NiO measured at  $\pm 3$  V with a duration of 300 s.



**Figure S5.** (a) Time dependent transmittance spectra, (b) Transmittance spectra of the ECD with NiO after 150 cycles.



**Figure S6.** Cyclic stability of the ECD with NiO measured at  $\pm 3$  V with a duration of 60 s.

**Table S1.** Comparison of the W-NiO film and ECD with previously reported data.

Film	Device Type	Electrolyte for Film	Modulation of Film	Modulation of Device
Cu-NiO[1]	-	KOH	57.1%	-
Sn-NiO[2]	Solid state	KOH	25.7%	38.3%
Li-NiO[3]	Gel state	Li	-	44.1%
NiO[4]	-	KOH/LiClO <sub>4</sub> -PC	33.41%	-
W-NiO	Solid state	LiClO <sub>4</sub> -PC	52.7%	48.5%

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