**Fig. S1.** SEM image of Fe\textsubscript{3}O\textsubscript{4} particles and NF-Fe\textsubscript{3}O\textsubscript{4}
Fig. S2. (a) CV curves of the ASC device at different voltage windows at a scan rate of 100 mV s\(^{-1}\). (b) Galvanostatic charge-discharge tests of the ASC device.
Fig. S3. The CV curves under (at current density 50mV/s) different bending conditions.
Fig. S4. Nyquist plots of the NF-Co$_2$AlO$_4$@MnO$_2$ // NF-Fe$_3$O$_4$ full device.