Supporting Information

Fabrication of BiTaO$_4$ Nanosheets Exposed {020} Facets Toward Efficient Photocatalytic Performance

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Fig. S1 SEM image of bulk BiTaO$_4$.

Fig. S2 TEM images of BiTaO$_4$ SCNs.
**Fig. S3** Cycle operation of $\text{H}_2$ evolution on the as-prepared BiTaO$_4$ SCNs.

**Fig. S4** Degradation dynamic curves of the phenol solutions over bulk BiTaO$_4$ and BiTaO$_4$ SCNs under simulated sunlight irradiation (a), and under the visible-light irradiation (b).
Fig. S5 Photocurrent response (a), electrochemical impedance spectroscopy (EIS) plots (b), and photoluminescence (PL) spectra (c) of bulk BiTaO$_4$ and BiTaO$_4$ SCNs.

The bandgaps of the bulk BiTaO$_4$ and BiTaO$_4$ SCNs were obtained via the Butler equation:

$$(h\nu\alpha)^{1/n} = A(h\nu - E_g)$$

in which $h$, $\nu$, $\alpha$ and $E_g$ are the Planck’s constant, vibration frequency, absorption coefficient and band gap, respectively. $A$ is the proportionality constant, and the exponent $n=0.5$ for the direct bandgap semiconductor.