

Electronic Supplementary Information

Achievement of Visible-light-driven Z-scheme Overall Water Splitting Using Barium-modified Ta₃N₅ as a H₂-evolving Photocatalyst

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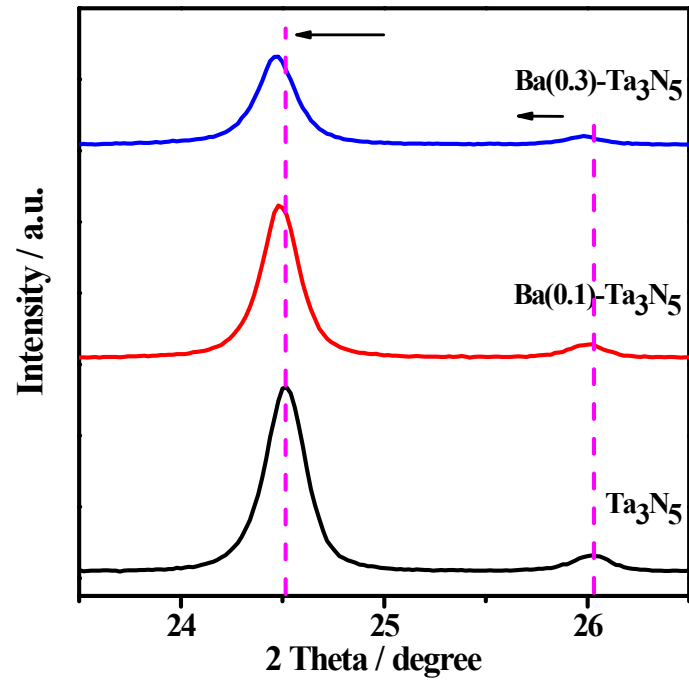


Figure S1. XRD patterns of several typical samples.

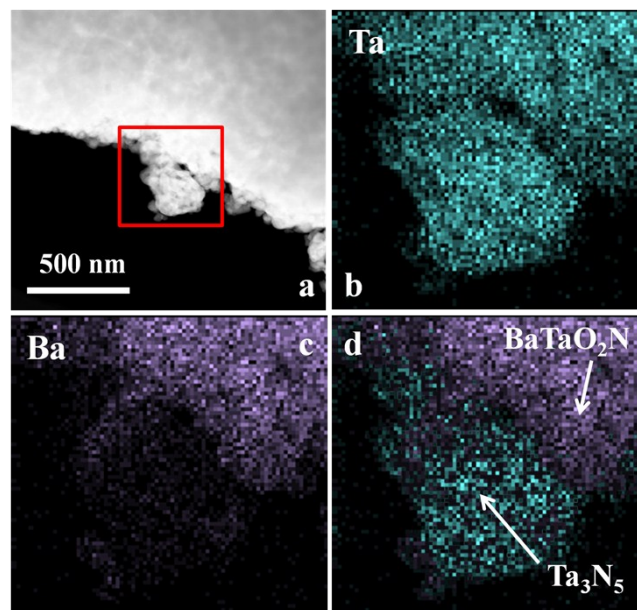


Figure S2. The elemental mappings of the mixture of Ta_3N_5 and BaTaO_2N : (a) TEM image, (b) Ta element, (c) Ba element, (d) simulated dispersion of Ta_3N_5 and BaTaO_2N .

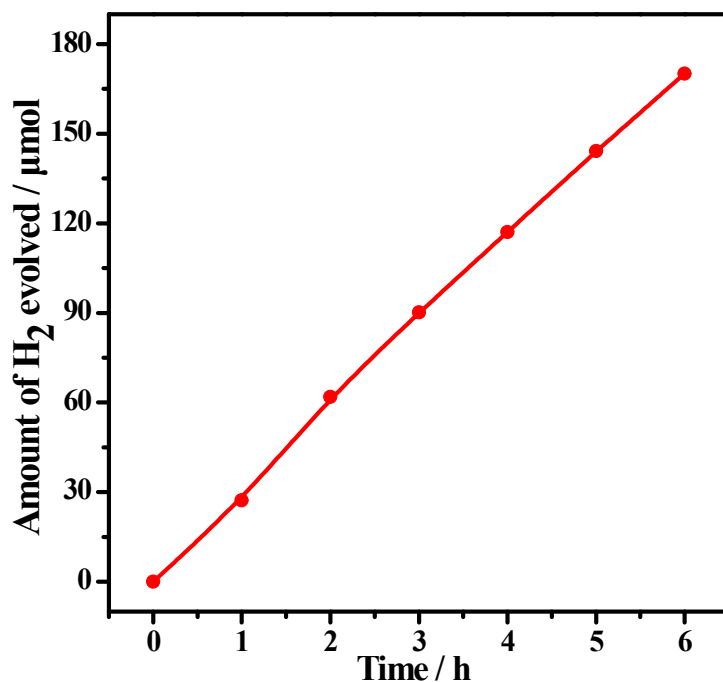


Figure S3. Time course of photocatalytic H₂ evolution on 0.5 wt% Pt/Ba(0.3)-Ta₃N₅ under visible light irradiation ($\lambda > 420$ nm). Reaction conditions: 0.15 g catalyst; 0.15 g La₂O₃; aqueous methanol solution (150 mL, 20 vol%); light source, 300 W xenon lamp, Pyrex top-irradiation type.

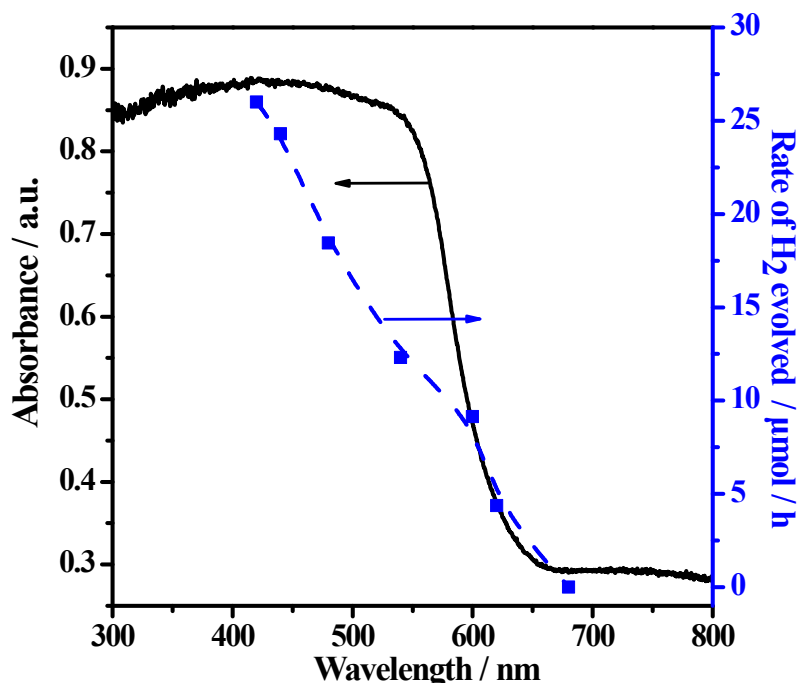


Figure S4. Dependence of the H₂ evolution rate on the cutoff wavelength of incident light (blue line) and the UV-vis DRS of Ba(0.3)-Ta₃N₅ sample (black line). Reaction conditions: 0.15 g 0.5 wt%Pt/Ba(0.3)-Ta₃N₅; 0.15 g La₂O₃; aqueous methanol solution (150 mL, 20 vol%); 300 W xenon lamp ($\lambda > 420$ nm); 1 h reaction time.