Supporting Information

Fig. S1. Representative J-V curves of hematite electrodes in different metal ion solutions
Fig. S2. Representative J-t curves of hematite electrodes with 0.4 V_{SCE} applied bias in different metal ion solutions.
Fig. S3 Representative simulation of the distribution of metal ions on the surface of hematite.
Fig. S4 Representative XPS spectra on the surface of hematite after 90 min of illumination.