Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Z-Scheme in $Co_3(PO_4)_2$/α-Fe_2O_3 photocatalysis system for overall water splitting under visible light

Supporting Information

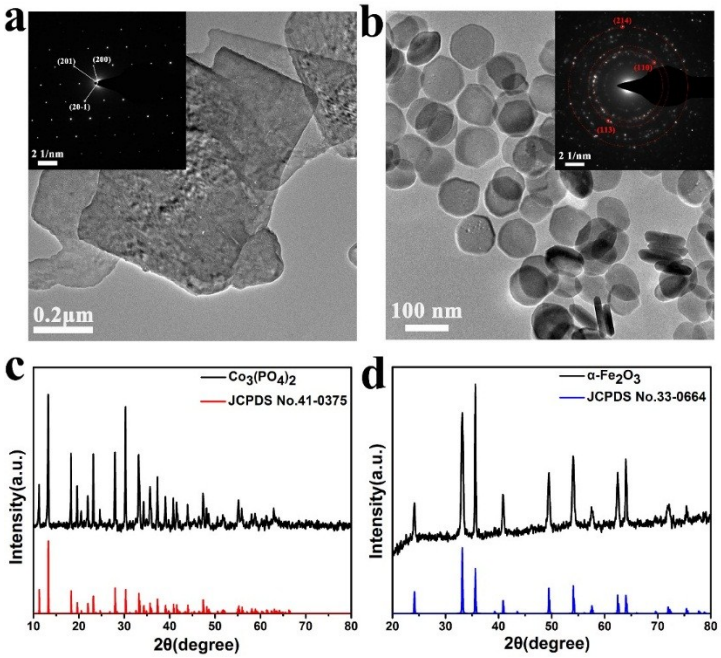

Fig. S1. (a) TEM image and the inset is the selected area electron diffraction pattern of $Co_3(PO_4)_2$. (b) TEM image and the inset is the selected area electron diffraction pattern of α-Fe_2O_3. The XRD patterns of $Co_3(PO_4)_2$ (c) and α-Fe_2O_3 (d).

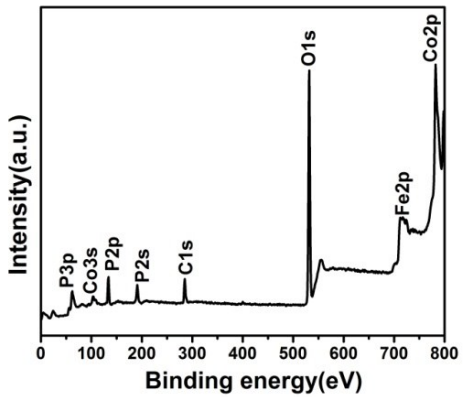

Fig. S2. Full XPS spectrum of $Co_3(PO_4)_2$/α-Fe_2O_3-1.6%.

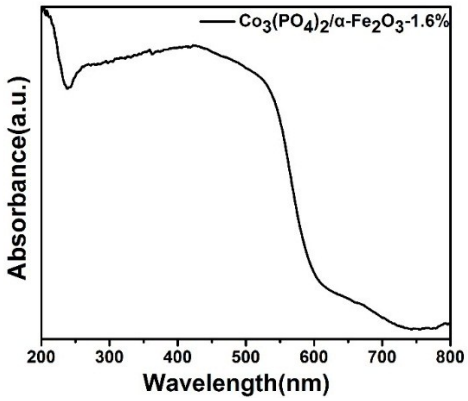

Fig. S3. UV-Vis absorbance spectrum of $Co_3(PO_4)_2$/α-Fe_2O_3-1.6%.

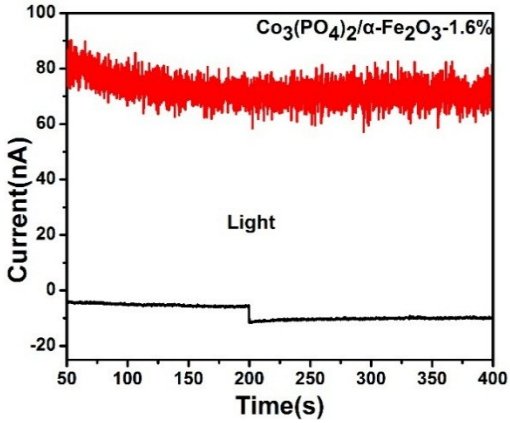

Fig. S4. The RRDE collection tests of $Co_3(PO_4)_2$/α-Fe_2O_3-1.6%.

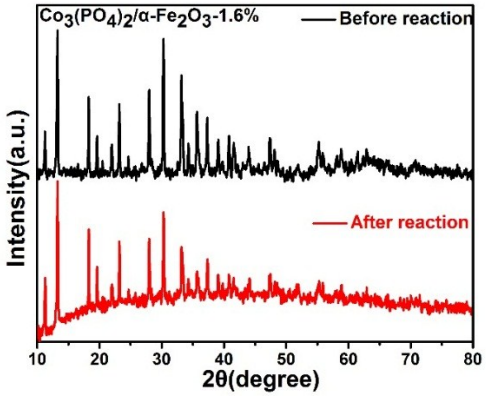

Fig. S5. The XRD patterns of $Co_3(PO_4)_2$/α-Fe_2O_3-1.6% before (black line) and after (red line) photocatalytic reaction.

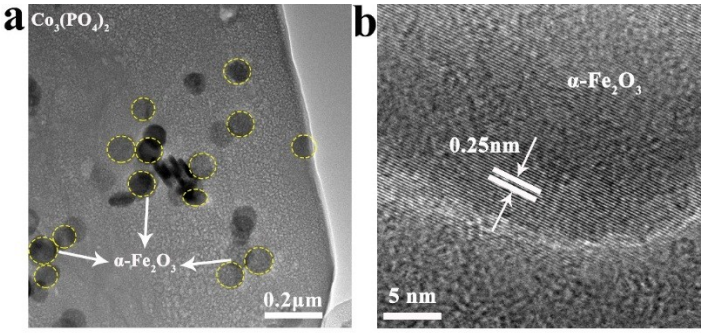

Fig. S6. (a) TEM image of $Co_3(PO_4)_2/\alpha$-Fe_2O_3-1.6% after photocatalytic reaction. (b) HRTEM image of $Co_3(PO_4)_2/\alpha$-Fe_2O_3-1.6% with obvious lattice spacing for α-Fe_2O_3 after photocatalytic reaction.

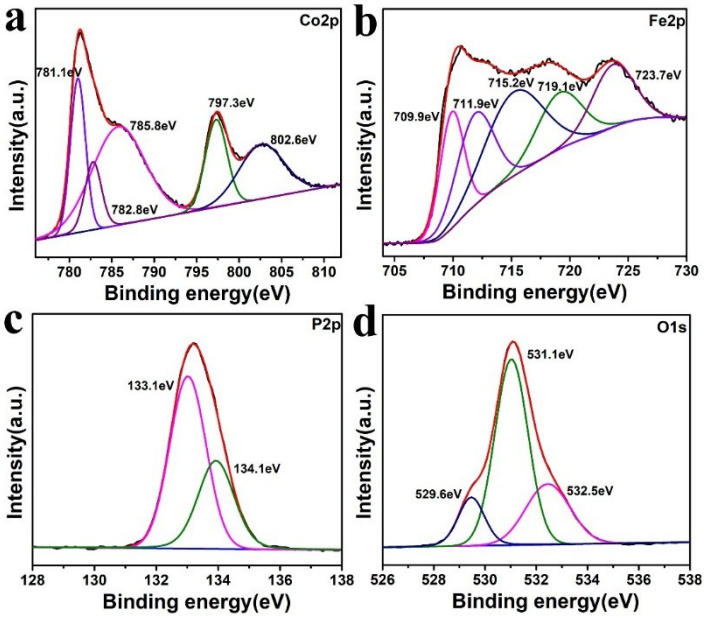

Fig. S7. High-resolution XPS spectra of $Co_3(PO_4)_2/\alpha$-Fe_2O_3-1.6% after photocatalytic reaction: (a) Co 2p, (b) Fe 2p, (c) P 2p and (d) O 1s.

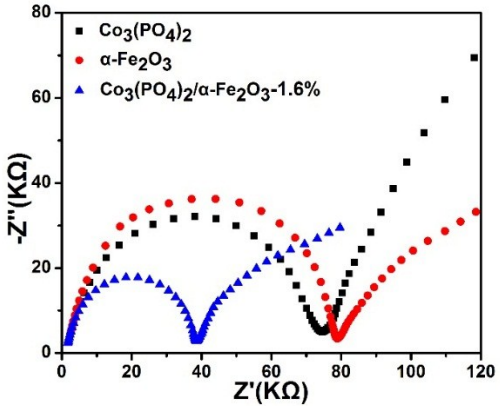

Fig. S8. Electrochemical impedance spectra of $Co_3(PO_4)_2$, α-Fe_2O_3 and $Co_3(PO_4)_2/\alpha$-Fe_2O_3-1.6%.