

Electronic Supplementary Information (ESI)

Structural effects of two-dimensional perovskite
 $\text{Ca}_2\text{Nb}_2\text{TaO}_{10}^-$ nanosheets for photocatalytic hydrogen evolution

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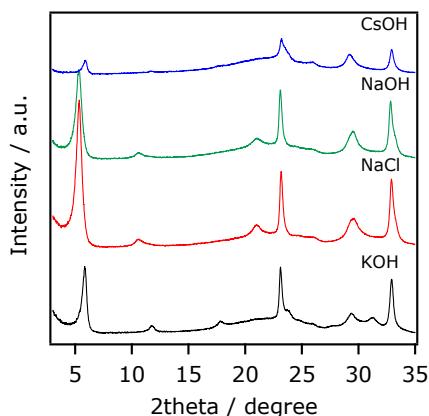


Fig. S1. XRD patterns of $\text{Ca}_2\text{Nb}_2\text{TaO}_{10}^-$ nanosheets restacked by KOH, NaCl, NaOH, and CsOH.

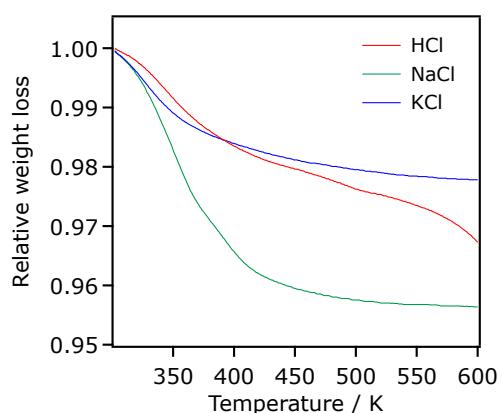


Fig. S2. TG curves for $\text{Ca}_2\text{Nb}_2\text{TaO}_{10}^-$ nanosheets restacked by HCl, NaCl, and KCl. The measurements were conducted under a flow of nitrogen (200 mL min^{-1}) at 10 K min^{-1} .

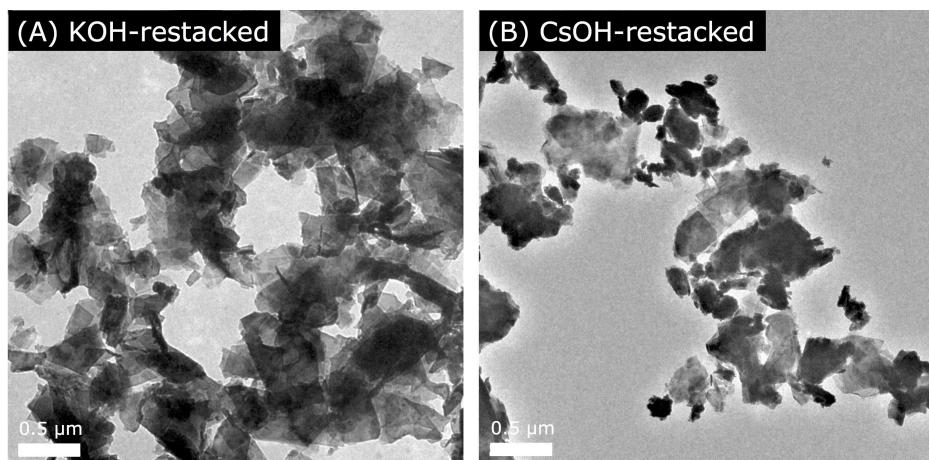


Fig. S3. TEM images of $\text{Ca}_2\text{Nb}_2\text{TaO}_{10}^-$ nanosheets restacked by (A) KOH and (B) CsOH.

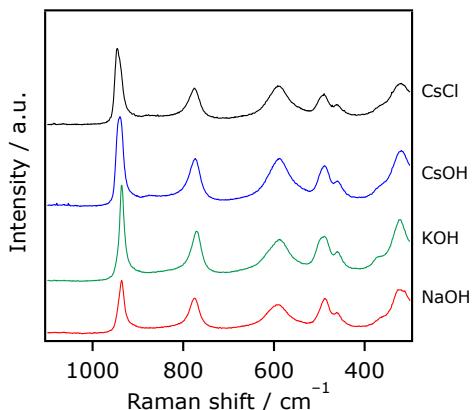


Fig. S4. Raman spectra of $\text{Ca}_2\text{Nb}_2\text{TaO}_{10}^-$ nanosheets restacked by ACl ($\text{A} = \text{H}, \text{Li}, \text{Na}, \text{K}, \text{Rb}, \text{Cs}$).

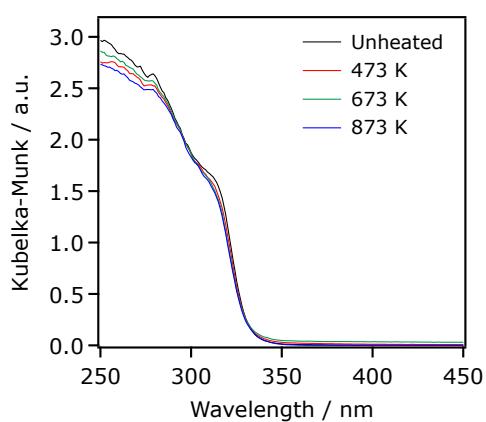


Fig. S5. UV-visible diffuse reflectance spectra of KOH-restacked $\text{Ca}_2\text{Nb}_2\text{TaO}_{10}^-$ nanosheets further calcined at different temperatures in air.

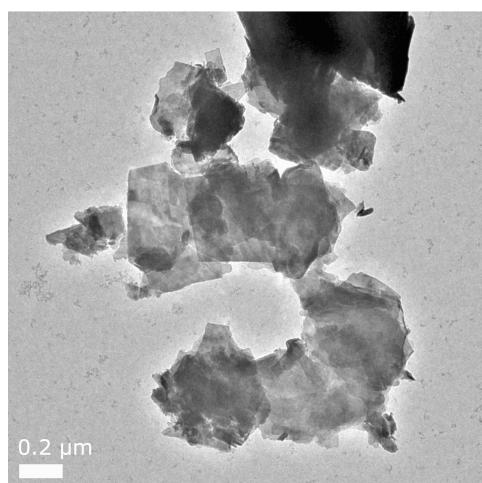


Fig. S6. A TEM image of $\text{Ca}_2\text{Nb}_2\text{TaO}_{10}^-$ nanosheets restacked by KOH, further subject to post-heating in air at 873 K for 1 h.