Supporting Information

Facile synthesis of Fe-doped CoP nanosheet arrays wrapped by graphene for overall water splitting

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Fig. S1 FE-SEM image of the precursor.
Fig. S2 XRD pattern of the FCOH sample.

Fig. S3 Survey spectrum of the F_{0.25}CP-G sample.
Fig. S4 HER polarization plots of the F0.125CP-G, F0.25CP-G, and F0.5CP-G in KOH.

Fig. S5 (a) CV curves of the F0.25CP at various scan rates. (b) CV curves of the F0.25CP-G at various scan rates.
**Fig. S6** Polarization curves for the F$_{0.25}$CP before and after 2000th CV cycles for HER in 1 M KOH.

**Fig. S7** (a) HER polarization plots of the FeP, CoP, F$_{0.25}$CP, F$_{0.25}$CP-G, and bare Ni foam in 0.5 M H$_2$SO$_4$ electrolyte. (b) Comparison of η at 10 mA/cm$^2$ between F$_{0.25}$CP-G and previous reports in acidic medium. (c) Related Tafel slopes for FeP, CoP, F$_{0.25}$CP, and F$_{0.25}$CP-G. (d) The polarization curves for the F$_{0.25}$CP-G before and after 2000th CV cycles in 0.5 M H$_2$SO$_4$. (e) Chronopotentiometric measurement of the F$_{0.25}$CP-G toward HER at 10 mA/cm$^2$ for 12 h in 0.5 M H$_2$SO$_4$. 
Fig. S8 (a) HER polarization plots of the FeP, CoP, F$_{0.25}$CP, F$_{0.25}$CP-G, and bare Ni foam in 1 M PBS electrolyte. (b) Comparison of $\eta$ at 10 mA/cm$^2$ between F$_{0.25}$CP-G and previous reports in 1 M PBS. (c) Related Tafel slopes for FeP, CoP, F$_{0.25}$CP, and F$_{0.25}$CP-G. (d) The polarization curves for the F$_{0.25}$CP-G before and after 2000th CV cycles in 1 M PBS. (e) Chronopotentiometric measurement of the F$_{0.25}$CP-G toward HER at 10 mA/cm$^2$ for 12 h in 1 M PBS.

Fig. S9 OER polarization plots of the F$_{0.125}$CP-G, F$_{0.25}$CP-G, and F$_{0.5}$CP-G in KOH.
Fig. S10 Polarization curves for the F_{0.25}CP before and after 2000th CV cycles for OER in 1 M KOH.

Fig. S11 EIS measurements of the CoP, F_{0.25}CP, and F_{0.25}CP-G electrodes.