

## Supporting Information

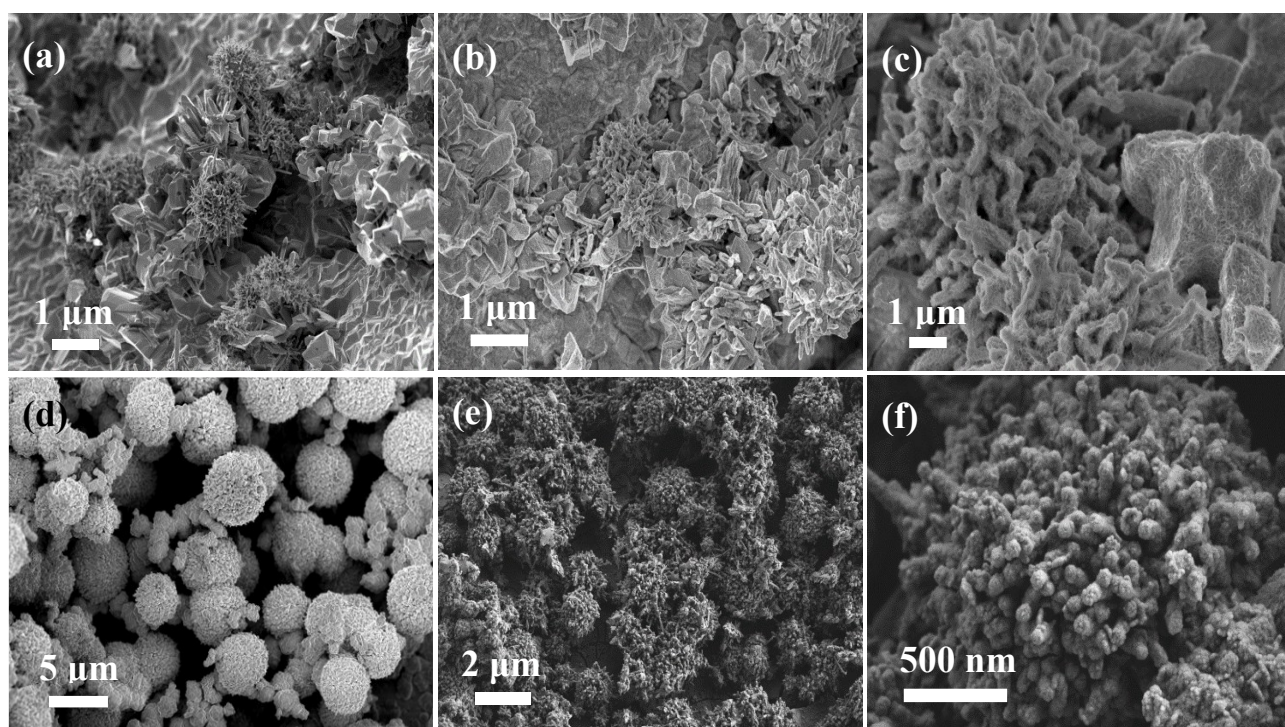
### **Toward high performance asymmetric hybrid capacitor by electrode optimization**

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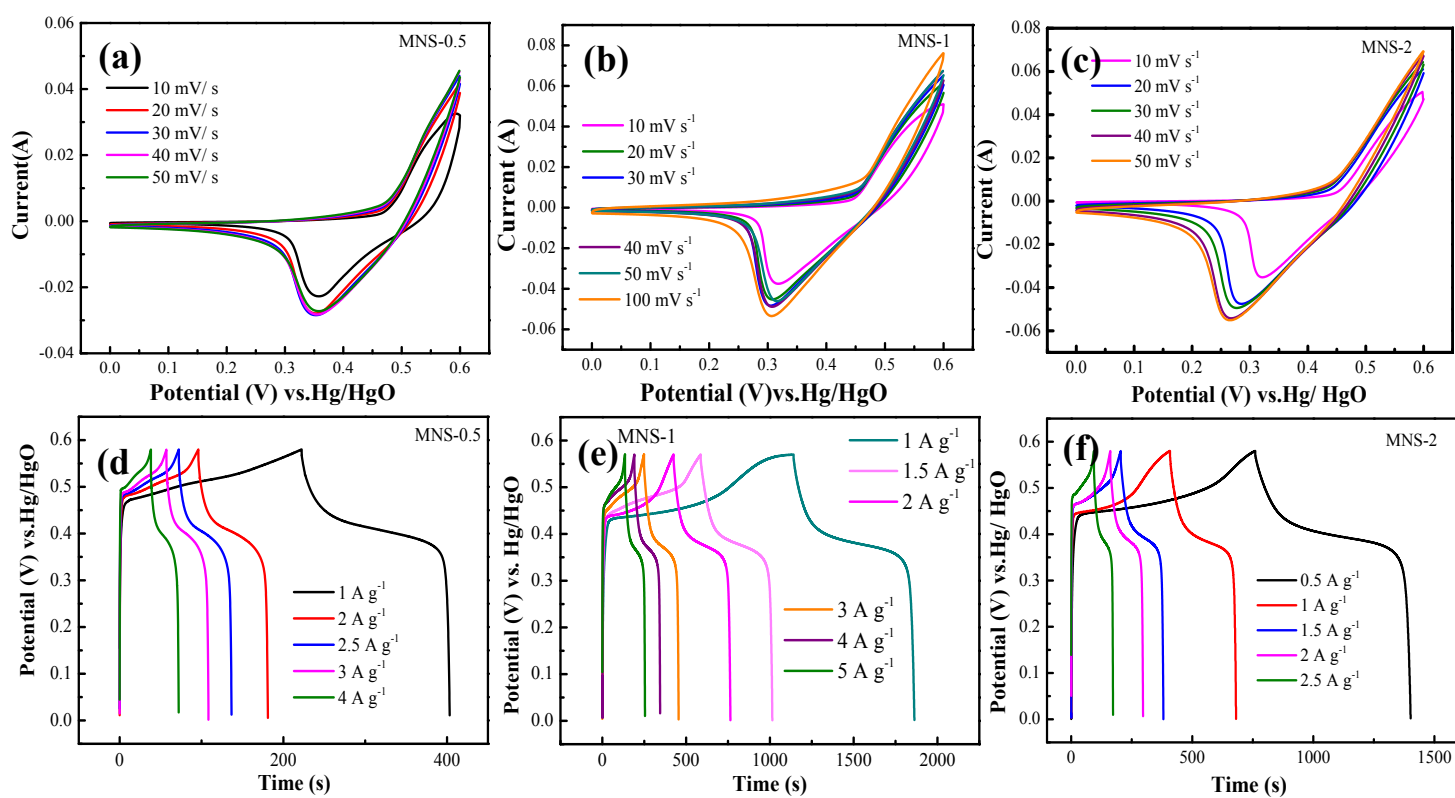
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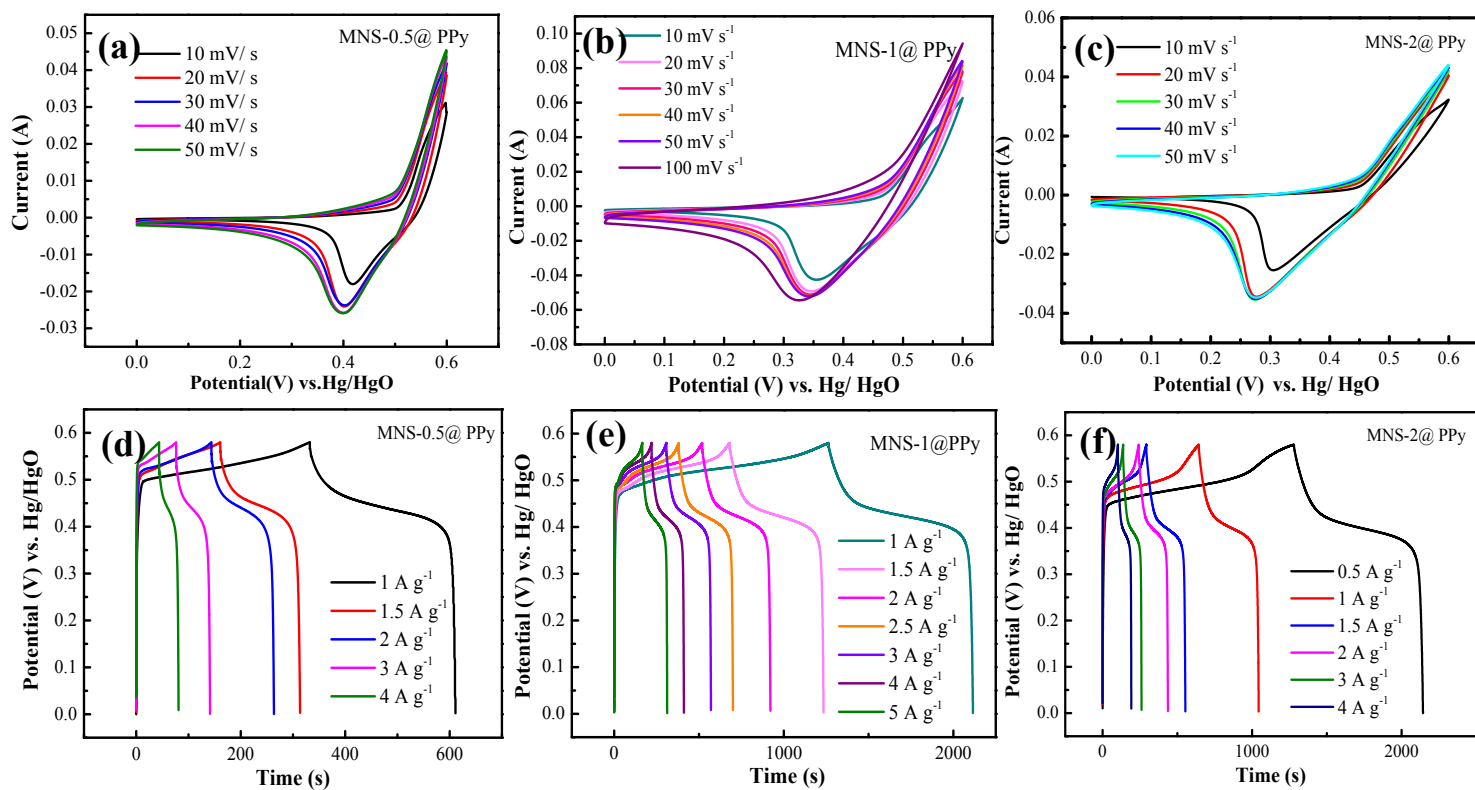
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**Fig. S1** SEM images (a) MNS-0.5 (b, c) MNS-0.5@ PPy at different magnification (d) MNS-2 (e, f) MNS-2@ PPy at different magnification

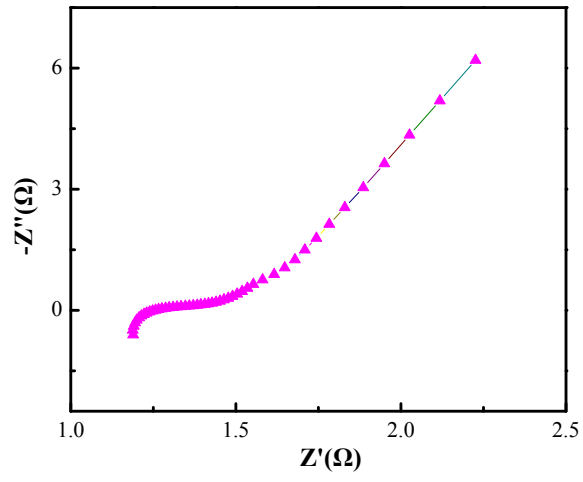


**Fig. S2** Electrochemical performances (a-c) the CV curves of MNS-0.5, MNS-1 and MNS-2 samples (d-f) the GCD curves of MNS-0.5, MNS-1 and MNS-2 samples



**Fig. S3** Electrochemical performances (a-c) the CV curves of MNS-X@ PPy samples

(d-f) the GCD curves of MNS-X@ PPy samples



**Fig. S4** EIS curve of device