

## Accepted Manuscript

Title: The enhancement of photocatalytic hydrogen production via  $\text{Ti}^{3+}$  self-doping black  $\text{TiO}_2/\text{g-C}_3\text{N}_4$  hollow core-shell nano-heterojunction

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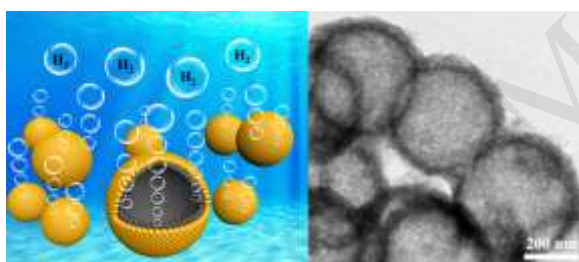
**The enhancement of photocatalytic hydrogen production via  $\text{Ti}^{3+}$  self-doping  
black  $\text{TiO}_2/\text{g-C}_3\text{N}_4$  hollow core-shell nano-heterojunction**

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Jingjing Wang<sup>a</sup>, Changsheng Song<sup>a</sup>, Yingying Zheng<sup>a</sup>, Chaorong Li<sup>a,\*</sup>**

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Graphical abstract



**Highlights**

- $\text{Ti}^{3+}$  could induce to form a hydrogenated shell to reduce the  $\text{H}_2$  activation barrier
- The heterojunction could promote the separation of photon-generated carrier
- The hollow core-shell nanospheres would provide abundant specific surface areas

**Abstract:** The  $\text{Ti}^{3+}$  self-doping B- $\text{TiO}_2/\text{g-C}_3\text{N}_4$  hollow core-shell nano-heterojunction is synthesized via the continuous hydrothermal deposition and

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