

# Supplementary Materials: Photoelectrochemical Behavior of Electrophoretically Deposited Hematite Thin Films Modified with Ti(IV)

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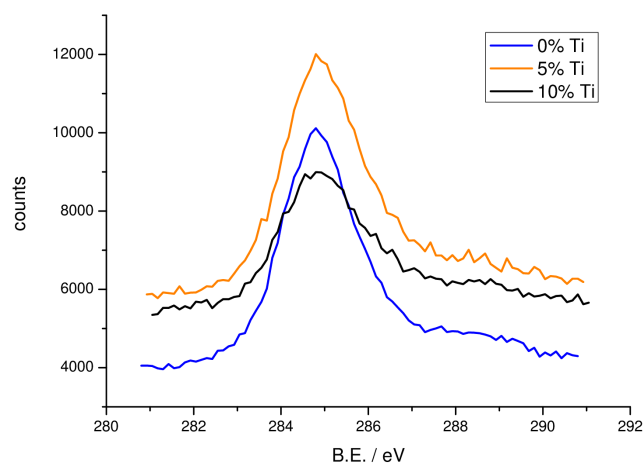


Figure S1. C 1s core level XPS spectra for un-modified and Ti-modified hematite films (5% and 10%).

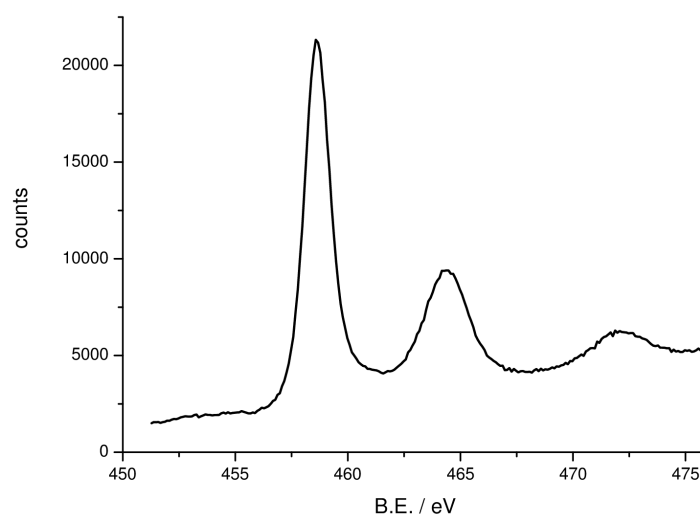
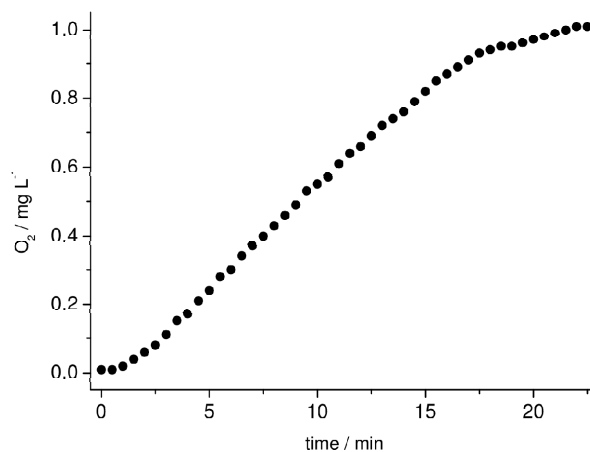
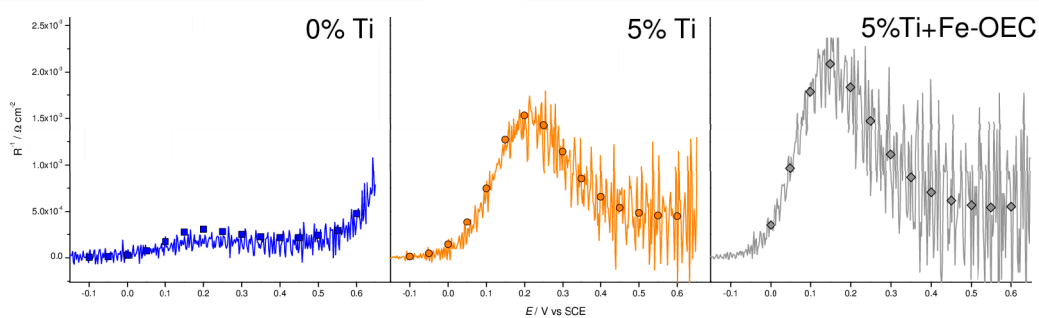


Figure S2. Ti 2p core level XPS spectra of TiO<sub>2</sub>.



**Figure S3.** Typical oxygen evolution at a Ti(IV) modified hematite photoanode functionalized with Fe-OEC biased at 0.15 V vs. SCE under AM 1.5 G illumination in 0.1 M NaOH.



**Figure S4.** Derivatives of the  $J$ - $V$  curve ( $\partial J/\partial V$ , solid lines) plot together with the inverse of  $R_3$  values (symbols) obtained from the EIS data fitting of the low frequency loop for the un-modified and 5% Ti-modified before and after functionalization with Fe-OEC.