## Supporting Information of

## Multicolor reversible Prussian White film with application in self-

## powered electrochromic device

Guimao Liu, Zelang Jian, Chunxia Zhao, Haohao Sun, Ning Zhang and Yanyuan Qi\*

State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, School of Materials Science and Engineering, Wuhan University of Technology, 430070 Wuhan, People's Republic of China. E-mail: <u>qiyanyuan@whut.edu.cn</u>

The PW film with the hydrothermal temperature of 110 °C and its oxidation states (PB, BG and PY) were denoted as PW film, PB film, BG film and PY film in the Fig.S1 of this supporting information, respectively.



Fig. S1 XPS spectra of PW film, PB film, BG film and PY film. (a)(b)(c)(d) Survey spectra and (e)(f)(g)(h) Na 1s spectra.



Fig. S2 SEM image and EDS mapping images of PW film.



Fig. S3 EDS spectrum of PW film.



Fig. S4 The (a) CV curve and (b) CE of PB film



Fig. S5 The CE of PW film

	Cycling stability	Coloring efficiency (cm <sup>2</sup> C <sup>-1</sup> )
PW film (this work)	72% after 3000cycles	141.35
PB film (hydrothermal) <sup>1</sup>	(decrease slightly) 150 cycles	87.4
PB film (electrodeposit) <sup>2</sup>	(decrease slightly) 100 cycles	/
TiO <sub>2</sub> /PB hybrid film <sup>3</sup>	84.1% after 1000 cycles	102.63
PB@C-dot hybrid film <sup>4</sup>	(decrease slightly) 50 cycles	/
PB (spray pyrolysis) <sup>5</sup>	(decrease slightly) 100 cycles	124.3

Table. S1 The comparison of cycling stability and coloring efficiency of PW film and others' works in the process of PW↔PB.



Fig. S6 (a) (b) Transmittance spectrum and transient response curve of SED and (c) Electrode potential of various materials in 0.3 M Zn(CH<sub>3</sub>COO)<sub>2</sub>/0.9 M NaCl aqueous solution.

## Notes and references

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