

Electrocatalytic and Photocatalytic Hydrogen Production from Acidic and Neutral-pH Aqueous Solutions Using Iron Phosphide Nanoparticles

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Supplementary Figures

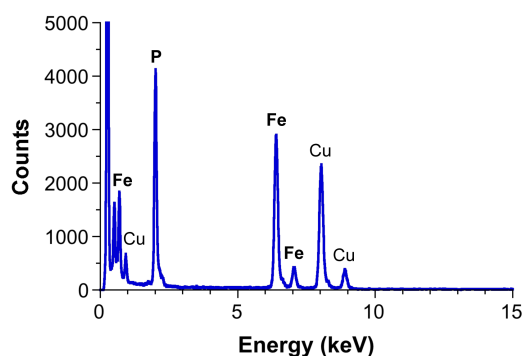


Figure S1. EDS spectrum of the as-synthesized FeP nanoparticles.

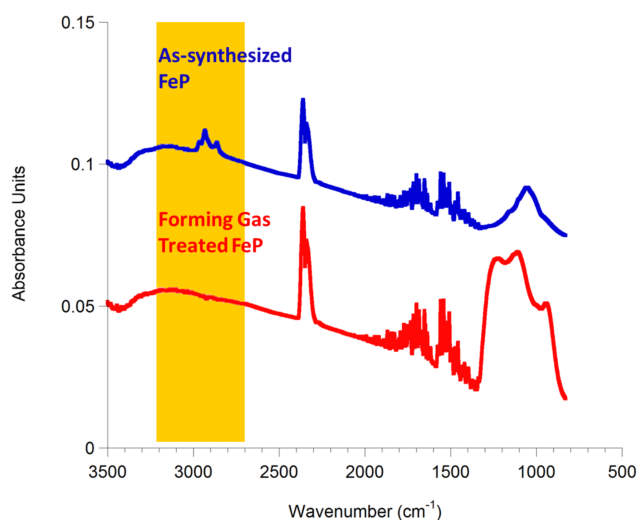


Figure S2. DRIFT spectra of FeP nanoparticles as-synthesized (top) and after heating under H₂(5%)/Ar(95%) to 450 °C (bottom). The region corresponding to the C-H stretching frequencies (present because of the surface ligands in the as-synthesized sample and absent after annealing) is highlighted.

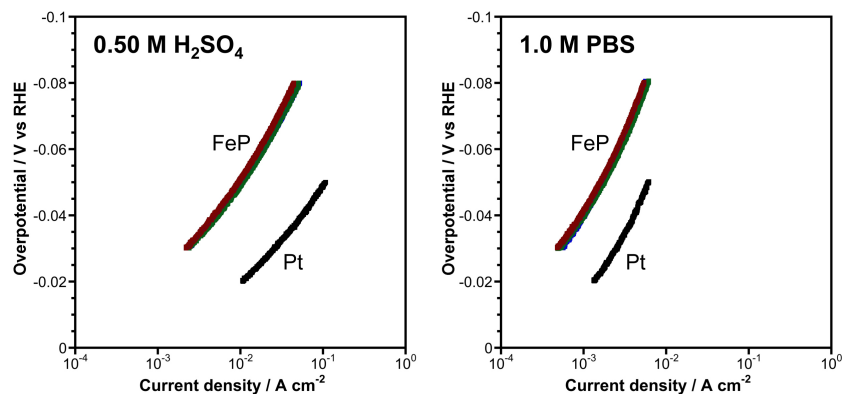


Figure S3. Tafel plots of overpotential vs. log(current density) of several FeP/Ti electrodes and of a Pt electrode. The slopes were obtained by applying a linear fit between -30 mV to -80 mV for the FeP samples and -20 mV to -50 mV for the Pt electrode.

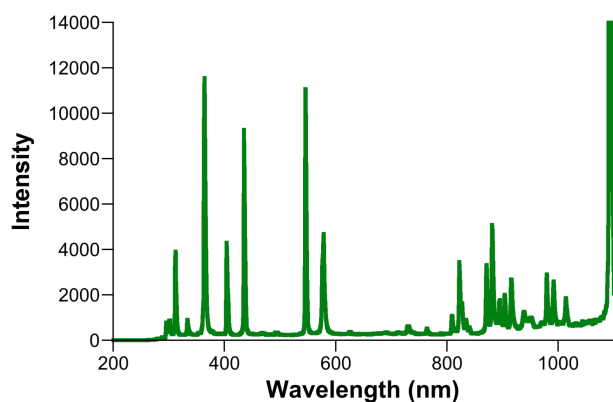


Figure S4. Spectrum of the 200 W Hg(Xe) arc lamp used for the photocatalysis experiments.

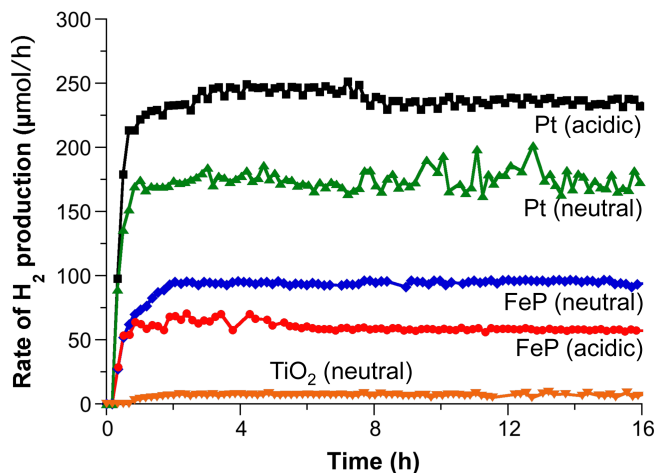


Figure S5. Plot showing the rate of photocatalytic H₂ production vs. time for Pt/TiO₂ and FeP/TiO₂ samples, each in acidic and neutral-pH solutions, as well as a TiO₂ control. The FeP data are also included in Figure 4b of the main text. The apparent quantum yields for Pt/TiO₂ in acidic and neutral-pH solutions were 0.222 and 0.163, respectively.

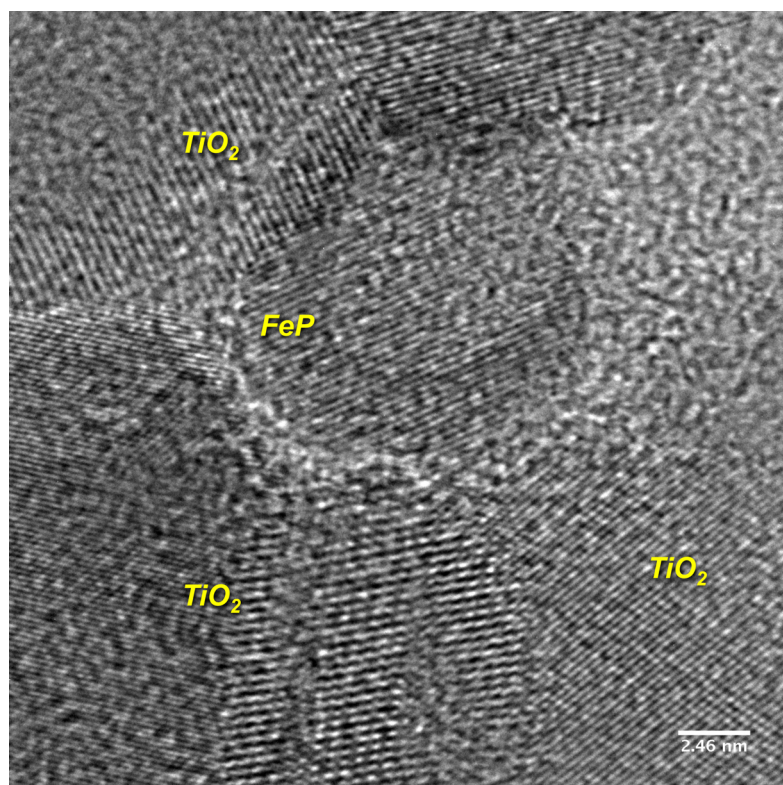


Figure S6. HRTEM image of the FeP/TiO₂ sample after 16 h of photocatalytic testing in acidic solution, showing that the size, morphology, and crystallinity of the FeP nanoparticle persisted, as did its interface with the TiO₂ support.

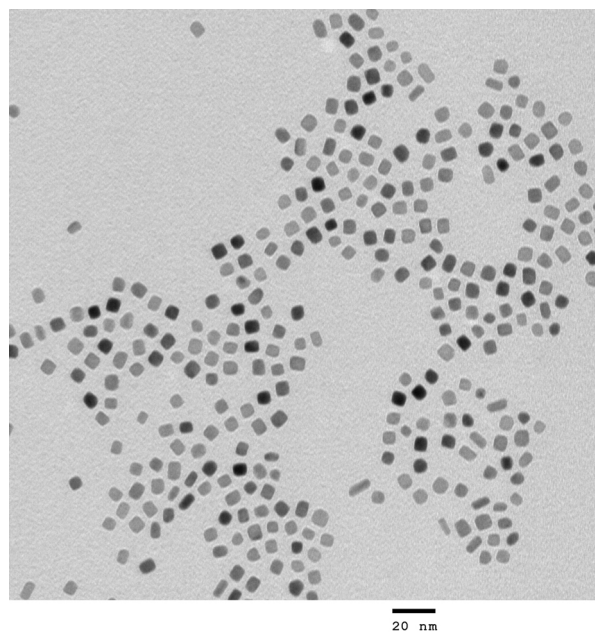


Figure S7. TEM image of Pt nanoparticles used as a control in the photocatalysis experiments.