

1 *Supplementary File*

2 **Photocatalytic Reactivity of Carbon–Nitrogen–**  
 3 **Sulfur-Doped TiO<sub>2</sub> Upconversion Phosphor**  
 4 **Composites**

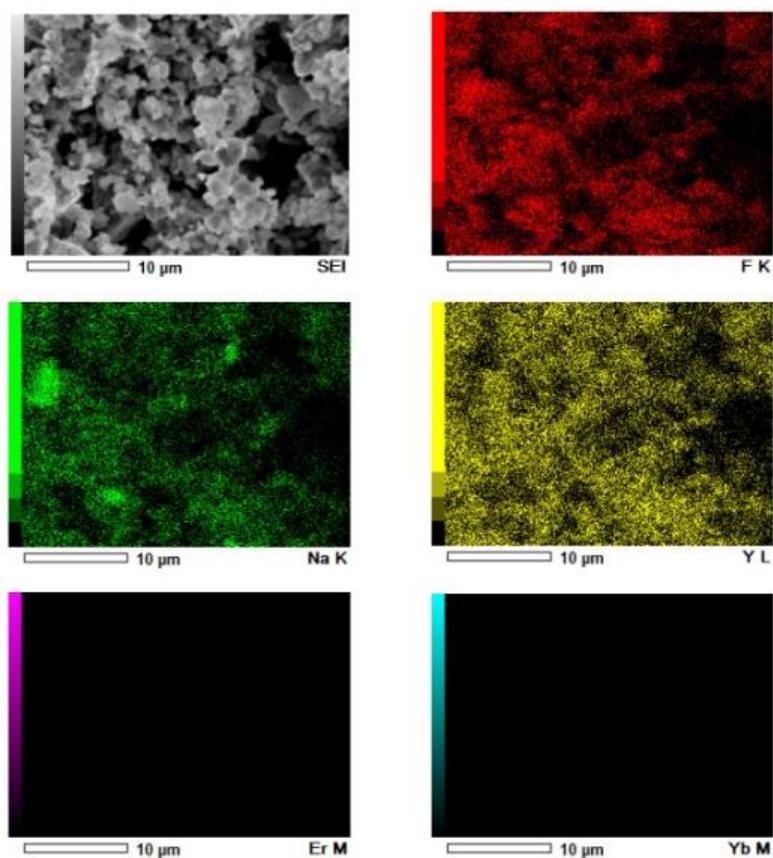
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**Figure S1** Elemental mapping for NaYF<sub>4</sub>:Yb,Er

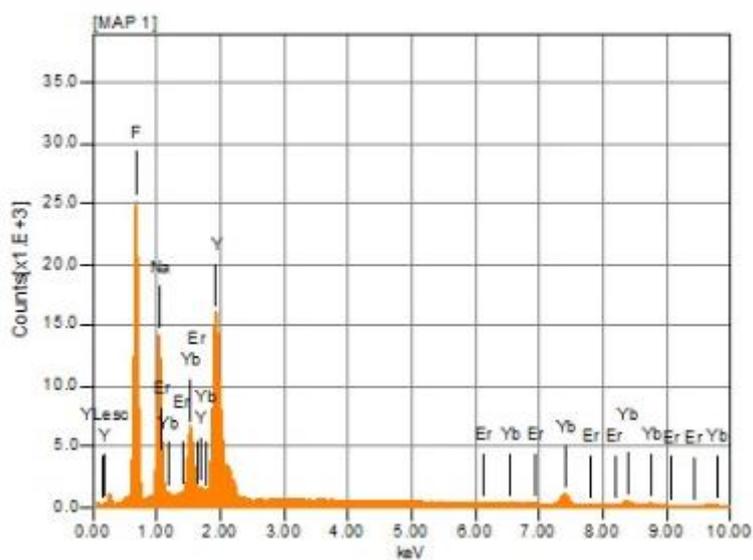


Figure S2 Elemental spectra for NaYF<sub>4</sub>:Yb,Er.

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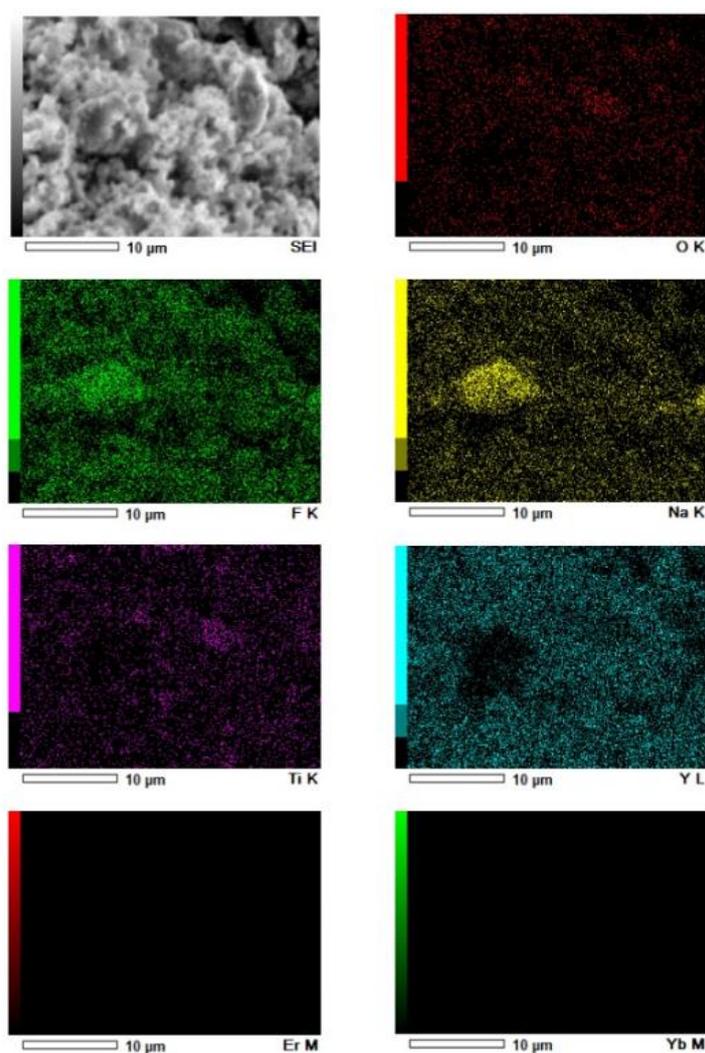
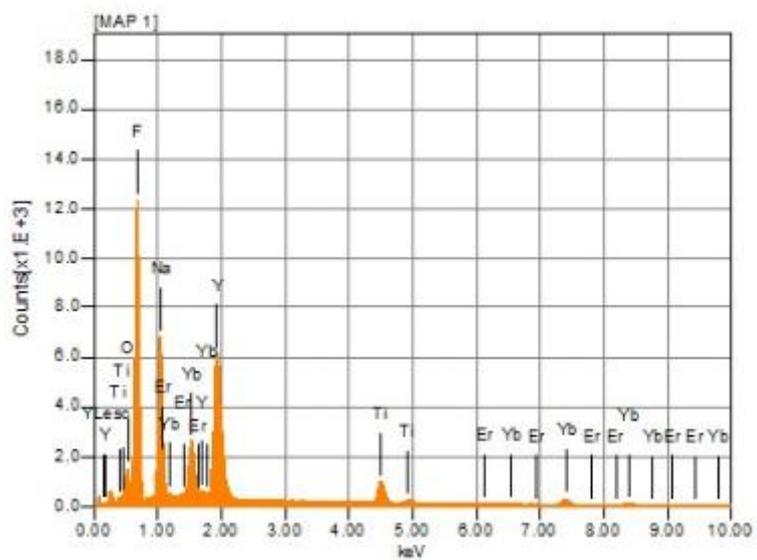


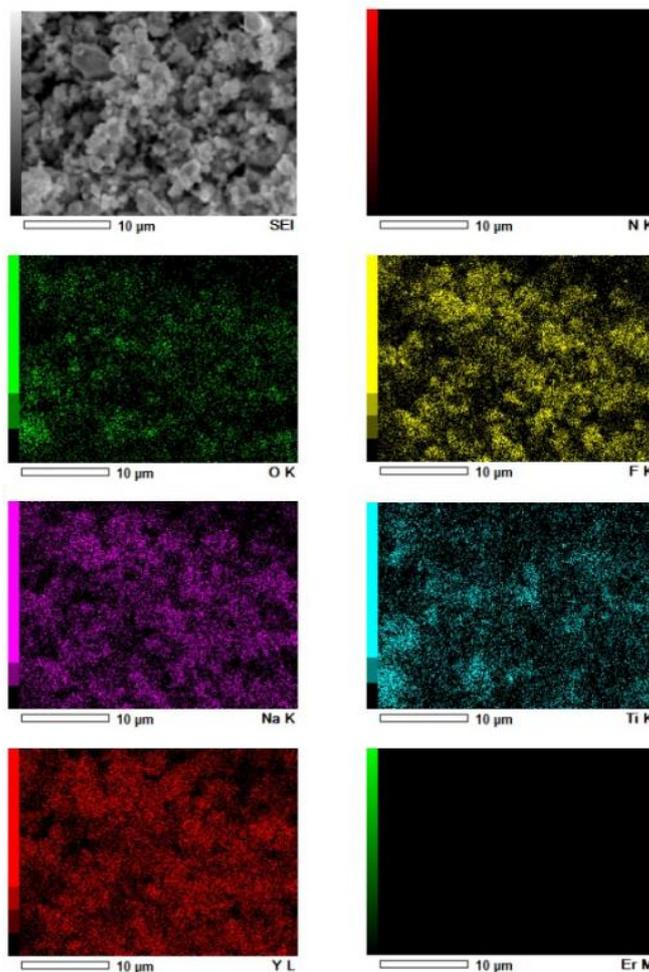
Figure S3 Elemental mapping for TiO<sub>2</sub>/NaYF<sub>4</sub>:Yb,Er.

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Figure S4 Elemental spectra for TiO<sub>2</sub>/NaYF<sub>4</sub>:Yb,Er.



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Figure S5 Elemental mapping for N-TiO<sub>2</sub>/NaYF<sub>4</sub>:Yb,Er.

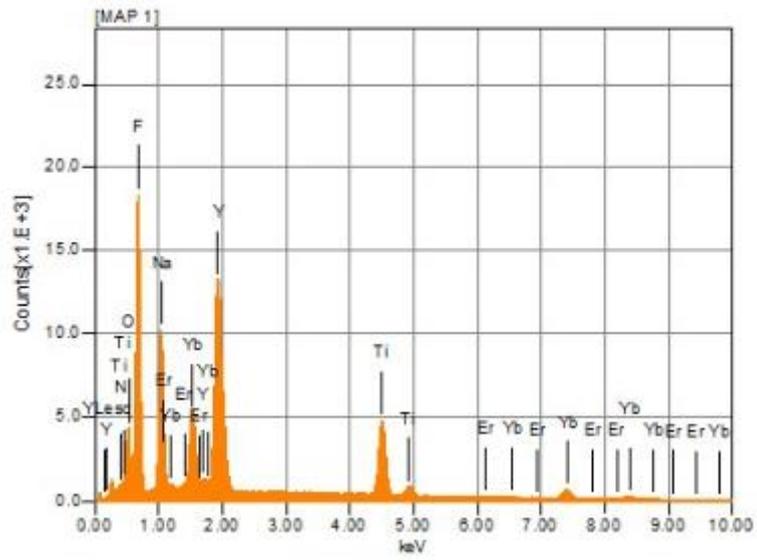


Figure S6 Elemental spectra for N-TiO<sub>2</sub>/NaYF<sub>4</sub>:Yb,Er.

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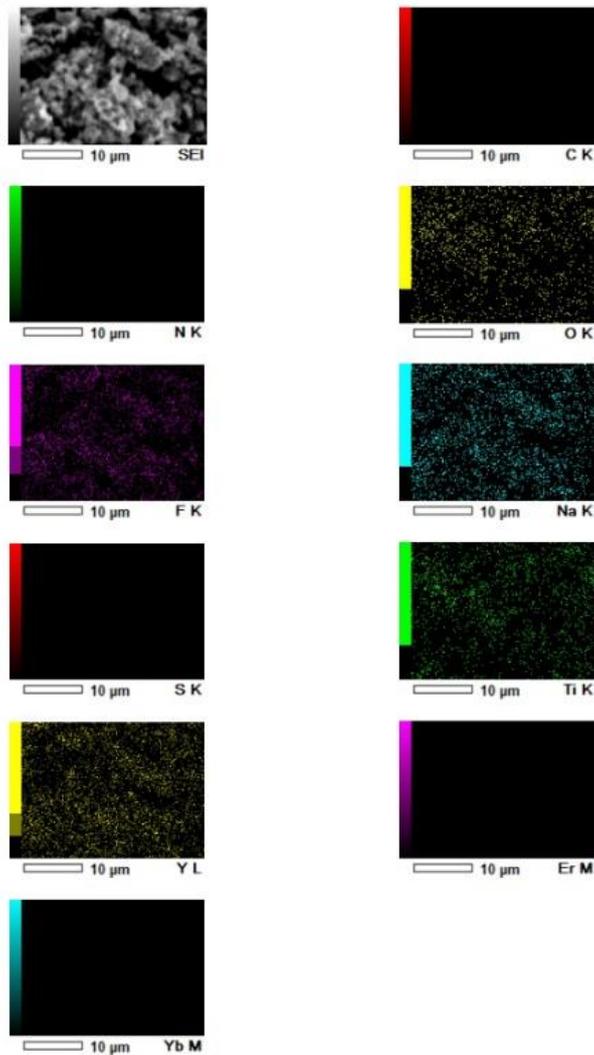


Figure S7 Elemental mapping for CNS-TiO<sub>2</sub>/NaYF<sub>4</sub>:Yb,Er.

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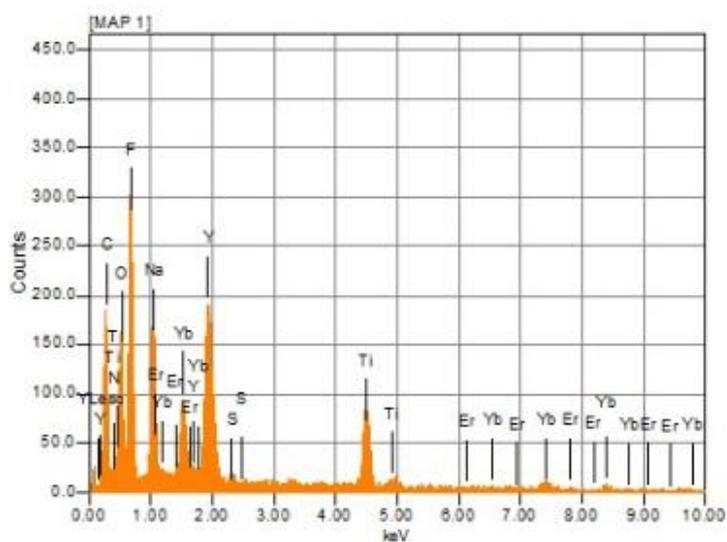


Figure S8 Elemental spectra for CNS-TiO<sub>2</sub>/NaYF<sub>4</sub>:Yb,Er.

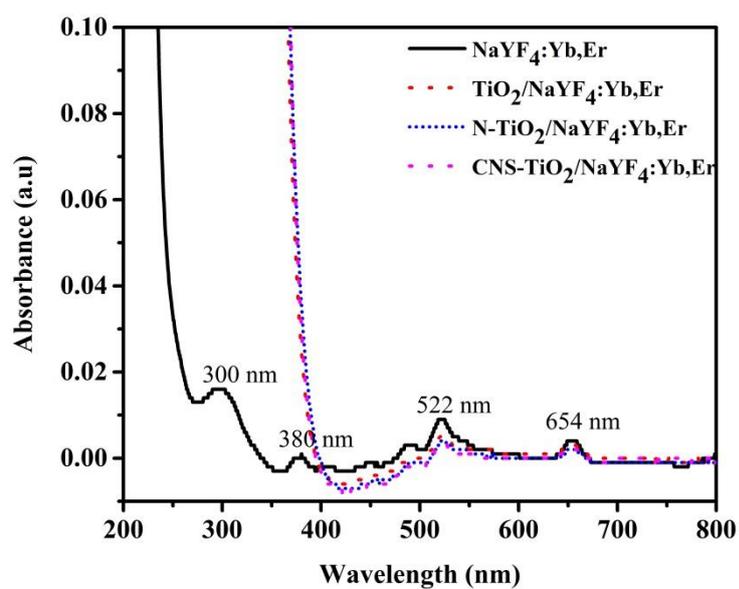
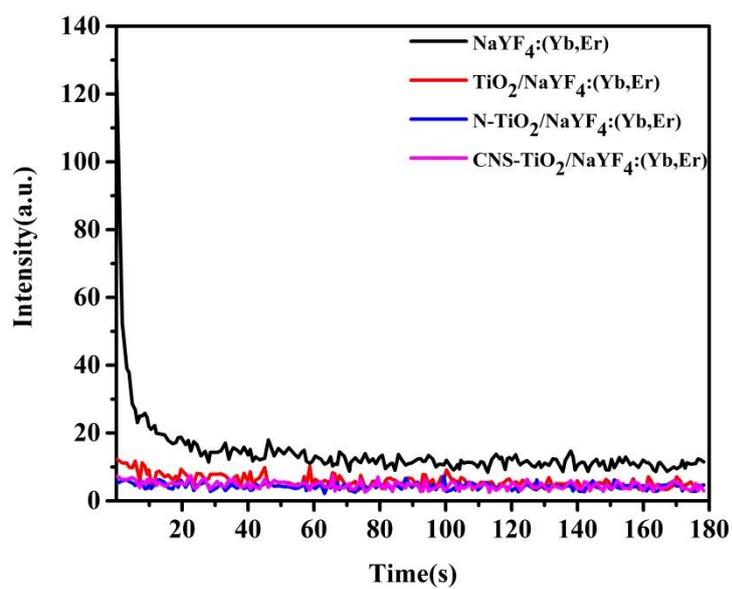


Figure S9. UV-Vis absorption spectra enlarged along the absorbance axis from Figure 4.

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33 **Figure S10** Decay curve for NaYF<sub>4</sub>:Yb,Er coated with TiO<sub>2</sub>, N-TiO<sub>2</sub> and CNS-TiO<sub>2</sub> monitored at 540 nm under  
34 980 nm excitation.

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