Supporting Information

for

Sodium doping in brookite TiO$_2$ enhances its photocatalytic activity

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Additional figures
**Figure S1:** High-order Laue zone patterns of (a) brookite, (b) anatase, (c) rutile, and (d) Na$_2$Ti$_6$O$_{13}$, corresponding to the SAED patterns in Figure 4c–4c$_4$.

**Figure S2:** The SAED and high-order Laue zone patterns of the brookite crystallite calcinated at 800 °C, corresponding to the HRTEM image and the Fourier diffractogram in Figure 6c–6d.
Figure S3: Comparison of the Na content of the as-obtained brookite when the hydrothermal reaction precipitates were centrifuged and washed (as described in the Experimental Section) one and three times, and then calcinated at 400 and 600 °C, respectively. It indicates that the Na content of the brookite clearly decreases after being washed three times.

Figure S4: The HRTEM images of the brookite crystallite calcinated at 400 °C. There is a large number of (a₁) local lattice distortions, (a₂) interstitial atoms and atomic vacancies, and (b₁–b₃) complex defects.