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Graphene-hidden structure with diminished light shielding effect: more efficient

graphene-involved composite photocatalysts

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Figure S1. FESEM images of SiO₂ sphere templates.



Figure S2. AFM images of small graphene oxide sheets.



Figure S3. FESEM images of (a) $SGO_{3.4\%}$ and (b) $SG_{3.4\%}T$. Inset in (b) shows some broken

spheres



Figure S4. FESEM images of control ST samples



Figure S5. Recycle experiments using ST, $SG_{1.0\%}T$, and $STG_{1.0\%}$ as photocatalysts to convert

4-nitrophenol (A) to corresponding 4-aminophenol (B).



Figure S6. The electrochemical impedance spectroscopy of $STG_{x\%}$ (blue solid triangle) and $SG_{x\%}T$ (red solid square) samples with different usage of GO sheets. (a) 0.1 wt%, (b) 0.5 wt%, (c) 1.0 wt%, and (d) 2.0 wt%. ST spheres without graphene sheets are used as control samples (black hollow circle).



Figure S7. Nitrogen adsorption-desorption isotherms of $SG_{1.0\%}T$ samples. Inset is the pore

size distribution curve.