

Supplementary Information

Visible Light Active Bi₃TaO₇ Nanosheets for Water Splitting

Hadi Razavi-Khosroshahi^a, Sara Mohammadzadeh^a, Mirabbos Hojamberdiev^b, Sho Kitano^c, Miho Yamauchi^{c,d}, Masayoshi Fujii^{a*}

^a Advanced Ceramics Research Center, Nagoya Institute of Technology, Gifu, Japan.

^b Department of Materials Physics, Faculty of Engineering, Nagoya University, Nagoya, Japan.

^c Department of Chemistry, Faculty of Sciences, Kyushu University, Fukuoka, Japan

^d International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University, Fukuoka, Japan

Email: razavi.khosroshahihadi@nitech.ac.jp

hrkhosro@gmail.com

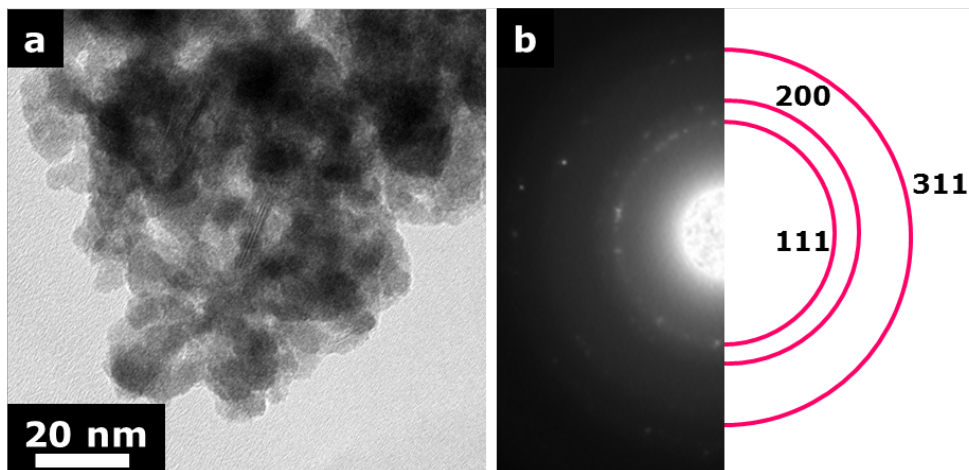


Figure S1. (a) Bright-field TEM micrograph of Bi_3TaO_7 powder and (b) corresponding SAED pattern.

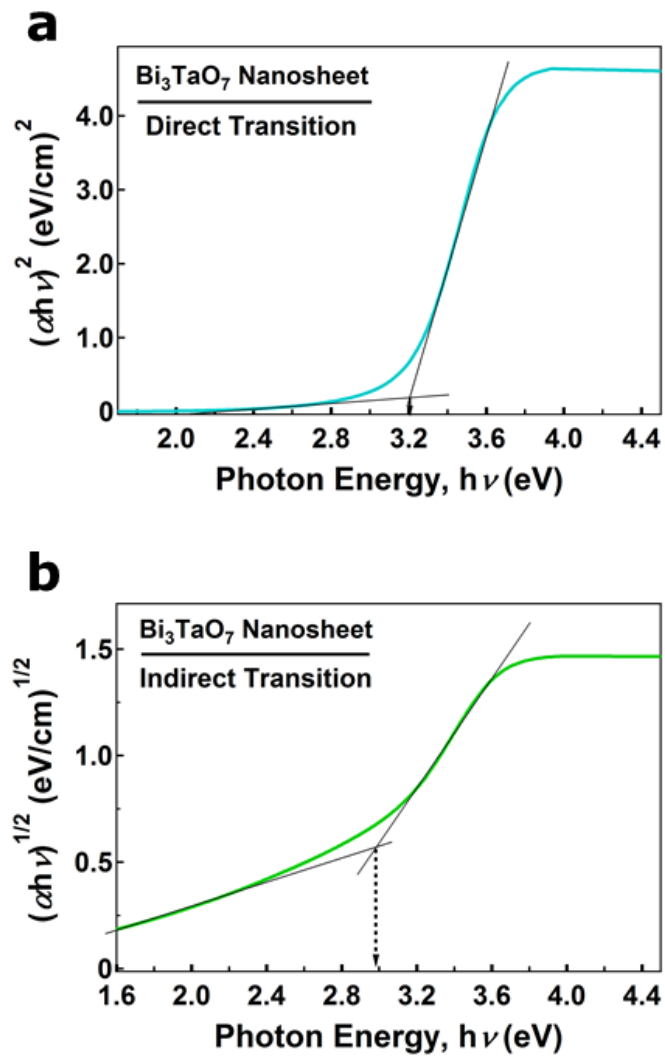


Figure S2. (a) Direct band gap, and (b) indirect band gap estimation of nanosheets based on Tauc plot.

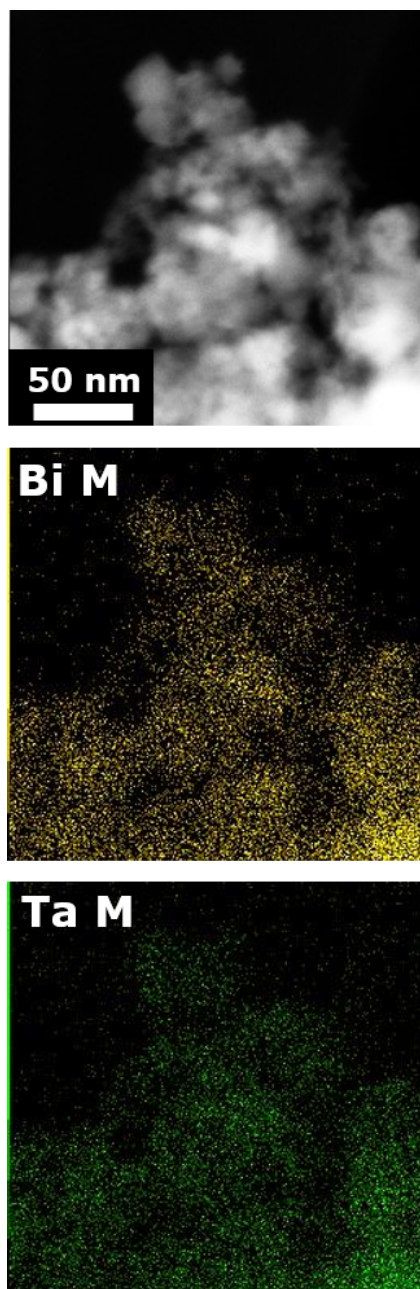


Figure S3. High-angle annular dark field scanning transmission electron microscope image of Bi_3TaO_7 powder, and corresponding EDS elemental mapping of Bi-M and Ta-M.

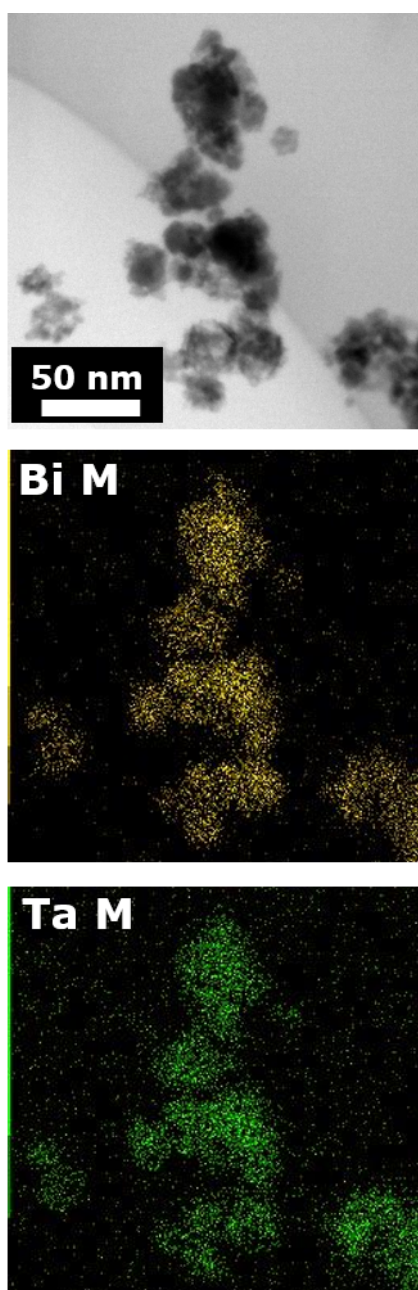


Figure S4. Bright-field scanning transmission electron microscope image of Bi_3TaO_7 nanosheets, and corresponding EDS elemental mapping of Bi-M and Ta-M.

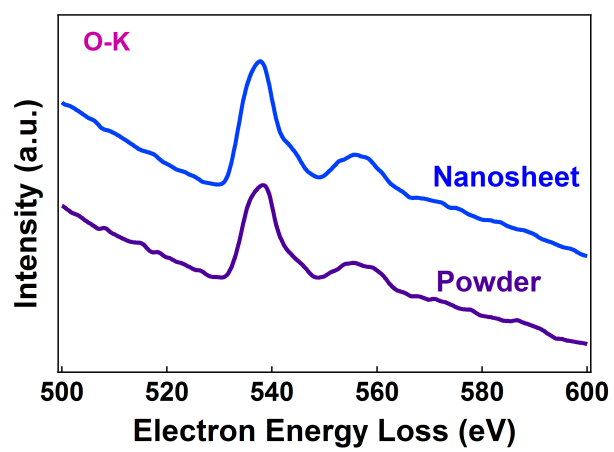


Figure S5. EEL spectra of O-K edges for Bi₃TaO₇ powder and nanosheet.

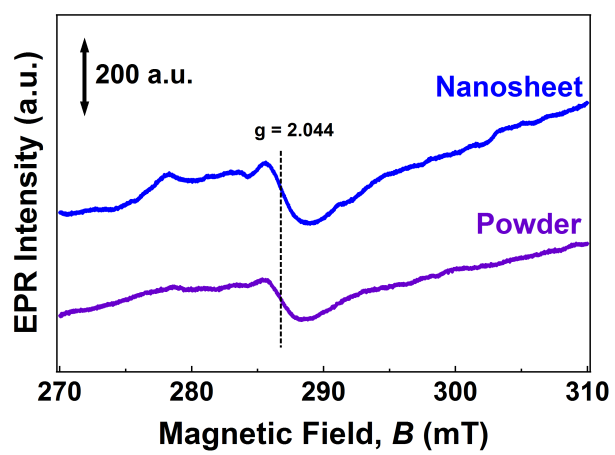


Figure S6. EPR profile of Bi_3TaO_7 powder and nanosheet.

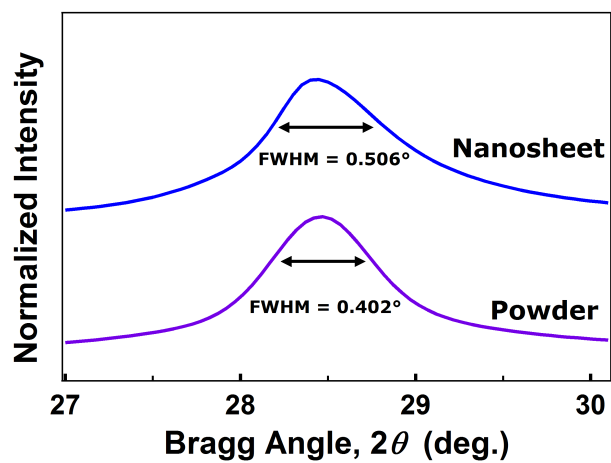


Figure S7. Magnified XRD profile of Bi₃TaO₇ powder and nanosheet at (111) reflection.

Table S1. Element concentration of Bi₃TaO₇ powder by EDS.

Element	EDS Analysis	
	Wt%	At%
Bi	67.4	26.5
Ta	20.1	9.1
O	12.5	64.4

Table S2. Element concentration of Bi₃TaO₇ nanosheet by EDS.

Element	EDS Analysis	
	Wt%	At%
Bi	66.5	25.7
Ta	20.6	9.2
O	12.9	65.1