

Supplementary Information

Surface functionalized $\text{H}_2\text{Ti}_3\text{O}_7$ nanowires to engineer visible-light photoswitching, electrochemical water splitting, and photocatalysis

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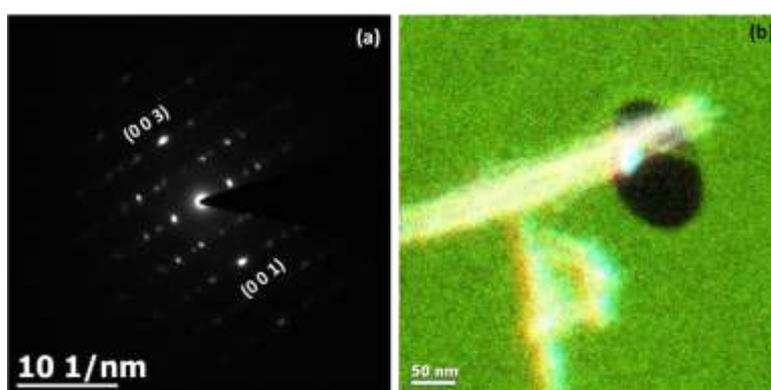


Figure S1. (a) SAED pattern of HTO NWs, (b) RGB composite of C-HTO NW, obtained from EFTEM.

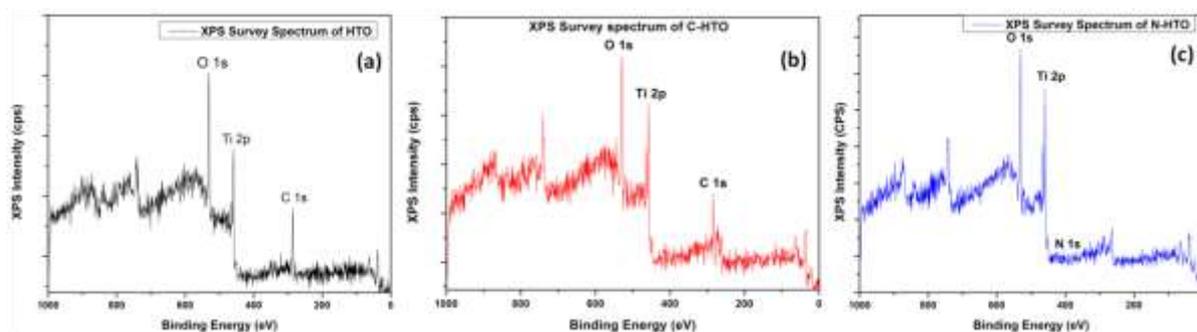


Figure S2. XPS survey spectra for (a) HTO NWs, (b) C-HTO NWs and (c) N-HTO NWs.

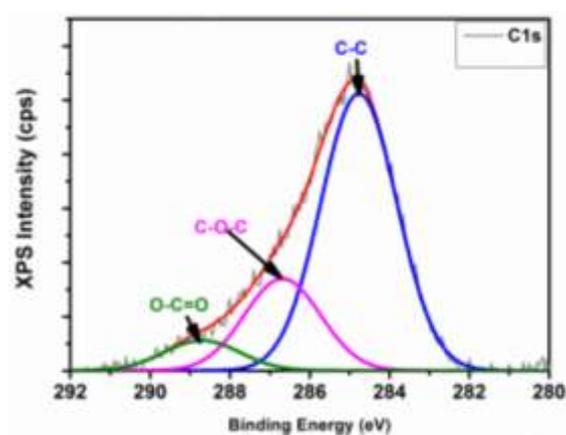


Figure S3. XPS spectrum of C1s of the adventitious carbon, present in HTO.

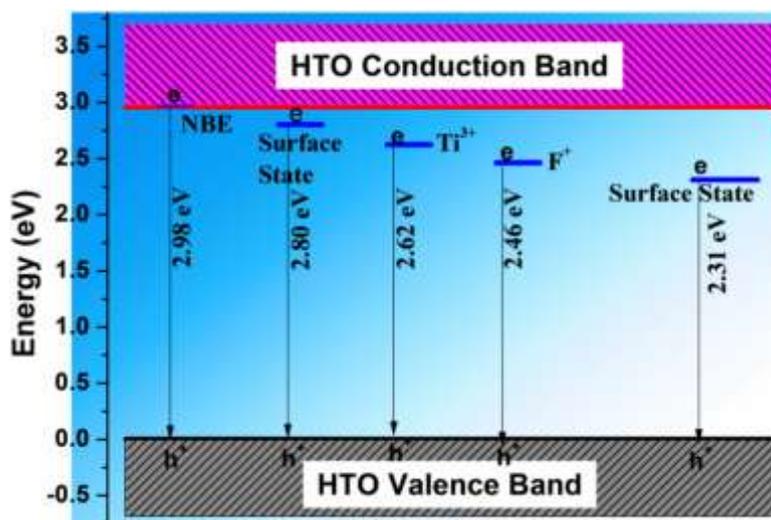


Figure S4. Schematic diagram depicting the origin of different PL emissions of HTO NWs.¹⁻

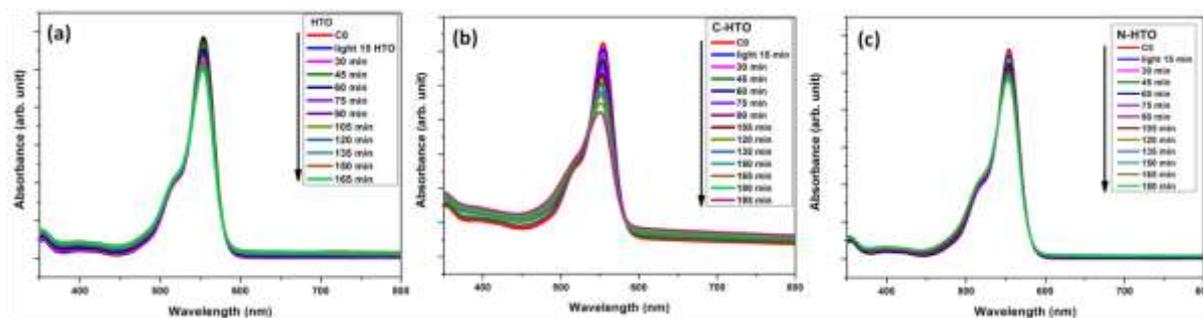


Figure S5. Absorption spectra of RhB in presence of (a) HTO, (b) C-HTO and (c) N-HTO NWs during visible light induced photocatalysis.

Relation between reduced mass and wave number

We know,

$$\omega = \sqrt{\frac{k}{\mu}}, \quad \mu = \frac{m_1 m_2}{m_1 + m_2}$$

Where, ω is the angular frequency, k is the spring constant and μ is the reduced mass.

$$\text{So, } \omega \propto \sqrt{\frac{1}{\mu}}$$

$$\text{Again, wave number } \tilde{\nu} = \frac{\omega}{2\pi c}$$

$$\text{Therefore, } \tilde{\nu} \propto \sqrt{\frac{1}{\mu}}$$

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