Electronic Supplementary Information (ESI)

α-Fe_2O_3 quantum dots: Low-cost synthesis and photocatalytic oxygen evolution capabilities

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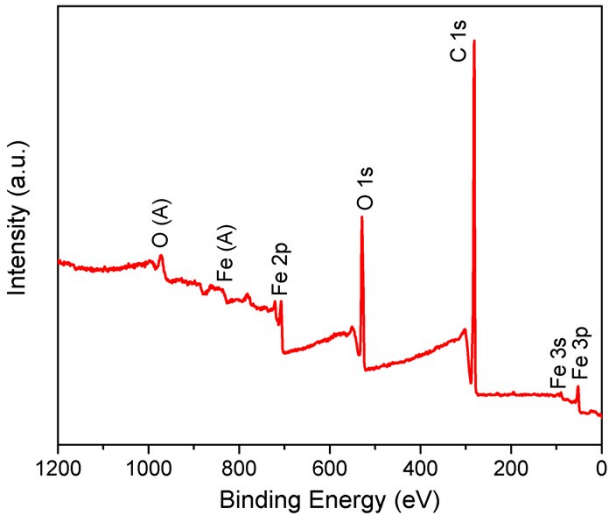


Fig. S1 Survey XPS spectra spectra collected for α-Fe_2O_3 QDs.

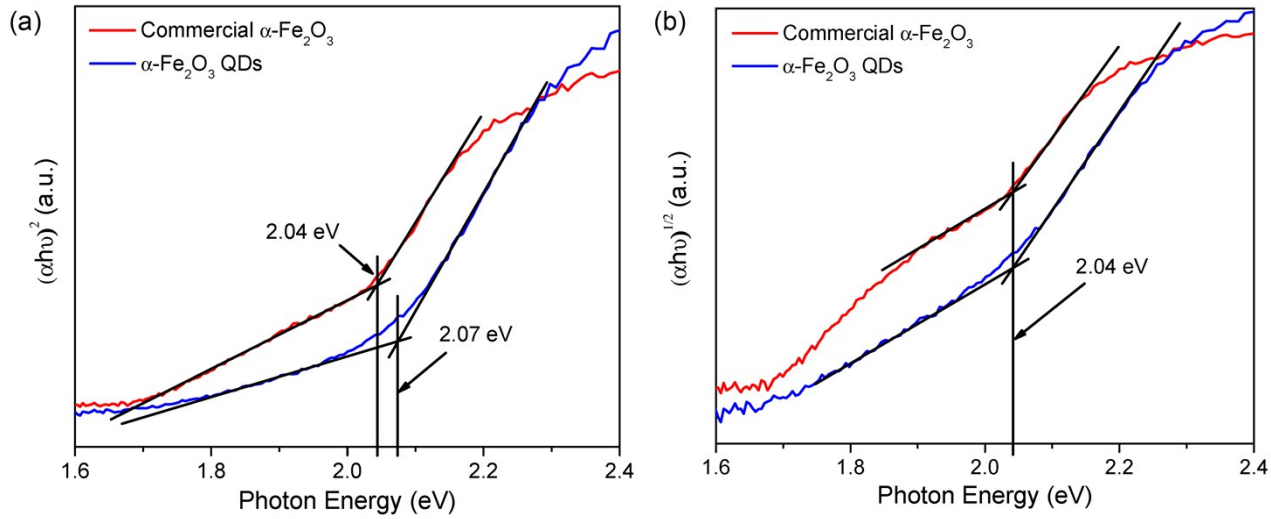


Fig. S2 (a) Direct transition and (b) indirect band gaps for α-Fe_2O_3 QDs and commercial α-Fe_2O_3.

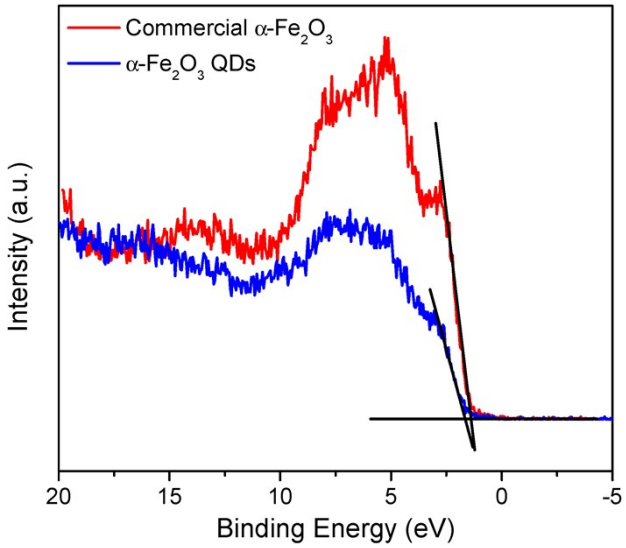


Fig. S3 Valence-band XPS spectra of α-Fe_2O_3 QDs and commercial α-Fe_2O_3

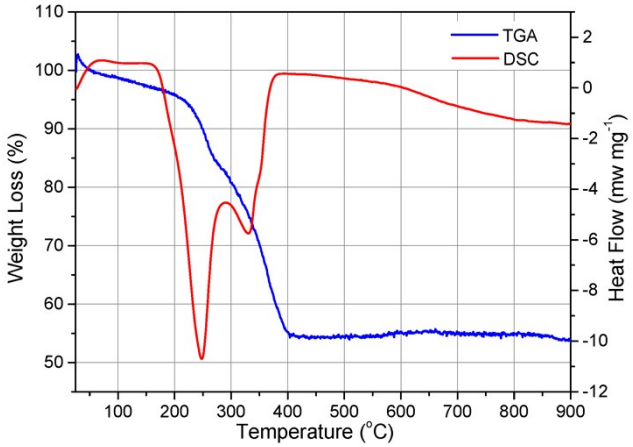


Fig. S4 Thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC) data of α-Fe_2O_3 QDs.

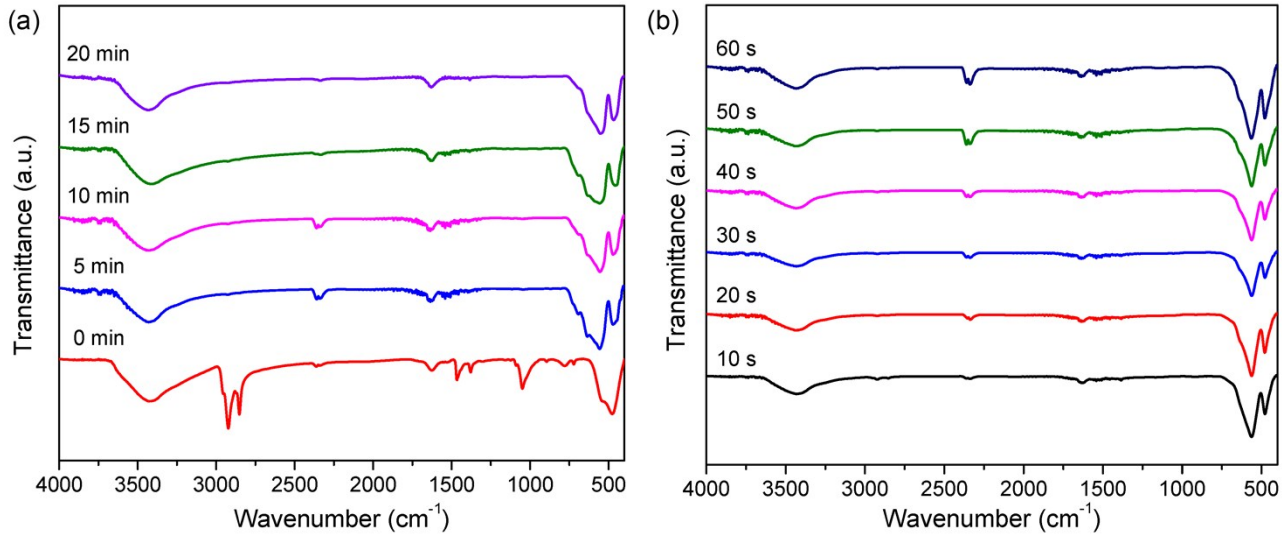


Fig. S5 FTIR spectra of α-Fe_2O_3 QDs annealed at different temperature: (a) 450 ^{o}C and (b) 800 ^{o}C.

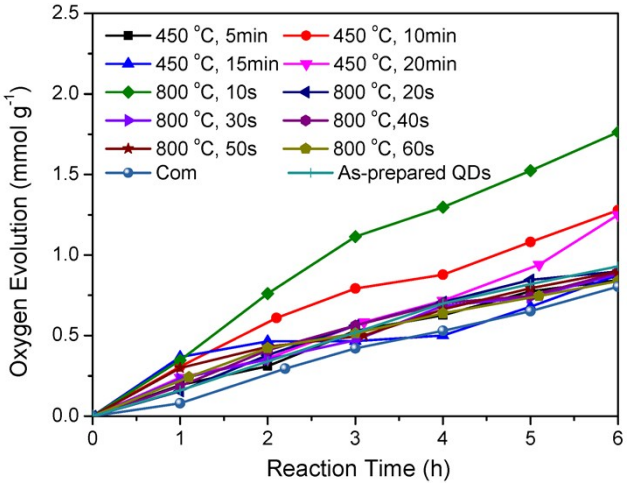
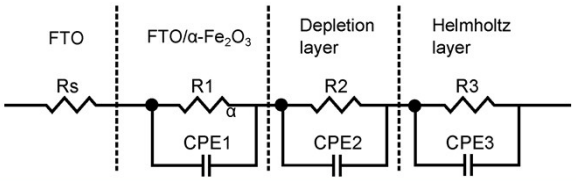


Fig. S6 Photocatalytic O_2 evolution from an aqueous $AgNO_3$ solution over commercial α-Fe_2O_3 and α-Fe_2O_3 QDs annealed at 450 ^{o}C and 800 ^{o}C for various time.



(R/Ω) (CPE/F)	Rs	R1 CPE1	R2 CPE2	R3 CPE3
800 °C, 10s	23.33	25.33 5.525×10^{-5}	1680 1.923×10^{-5}	8.78×10^{4} 2.492×10^{-5}
800 °C, 60s	25.51	144.3 2.083×10^{-5}	7220 3.664×10^{-5}	809.7 2.398×10^{-5}
450 °C, 20 min	25.98	43.45 2.855×10^{-5}	4984 4.300×10^{-5}	335.2 2.188×10^{-5}

Fig. S7 The equivalent circuit model of EIS spectra and fitted values.