

In-situ construction of hierarchical Co/MnO@graphite carbon composites for highly supercapacitive and OER electrocatalytic performances

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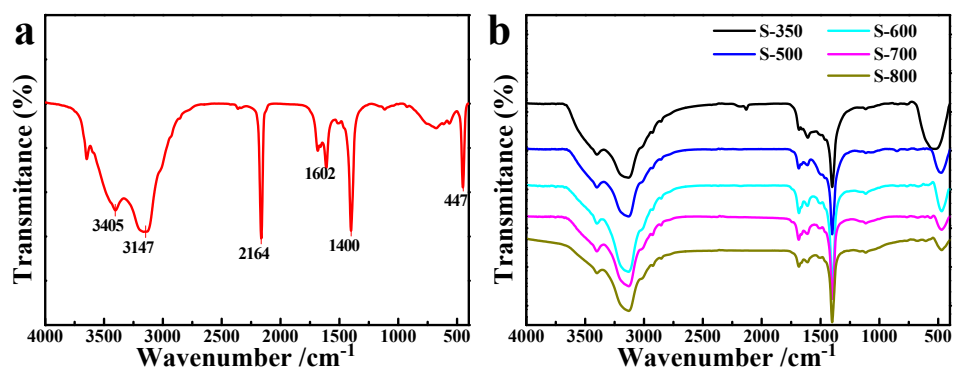


Figure S1. FTIR spectra of (a) Mn-Co precursor; and (b) the calcined samples.

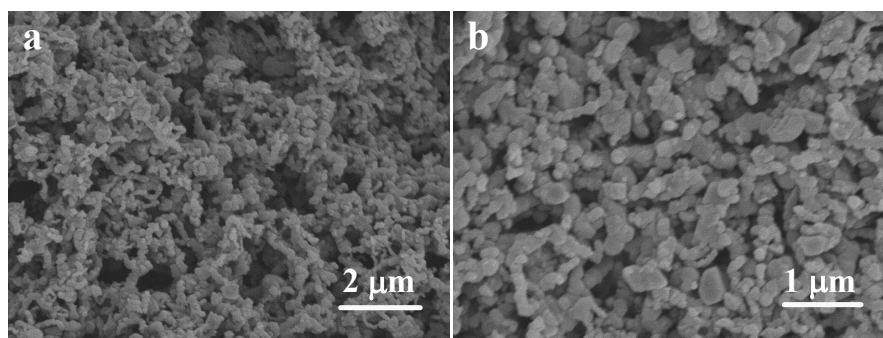


Figure S2. (a, b) SEM images of S-800.

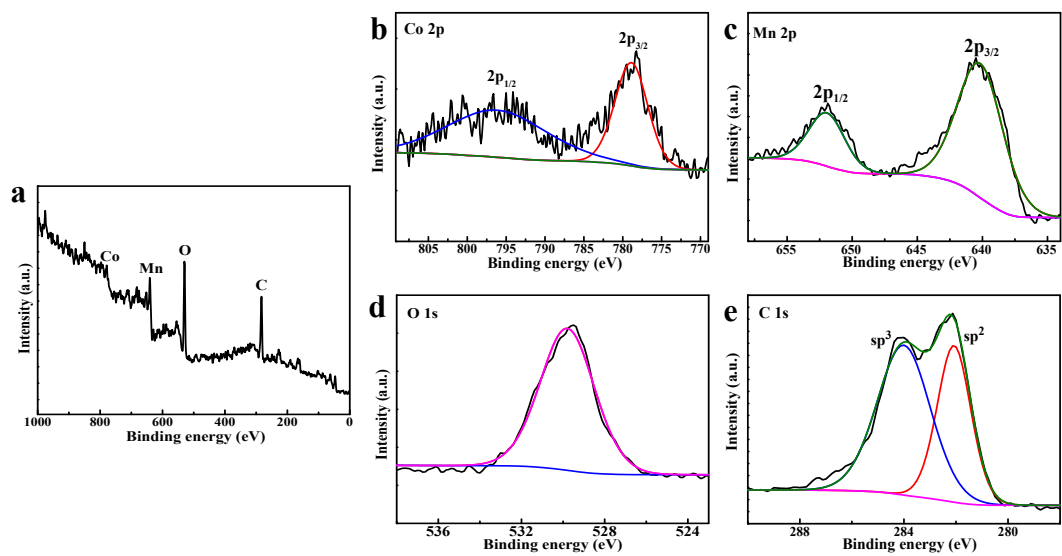


Figure S3. (a) XPS survey; (b) Co 2p; (c) Mn 2p; (d) O 1s and (e) C 1s XPS spectra of S-700.

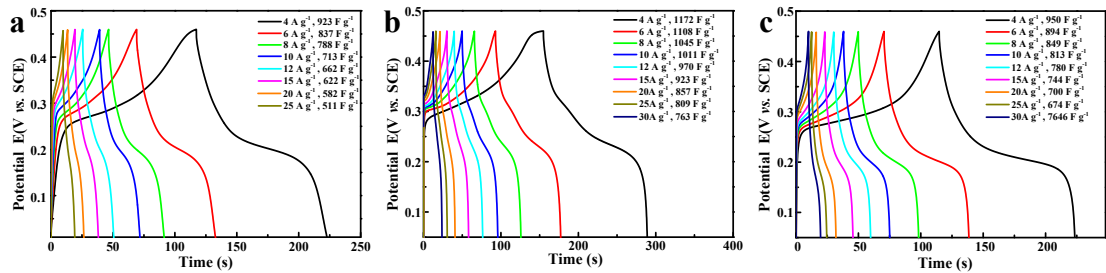


Figure S4. Charge-discharge profiles at various current densities for (a) Co_xMn_{1-x}O@GC-350; (b) Co/MnO@GC-600 and (c) Co/MnO@GC-800.

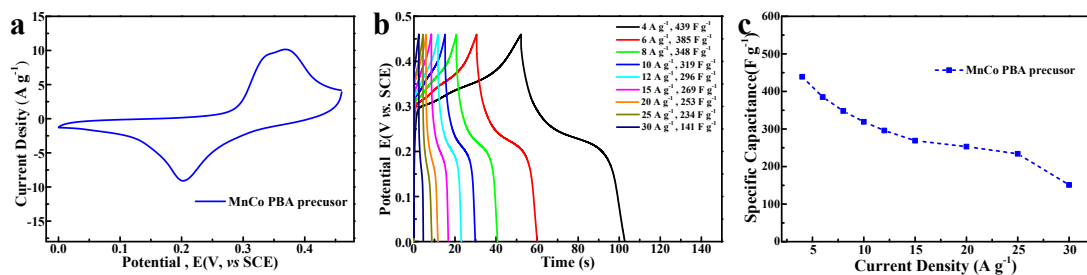


Figure S5. (a) CV curves; (b) charge-discharge profiles at various current densities; (c) Specific capacitances as a function of current density for MnCo PBA precursor.

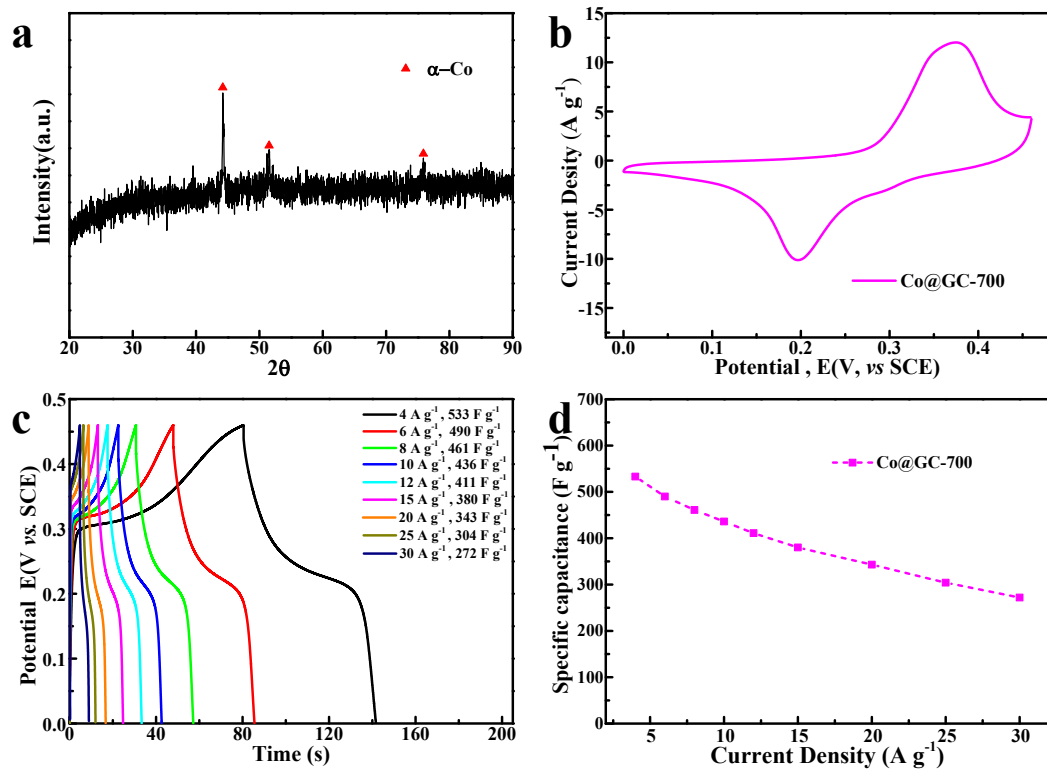


Figure S6. (a) XRD; (b) CV curves; (c) charge-discharge profiles at various current densities and (d) Specific capacitances as a function of current density of Co@GC-700.

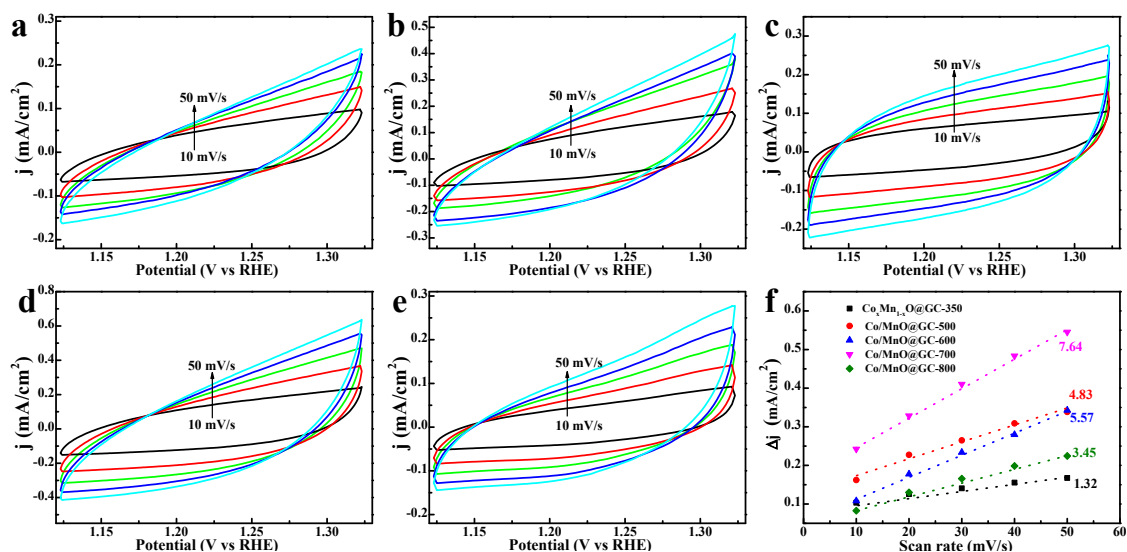


Figure S7. (a~e) Cyclic voltammograms at different scan rates in the region between 1.1 and 1.3 V (vs. RHE) of (a) $\text{Co}_x\text{Mn}_{1-x}\text{O@GC-350}$; (b) Co/MnO@GC-500 ; (c) Co/MnO@GC-600 ; (d) Co/MnO@GC-700 and (e) Co/MnO@GC-800 ; (f) The differences in current densities ($\Delta j = j_a - j_c$) at 1.21V (vs. RHE) plotted against the scan rates fit to a linear regression.

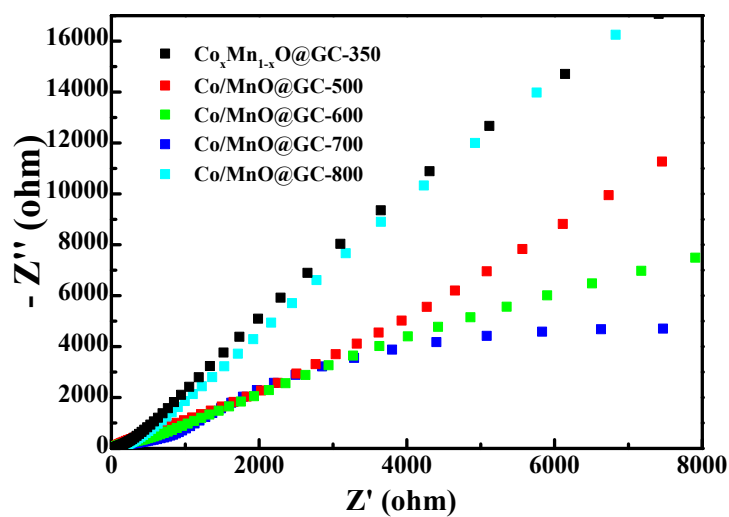


Figure S8. Electrochemical impedance spectra (EIS) of the samples at 0.4 V vs Ag/AgCl in 1 M KOH solution.

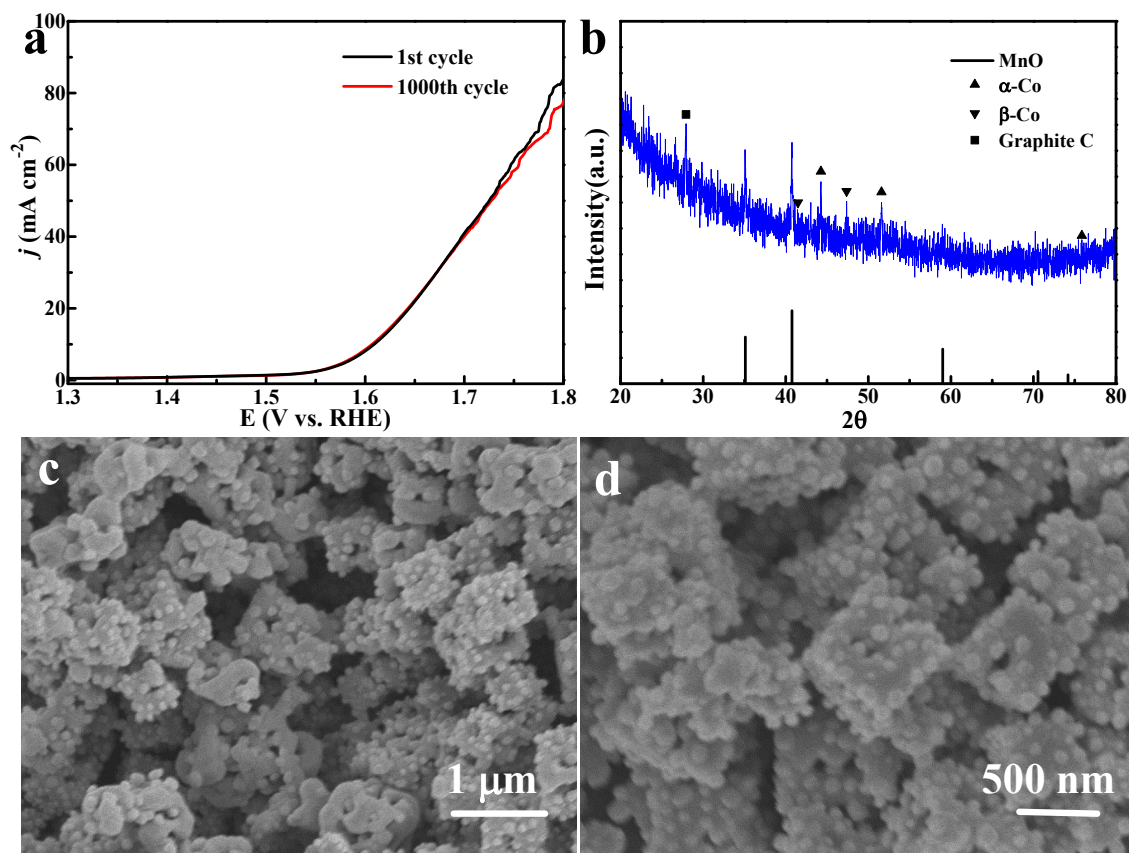


Figure S9. (a) The initial and the 1000th polarization curves of Co/MnO@GC-700 in 1 M KOH solution; (b) XRD of Co/MnO@GC-700 and (c-d) SEM images after long-term OER reaction.