

Supporting Information

Zinc Tantalum Oxynitride (ZnTaO₂N) Photoanode Modified with Cobalt Phosphate Layers for the Photoelectrochemical Oxidation of Alkali Water

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Table S1. Photophysical and structural properties of TaO₂N based photoanodes.

Sample	Thickness (μm) ^[a]	χ	E_{cb} ^[c]	E_{vb} ^[c]	Band gap E_g (eV) ^[d]
TaON	0.4	6.3	0.325	3.275	2.95
LaTaO ₂ N	0.3	5.9	0.110	2.690	2.58
ZnTaO ₂ N	0.4	6.2	0.359	3.100	2.75

^[a] Thickness of photoanodes measured by the profilometer. ^[b] Obtained from experimental analysis of Mott-Schotky plot. ^[c] Obtained by Butler and Ginley method by considering the electronegativity of the particles. ^[d] determined from DRS analysis using Kublenka-Munk function.

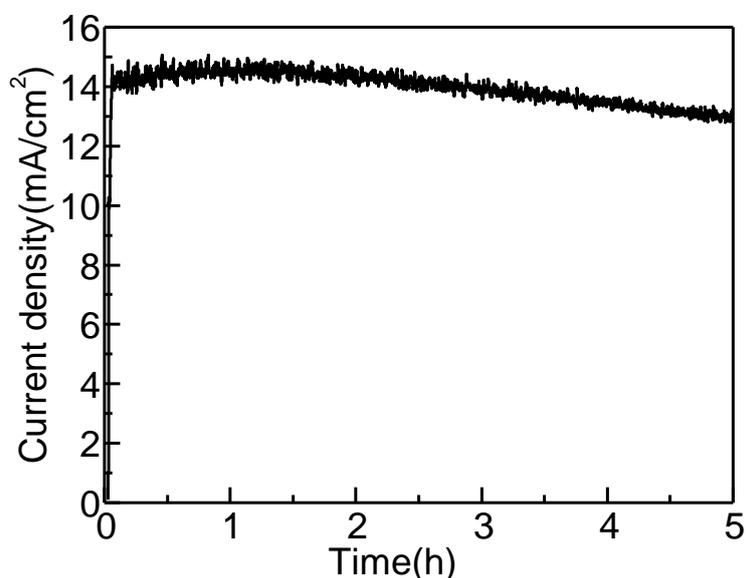


Figure S1. Chronoamperometric measurements in two-electrode setup in 1 M aqueous sulfate solution (pH = 13), during prolonged irradiation of visible light ($\lambda > 420$ nm).

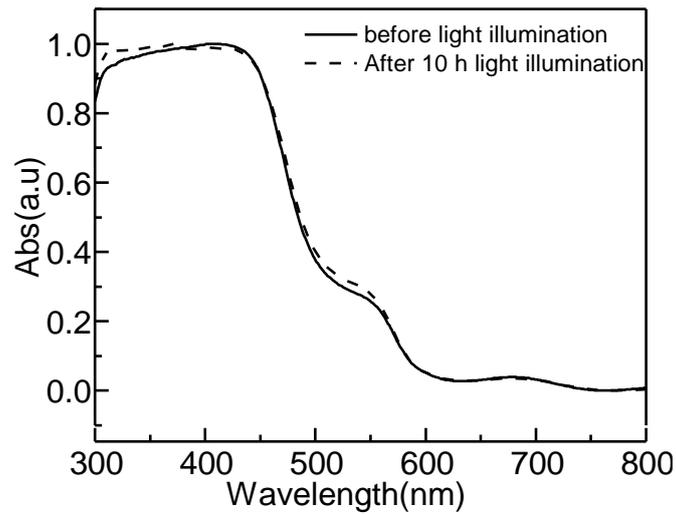


Figure S2. Absorption spectra of CoPi/ZnTaO₂N photoanodes before and after visible-light irradiation for 10 h. No changes in the absorption spectra of the nanoparticles before and after irradiation.



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