

# Electronic supplementary information (ESI)

## Electrochemical control of the elution property of Prussian blue nanoparticle thin films: Mechanism and Applications

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Fig. S1 Crystal structure of PB,  $\text{Fe(III)}_4[\text{Fe(II)(CN)}_6]_3$ , Although the partial position of  $\text{Fe(II)(CN)}_6$  is vacant, all are represented for simplicity.

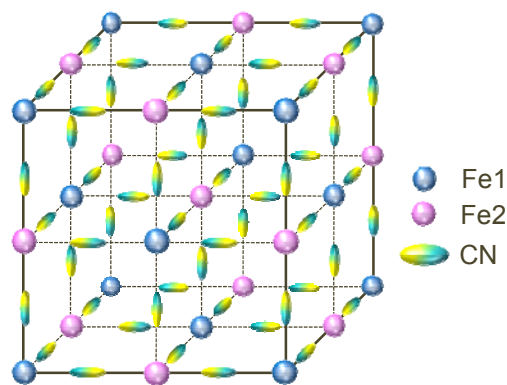


Fig. S2. XRD pattern of powder of water-dispersible PB nanoparticles.

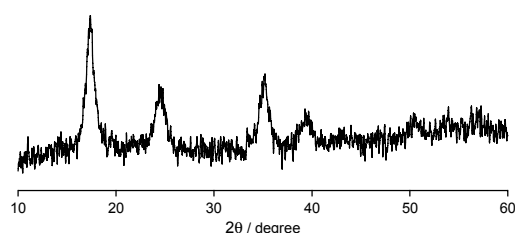


Fig. S3. Diametric distribution of water-dispersible PB nanoparticles measured by dynamic light scattering method..

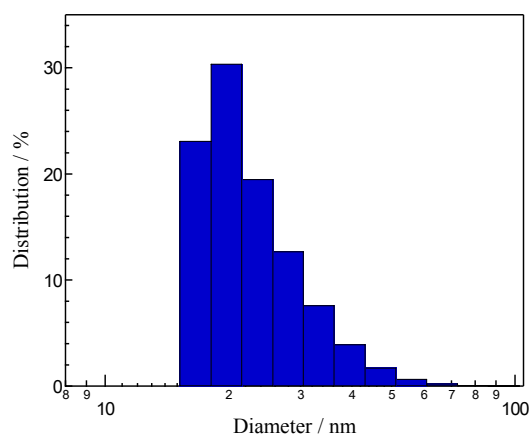


Fig. S4. UV-vis spectra of (a) water-dispersible PB nanoparticles film on the ITO electrode. Solid and broken lines respectively represent the fresh film and the non-eluting film after five-cycle CVs. (b) Water-dispersible PB dispersion liquid. Solid and broken lines respectively represent the dispersion using  $\text{Na}^+$  ferrocyanide for the surface covering process and that using  $\text{K}^+$  ferrocyanide.

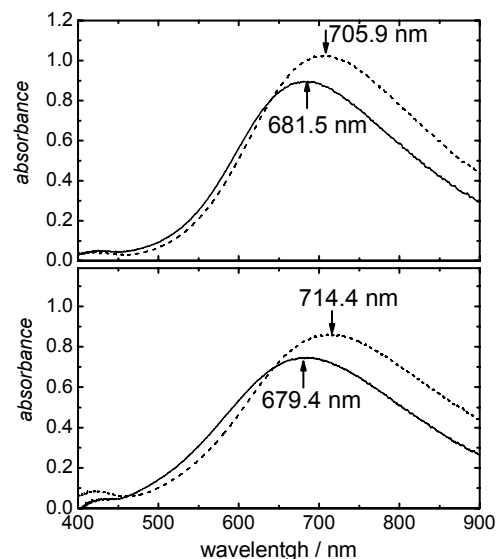


Fig S5. XPS original spectra and fitting data of the  $\text{Fe } 2p_{3/2}$  region of (a) the fresh water-dispersible PB nanoparticles film and (b) the non-eluting PB film after five-cycle CVs and rinsing with water. The CV experiment was carried with 0.1 M  $\text{KPF}_6$ /acetonitrile electrolyte in the range of -0.4 V to +0.8 V and with a rate of 0.2 V/s.

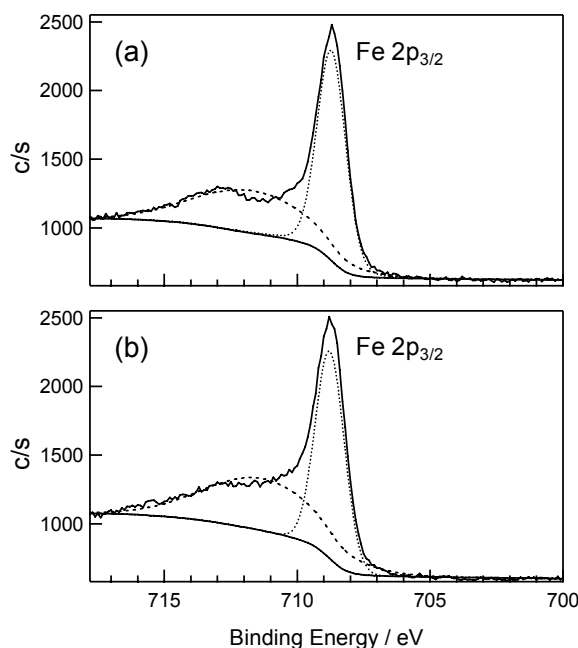
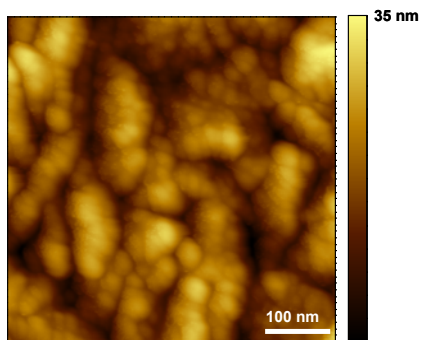


Fig. S6. AFM topography image of the surface of an ITO electrode, observed in the acoustic AC (tapping) mode. Comparison with images of the w-PB nanoparticle thin film on ITO portrayed in Fig. 4, spherical nanoparticles can be found only in Fig. 4.

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