Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

Tailoring the catalytic activity of nickel sites in $NiFe_2O_4$ by cobalt substitution for highly enhanced oxygen evolution reaction

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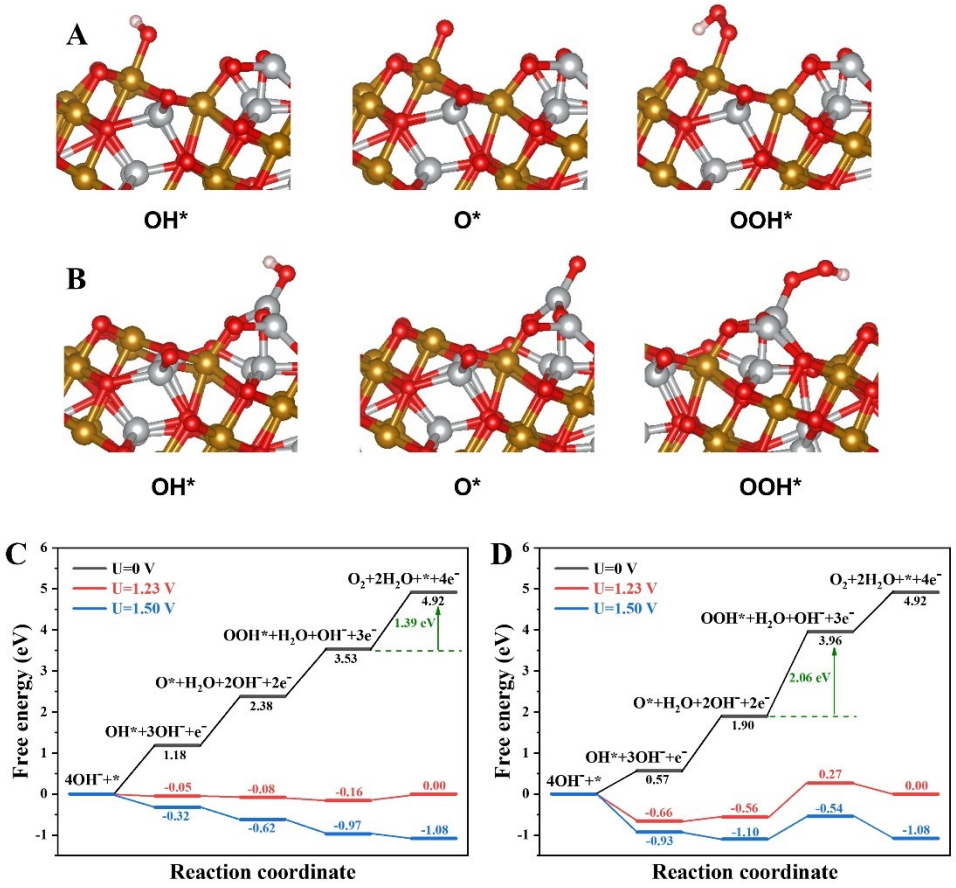

Fig. S1. DFT-calculated structures of reaction intermediates during the OER on the (A) Fe site of $NiFe_2O_4$ and Ni site of $NiFe_2O_4$. Free energy profiles for the OER over $NiFe_2O_4$ at zero potential (U = 0), equilibrium potential (U = 1.23 V), and practical potential (U = 1.50 V): (C) Fe sites and (D) Ni sites.

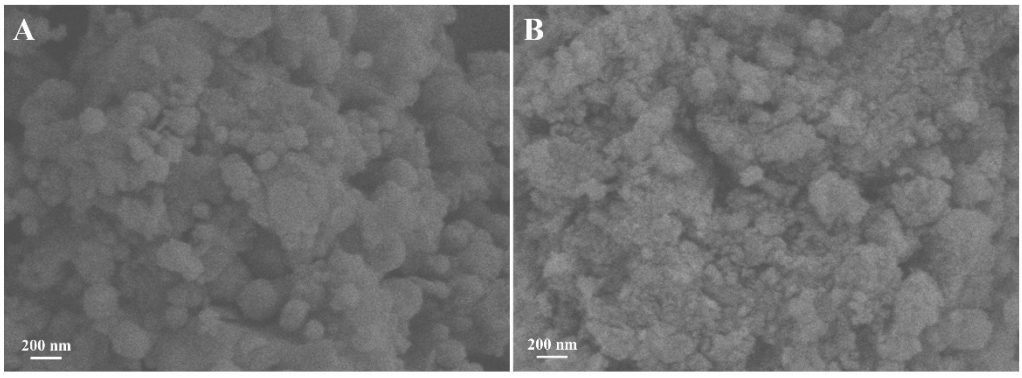

Fig. S2 SEM images of $NiFe_2O_4$ and $Ni_{0.98}Co_{0.02}Fe_2O_4$.

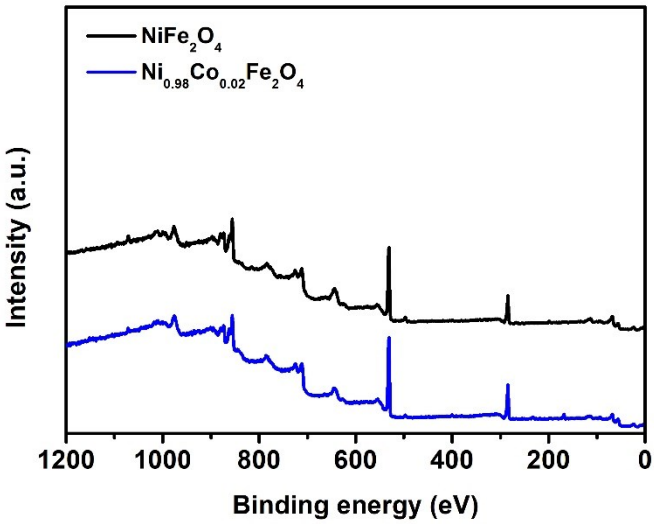

Fig. S3 XPS survey spectra of $NiFe_2O_4$ and $Ni_{0.98}Co_{0.02}Fe_2O_4$.

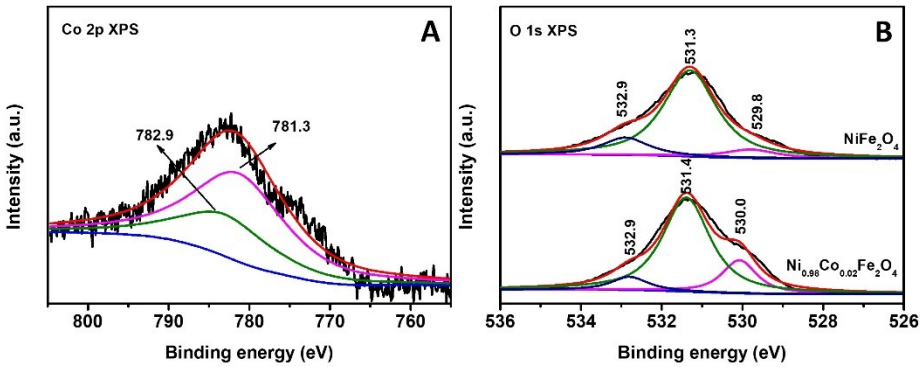

Fig. S4 (A) Co 2p and (B) O 1s XPS spectra of $Ni_{0.98}Co_{0.02}Fe_2O_4$.

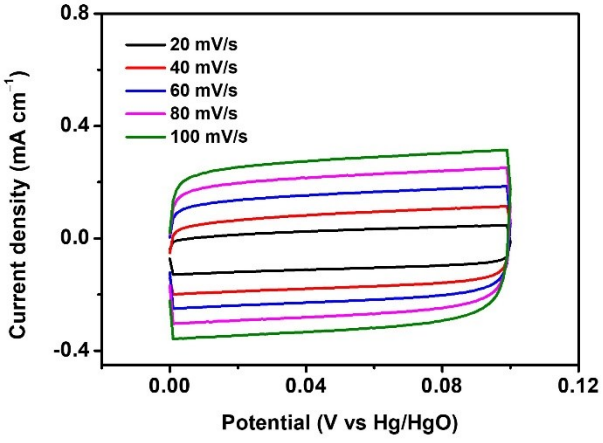

Fig. S5 CV curves of the $NiFe_2O_4$ electrode at various scan rates.

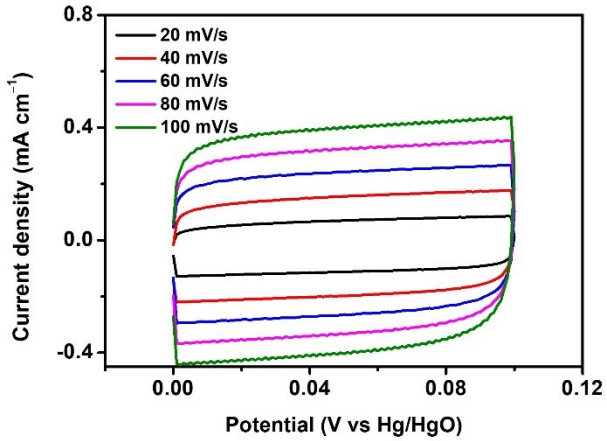

Fig. S6 CV curves of the $Ni_{0.99}Co_{0.01}Fe_2O_4$ electrode at various scan rates.

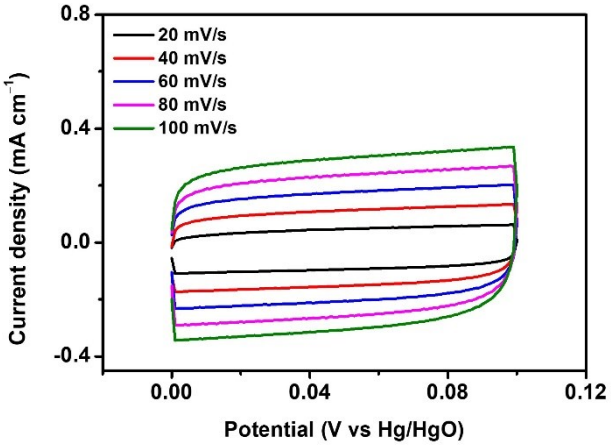

Fig. S7 CV curves of the $Ni_{0.98}Co_{0.02}Fe_2O_4$ electrode at various scan rates.

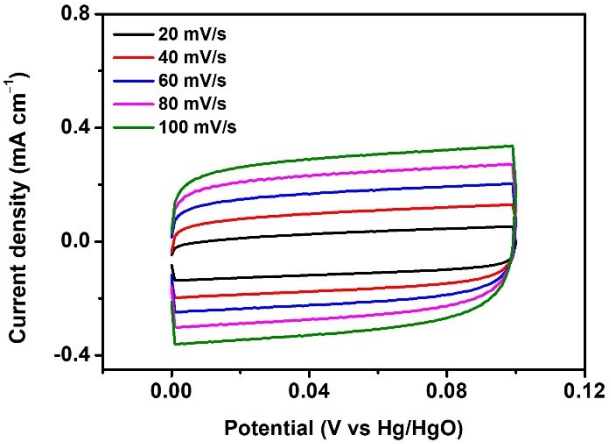

Fig. S8 CV curves of the $Ni_{0.95}Co_{0.05}Fe_2O_4$ electrode at various scan rates.

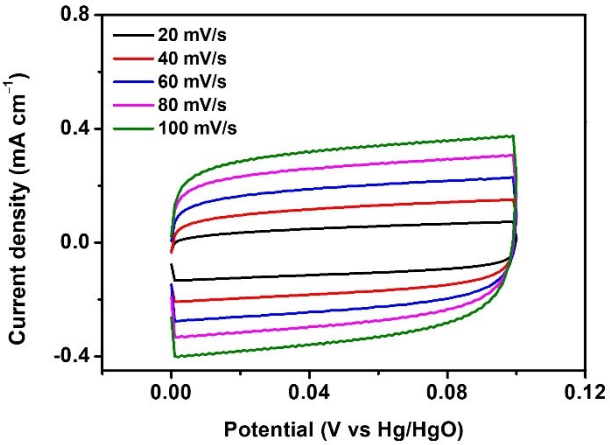

Fig. S9 CV curves of the $Ni_{0.9}Co_{0.1}Fe_2O_4$ electrode at various scan rates.