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Ultrafast switching of electrochromic device based on layered double hydroxide/Prussian blue multilayer films

Xiaoxi Liu, Awu Zhou, Yibo Dou, Ting Pan, Mingfei Shao, Jingbin Han* and Min Wei

State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, P. R. China

CORRESPONDING AUTHOR FOOTNOTE

* Corresponding author. Phone: +86-10-64412131. Fax: +86-10-64425385. E-mail: hanjb@mail.buct.edu.cn.

Supplementary Figures

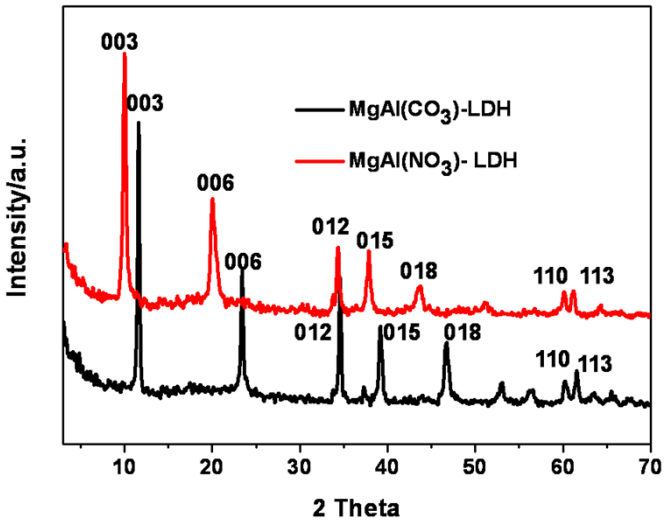

Fig. S1 XRD patterns of the $MgAl(CO_3)$-LDH and $MgAl(NO_3)$-LDH.

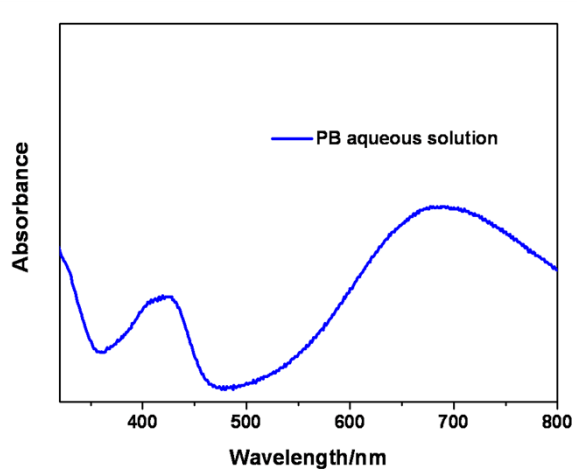

Fig. S2 UV-vis absorption spectrnm of PB aqueous solution.

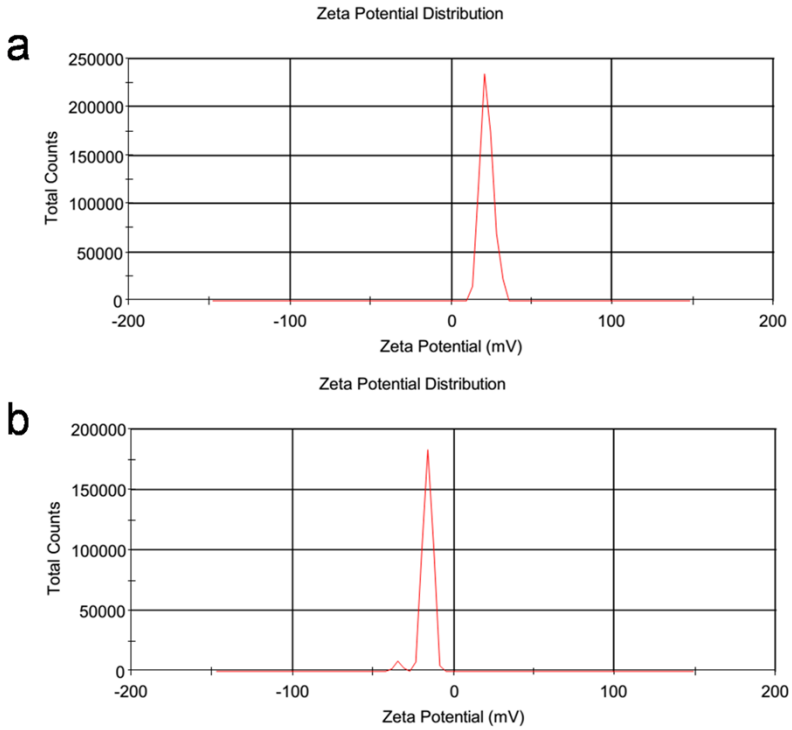

Fig. S3 The zeta potential of a) LDH nanosheets suspension and b) PB NPs colloid.

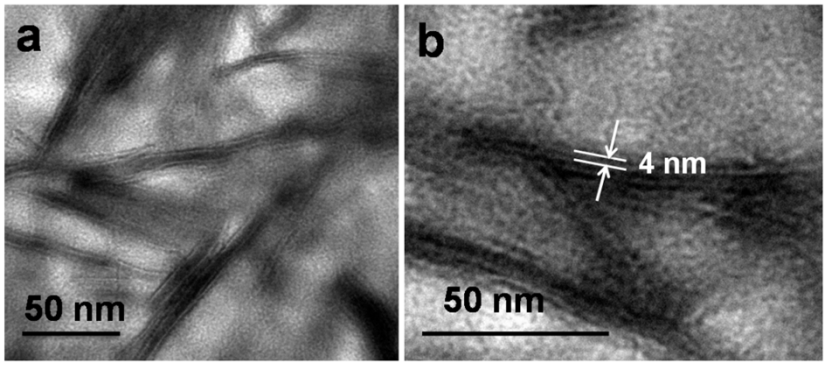

Fig. S4 TEM images of the $(LDH/PB)_n$ film scratched from the substrate.

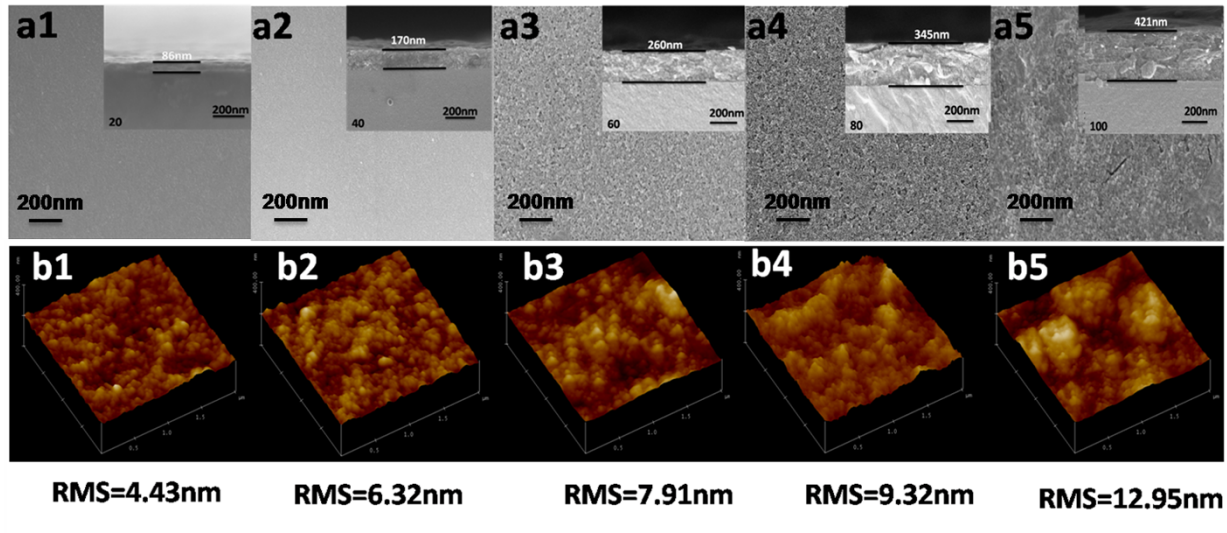

Fig. S5 Morphology of the $(LDH/PB)_n$ (n=20–100) films: (a) top-view SEM images (inset: side-view images); (b) tapping-mode AFM topographical images (2 μm×2 μm). From 1 to 5: n=20, 40, 60, 80, 100, respectively.

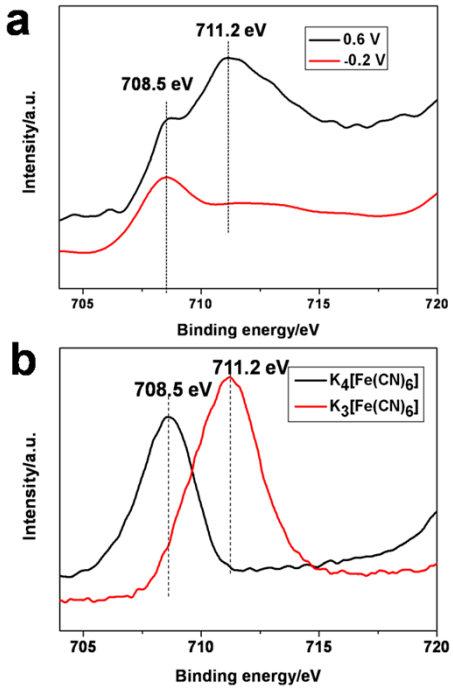

Fig. S6 XPS spectra of Fe 2p for: a) $(LDH/PB)_n$ film after applying 0.6 and –0.2 V voltage; b) $K_4[Fe^{II}(CN)_6]$ and $K_3[Fe^{III}(CN)_6]$ as reference compounds.

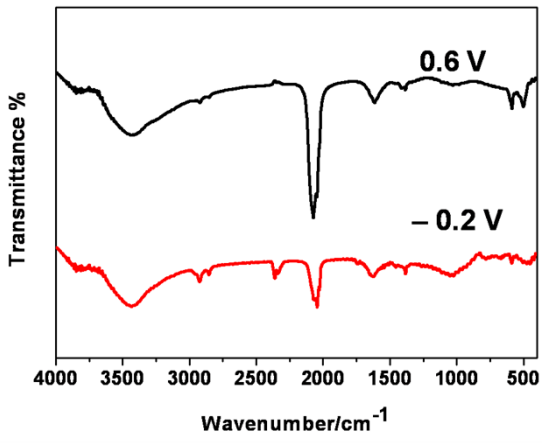

Fig. S7 FT-IR spectra of the (LDH/PB)n film applying a bias voltage of 0.6 and –0.2 V, respectively.

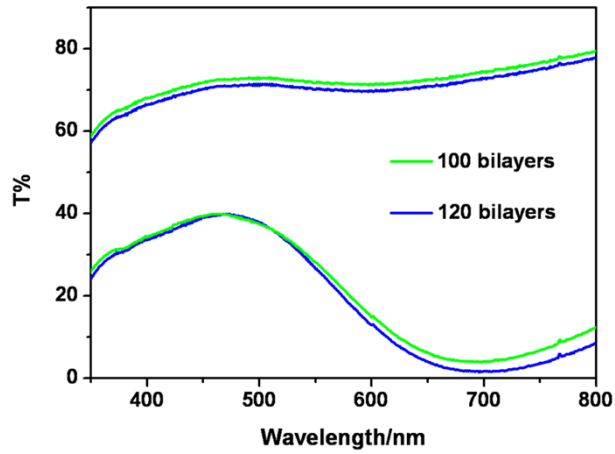

Fig. S8 Optical transmittance spectra of the $(LDH/PB)_{100}$ and $(LDH/PB)_{120}$ films at the colored and bleached states, respectively.

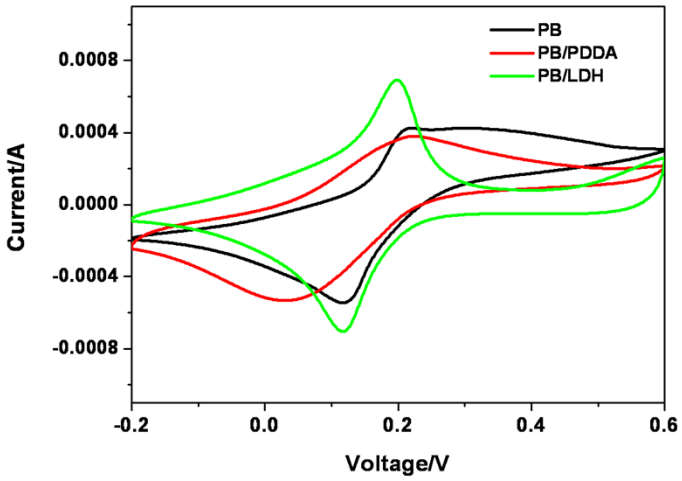

Fig. S9 Cyclic voltammograms of the LBL assembled $(LDH/PB)_{20}$ film, LBL assembled $(PDDA/PB)_{60}$ film and spin-coated PB film.

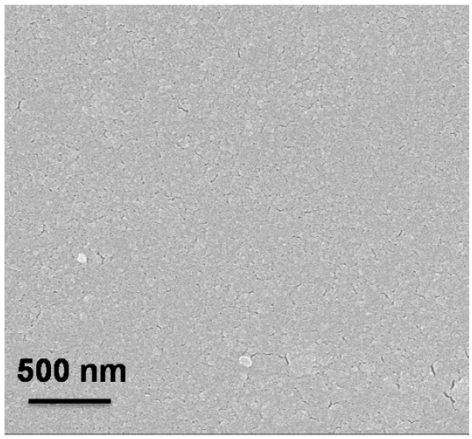

Fig. S10 SEM image of the $(LDH/PB)_{60}$ film after 400 switching cycles..

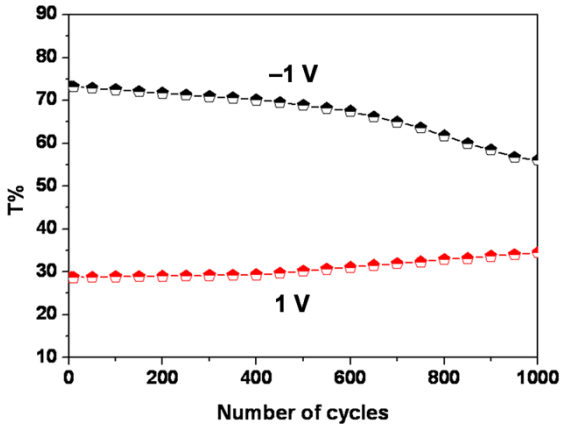

Fig. S11 The optical transmittance change of the $(LDH/PB)_{60}$ film within 1000 switching cycles.

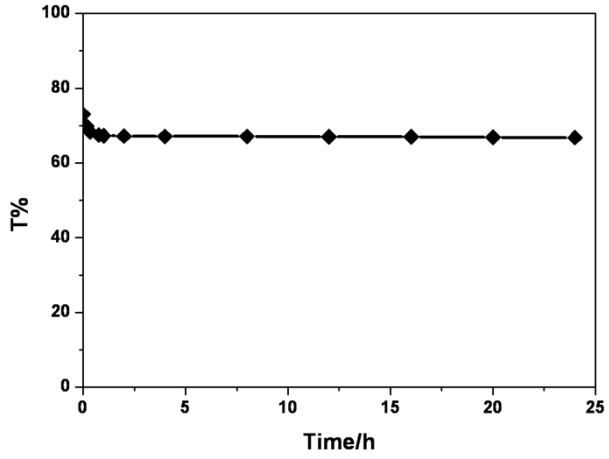

Fig. S12 Optical transmittance of the $(LDH/PB)_{60}$-ITO/0.1 M KCl electrolyte/ITO-glass ECD after withdrawing applied potential for 24 h.