

Supporting Information

Photoelectrochemical Generation of Hydrogen and Electricity from Hydrazine Hydrate Using BiVO_4 Electrodes

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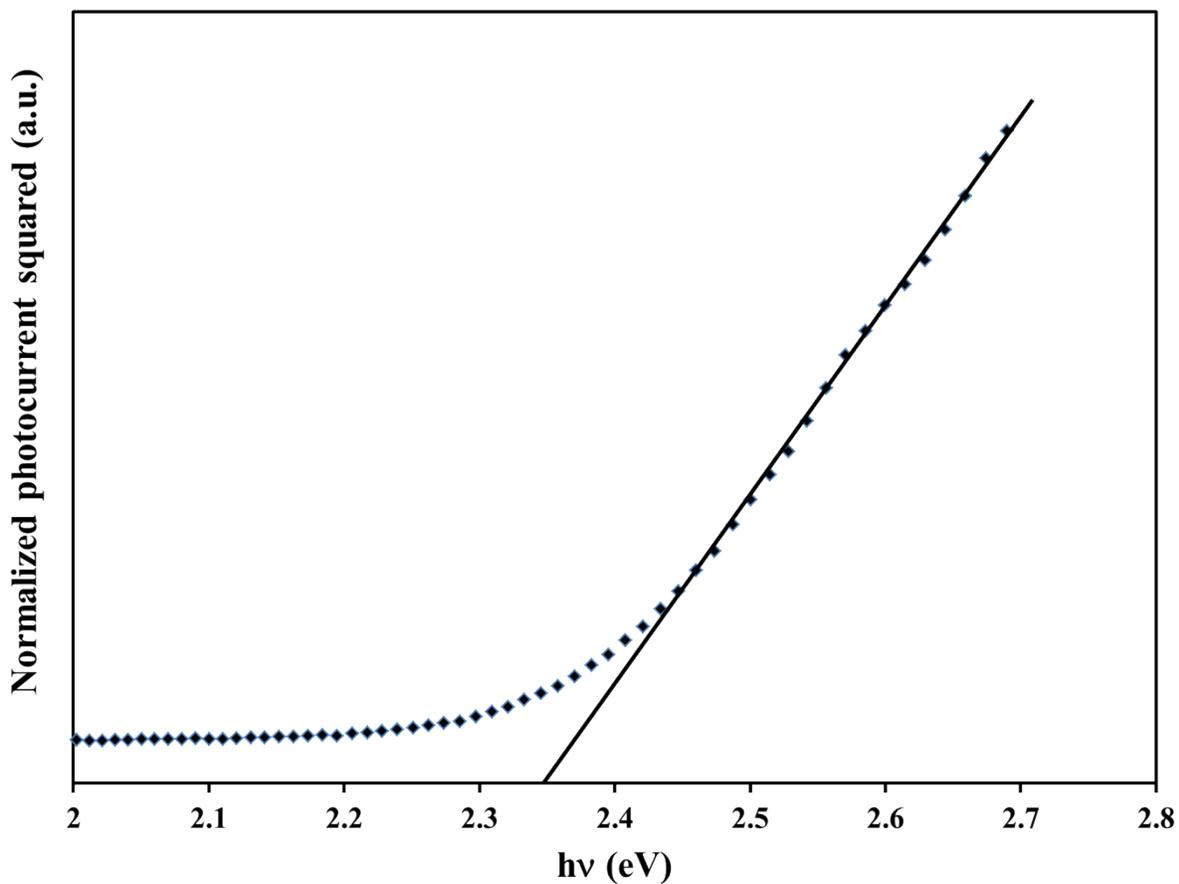


Fig. S1 Photocurrent action spectrum of $\text{BiM}_{0.02}\text{V}_{0.98}\text{O}_4$ photoelectrode measured in 1mM Na_2SO_3 aqueous solution (pH7 phosphate buffered), applied bias 0.7 V vs. Ag/AgCl

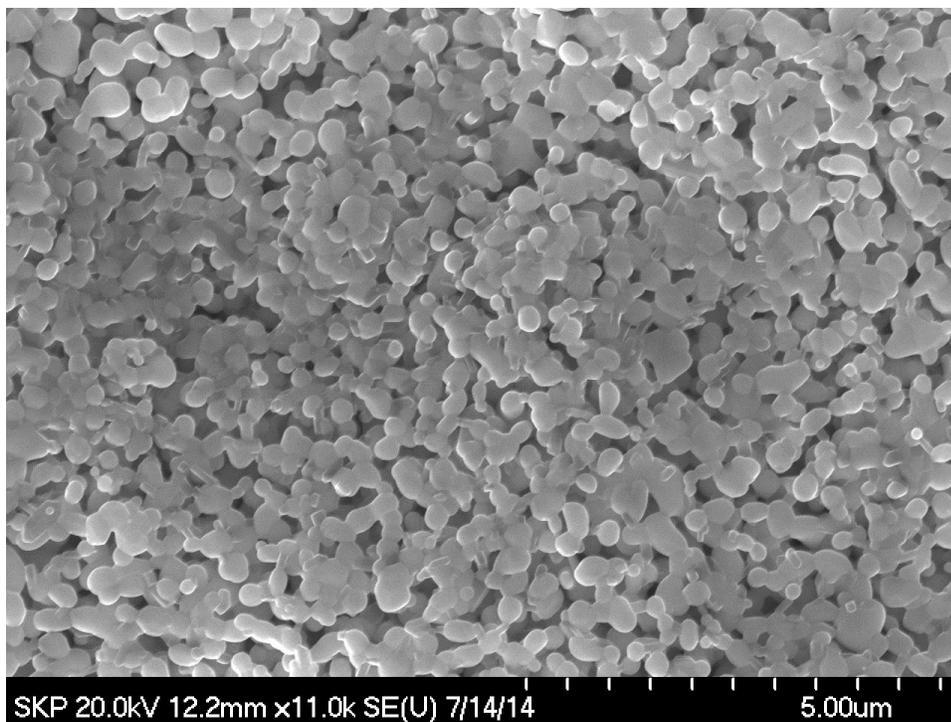


Fig. S2 SEM Image of BiVO₄/FTO photoelectrode.

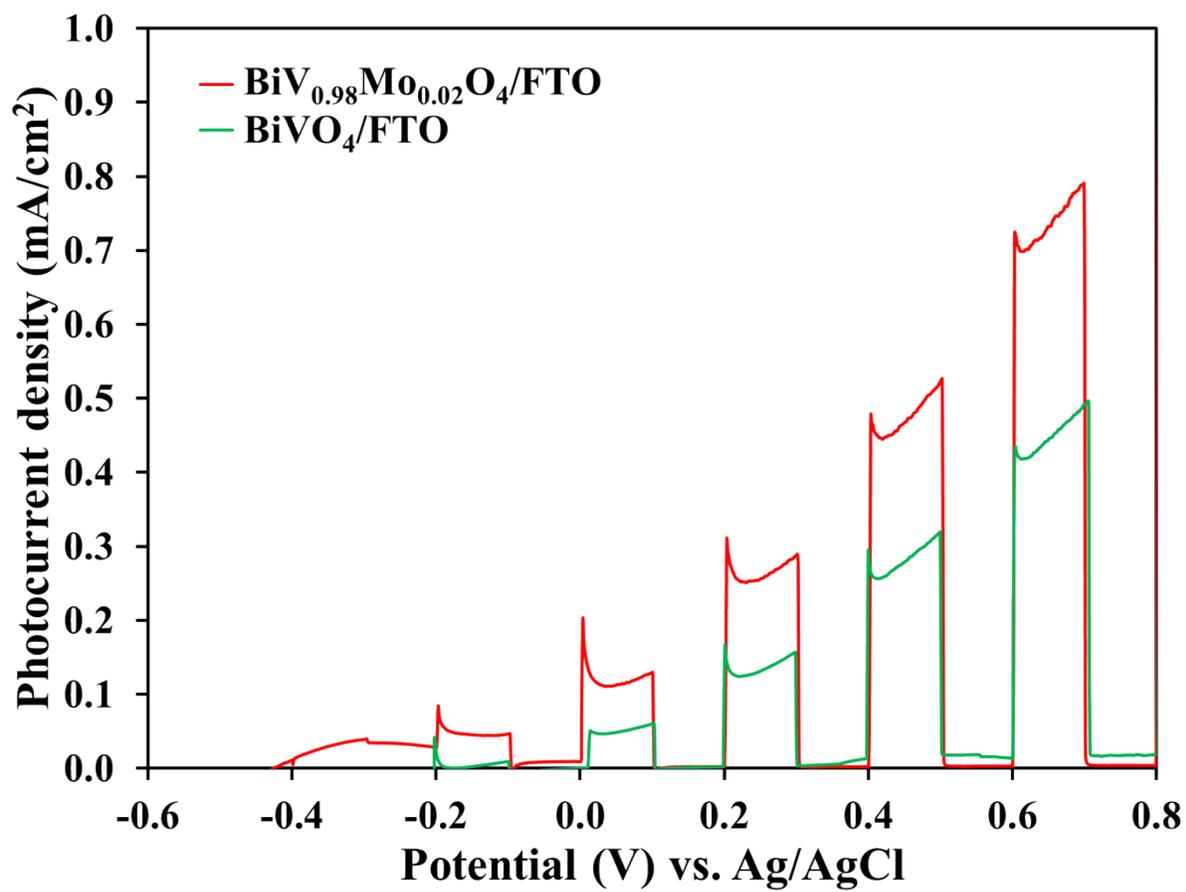


Fig. S3 Chopped light $I-V$ profiles of BiVO_4/FTO (green) $\text{BiMo}_{0.02}\text{V}_{0.98}\text{O}_4/\text{FTO}$ photoelectrode (red) measured in 0.1M NaH_2PO_4 aqueous solutions (pH7) under AM 1.5G (100 mWcm^{-2}) irradiation.

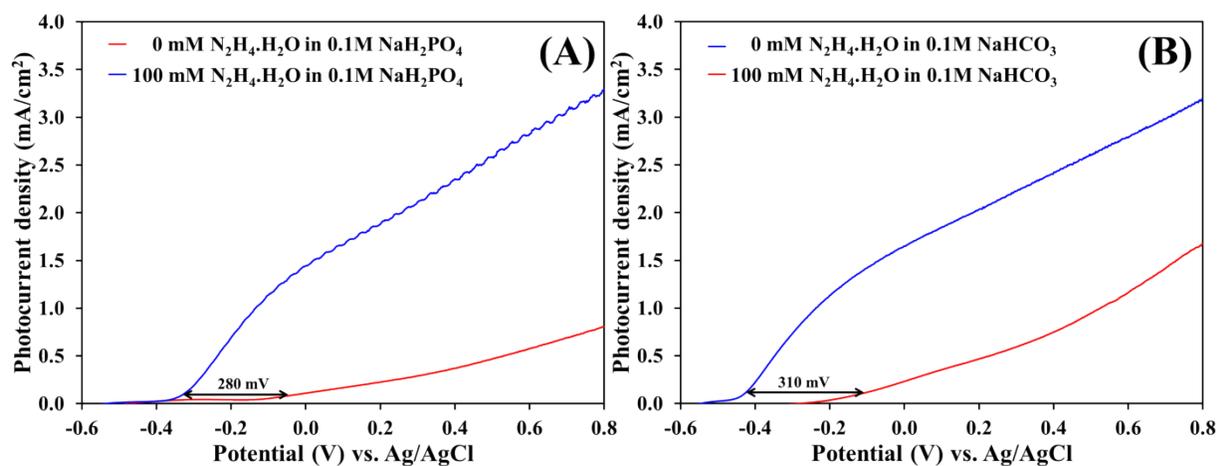


Fig. S4 Steady state I - V profiles of BiMo_{0.02}V_{0.98}O₄/FTO photoelectrode measured in (A) 0.1M NaH₂PO₄ and (B) 0.1M NaHCO₃ aqueous solutions (pH7) containing 0 mM (red) and 100 mM (blue) hydrazine hydrate under AM 1.5G (100 mWcm⁻²) irradiation.

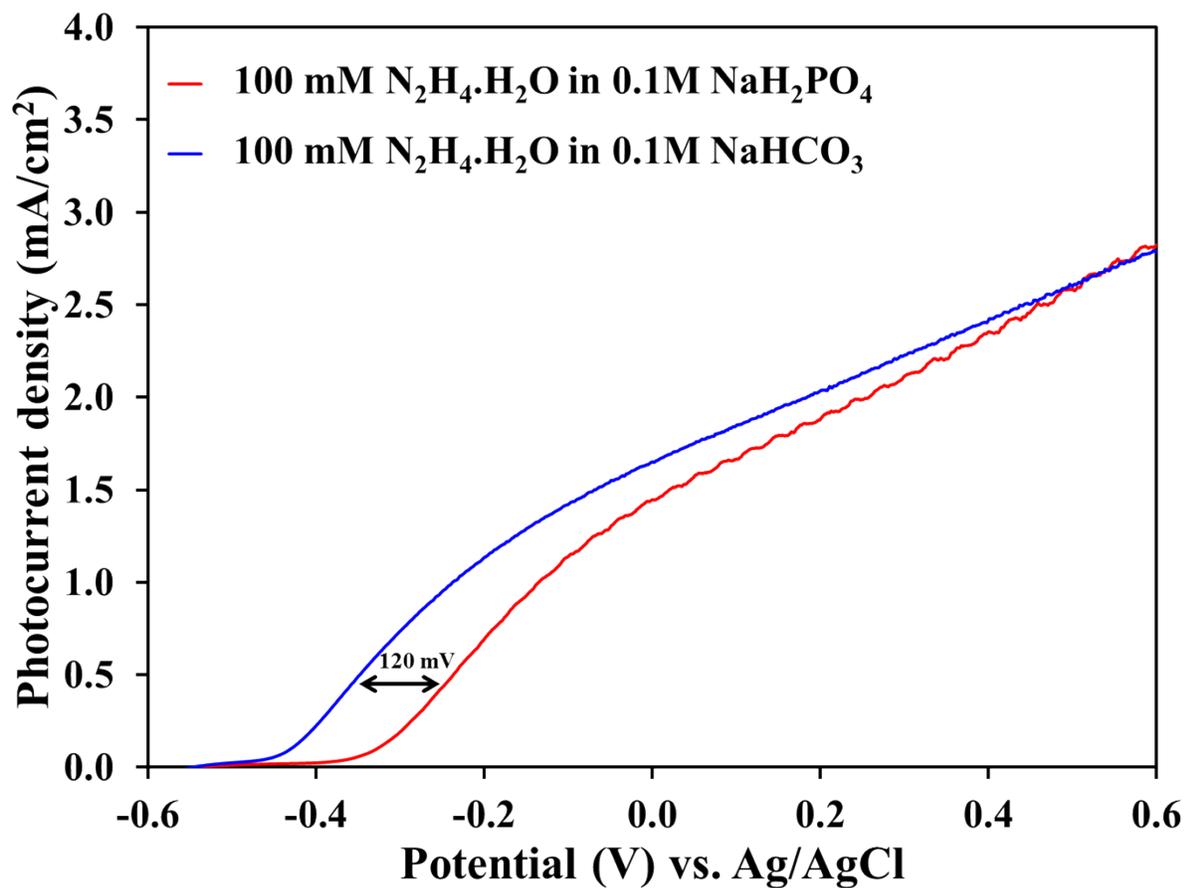


Fig. S5 Steady state I - V profiles of BiMo_{0.02}V_{0.98}O₄/FTO photoelectrode measured in 0.1M NaH₂PO₄ (red) and 0.1M NaHCO₃ (blue) aqueous solutions (pH7) containing 100 mM hydrazine hydrate under AM 1.5G (100 mWcm⁻²) irradiation.

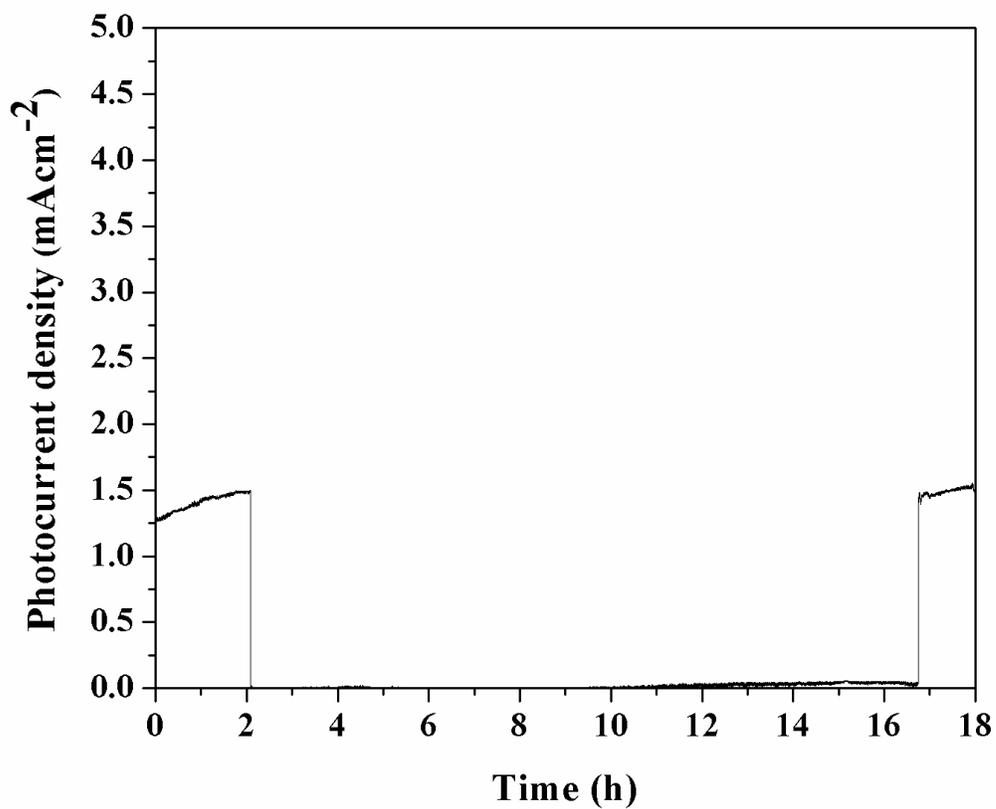


Fig. S6 Chopped light photocurrent-time response profile of BiMo_{0.02}V_{0.98}O₄/FTO photoelectrode measured at 0.0 V vs. Ag/AgCl under AM 1.5 G irradiation (100 mW cm⁻²).

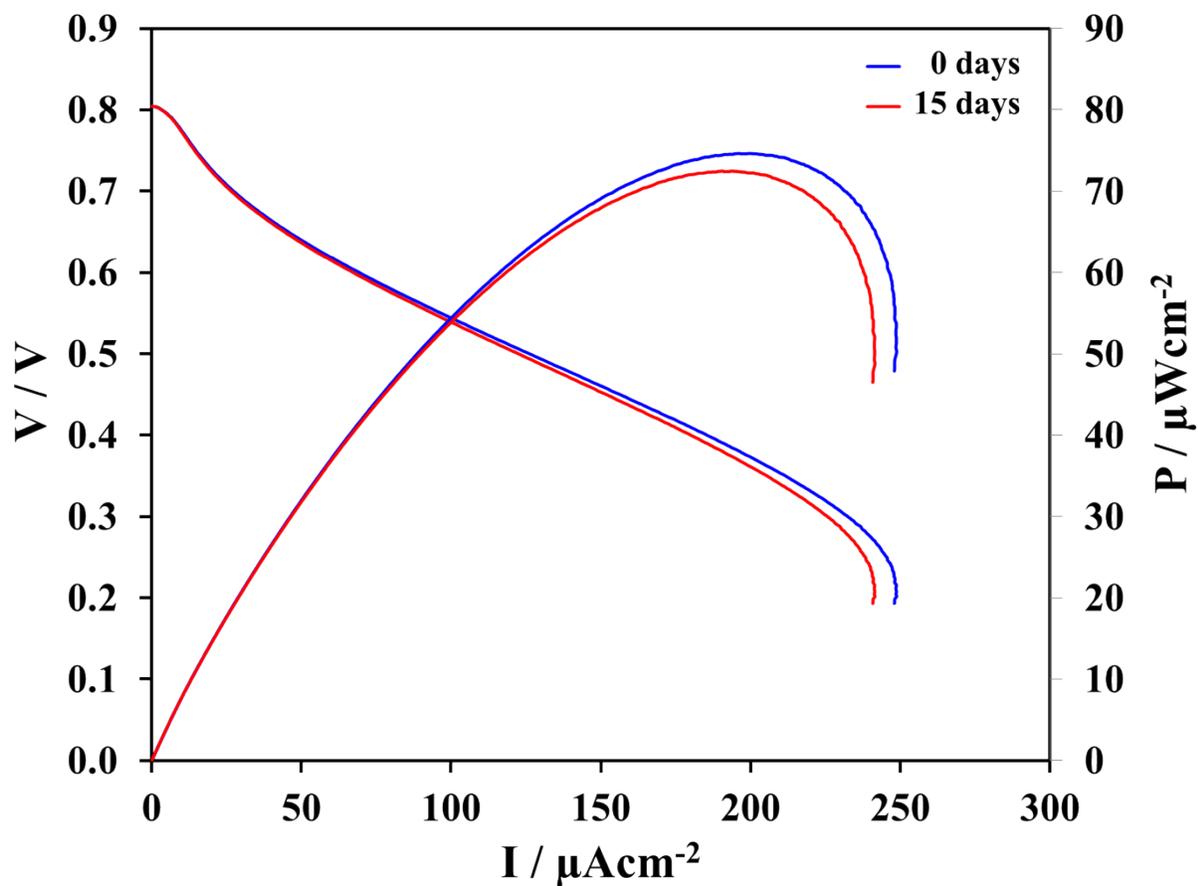


Fig. S7 Cell polarization curves (I) and cell power output curves (P - I) operating with 40 mM hydrazine hydrate measured at 0 days (blue) and 15 days (red) in 0.1M NaHCO_3 aqueous solutions (pH7) under AM 1.5 G irradiation (100 mW cm^{-2}).