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Architectural integration of the components necessary for electrical energy storage on the nanoscale and in three dimensions

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Supplementary Information

X-ray photoelectron spectroscopy

X-ray photoelectron spectroscopic measurements were taken on a Surface Science Instrument Model SSX-100-03 using an Al K_α X-ray source. The survey spectra were obtained using a single scan with a step size of 1 eV; higher resolution spectra were obtained by averaging 10 scans, each taken with a step size of 0.1 eV. The energies of the XPS peaks were referenced to the C *1s* binding energy for adventitious carbon at 284.6 eV. The curve-fitted spectra of the Ru $3d_{5/2}$ region of (a) RuO_xH_y, (b) ITO||PPO||RuO_xH_y, and (c) ITO||MnO_2||PPO||RuO_xH_y are shown in Fig. S1. The data are further discussed in the main text.

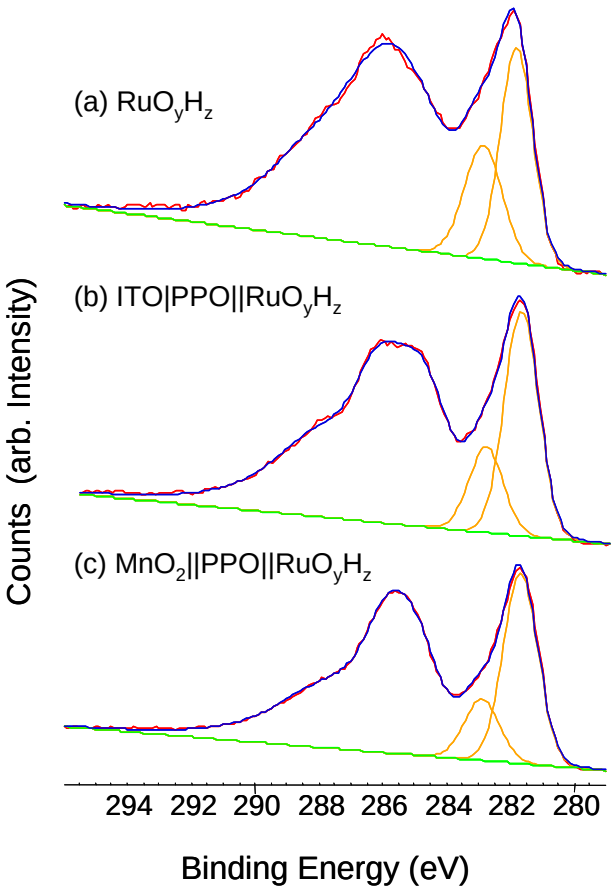

Fig. S1 The curve-fitted X-ray photoelectron spectra of the Ru $3d_{5/2}$ region of (a) RuO_xH_y, (b) ITO||PPO||RuO_xH_y, and (c) MnO*x*||PPO||RuO_xH_y.

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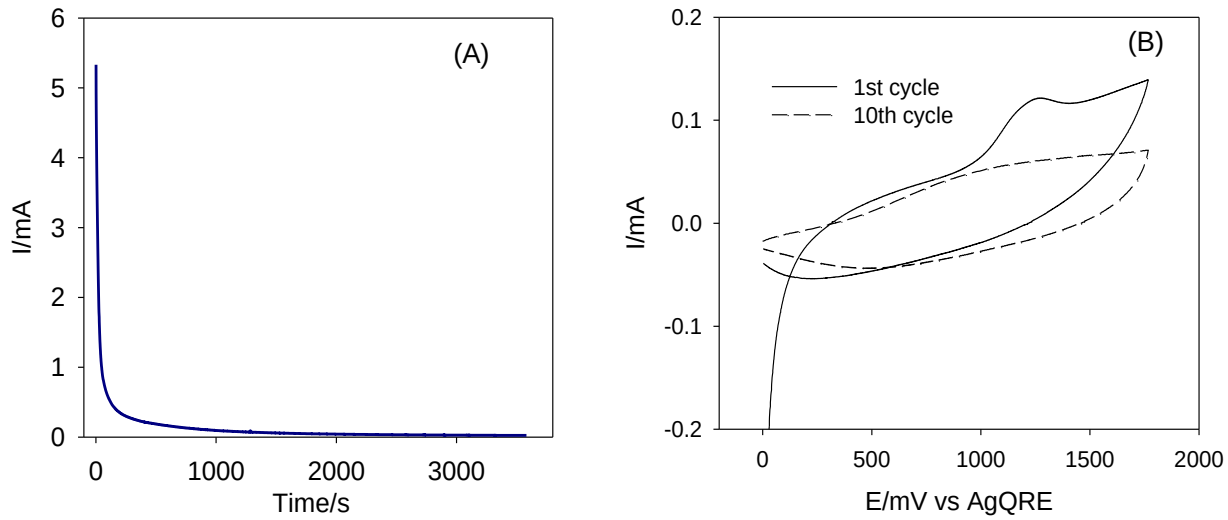

Fig. S2 Deposition of polymer at ITO||MnO*x* (working electrode) in monomer solution consisting of 50 m*M* phenol, 50 mM Me_4NOH, 0.1 M Bu_4NClO_4 in CH_3CN (Pt gauze counter electrode; AgQRE reference electrode); (A) Chronoamperometry data for potentiostatic step (1767 mV *vs*. Ag QRE for 1 h); (B) selected cycles from subsequent potential-sweep deposition (767 mV to 1767 mV *vs*. Ag QRE, 10 mV s^{-1}, 10 cycles).

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