Supporting Information

CoP$_2$/Fe-CoP$_2$ yolk-shell nanoboxes as efficient electrocatalysts for oxygen evolution reaction

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Fig. S1. (a) XRD pattern of ZIF-67 NCs. (b) Corresponding XRD pattern.
Fig. S2. XRD pattern of ZIF-67/CoFe-PBA YSBs.

Fig. S3. EDS spectrum of CoP$_2$/Fe-CoP$_2$ YSBs.
Fig. S4. XRD pattern of Fe-CoP$_2$ NBs.

Fig. S5. EDS spectrum of Fe-CoP$_2$ NBs.
Synthesis of CoP$_2$ nanocubes (NCs).

The ZIF-67 NCs and NaH$_2$PO$_2$ put in two separate porcelain boats at a mass ratio of 1:20 respectively. The boat with NaH$_2$PO$_2$ was placed on the upper stream side of the furnace. Subsequently the mixture was heated to 300 °C with incremental rate of 5 °C min$^{-1}$ and maintained for 2 h in an under a Ar atmosphere. After cooling to room temperature, the product was collected and used for further analysis.

Fig. S6. (a) XRD pattern (b) corresponding SEM images of CoP$_2$ NCs.
Fig. S7. OER curve of Fe-CoP$_2$ NBs before and after 3000 cycles.

Fig. S8. (a,b) SEM images of CoP$_2$/Fe-CoP$_2$ YSBs after 10 hour stability test.
Fig. S9. High resolution XPS spectra of (a) Co 2p, (b) Fe 2p, (c) P 2p, and (d) O 1s for CoP₂/Fe-CoP₂ YSBs after OER.
Fig. S10. Cyclic voltammogram curves at different scan rates of (20-100 mV s\(^{-1}\)). (a) Fe-CoP\(_2\) NBs and (b) CoP\(_2\) NCs.