SUPPLEMENTARY INFORMATION

Facile synthesis of TaO$_x$N$_y$ photocatalyst with enhanced visible photocatalytic activity

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Fig. S1 Photoluminescence spectra of TaO$_x$N$_y$ samples sintered at 500-800 °C; excitation wavelength: 325nm.

Fig. S2. TEM images of TaO$_x$N$_y$-550 sintered at 550 °C.
Fig. S3. XPS spectra of Ta (4f) of TaO$_x$N$_y$ samples sintered at 500-800 °C.
**Fig. S4.** FT-IR spectra of TaO$_x$N$_y$ samples sintered at 500-900 °C.

**Fig. S5.** SEM image (a) and EDAX spectrum (b) of TaO$_x$N$_y$ sample sintered at 550°C.