

**The Three-Dimensional Flower-Like Phosphorus-Doped g-C<sub>3</sub>N<sub>4</sub> with  
High Surface Area for Visible-Light Photocatalytic Hydrogen  
Evolution**

Haiyong Yang <sup>a</sup>, Yuming Zhou <sup>\*ab</sup>, Yanyun Wang <sup>a</sup>, Saichun Hu <sup>a</sup>, Beibei Wang <sup>a</sup>,

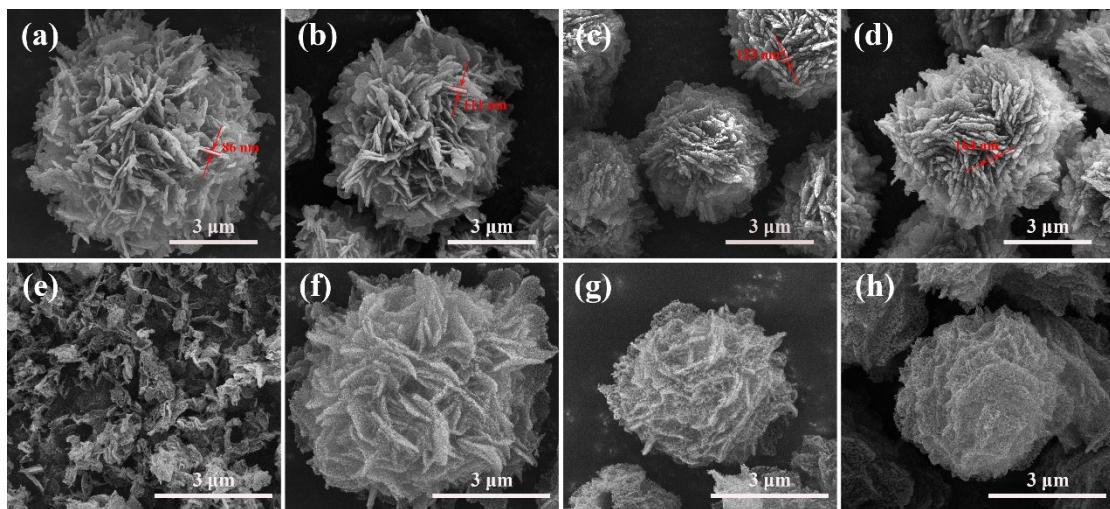
Qiang Liao <sup>a</sup>, Haifang Li <sup>a</sup>, Jiehua, Bao <sup>a</sup>, Gaoyang Ge <sup>a</sup>, Shukun Jia <sup>a</sup>

- a. School of Chemistry and Chemical Engineering, Southeast University, Nanjing 211189, P. R. China.
- b. Jiangsu Optoelectronic Functional Materials and Engineering Laboratory, Nanjing 211189, P. R. China.

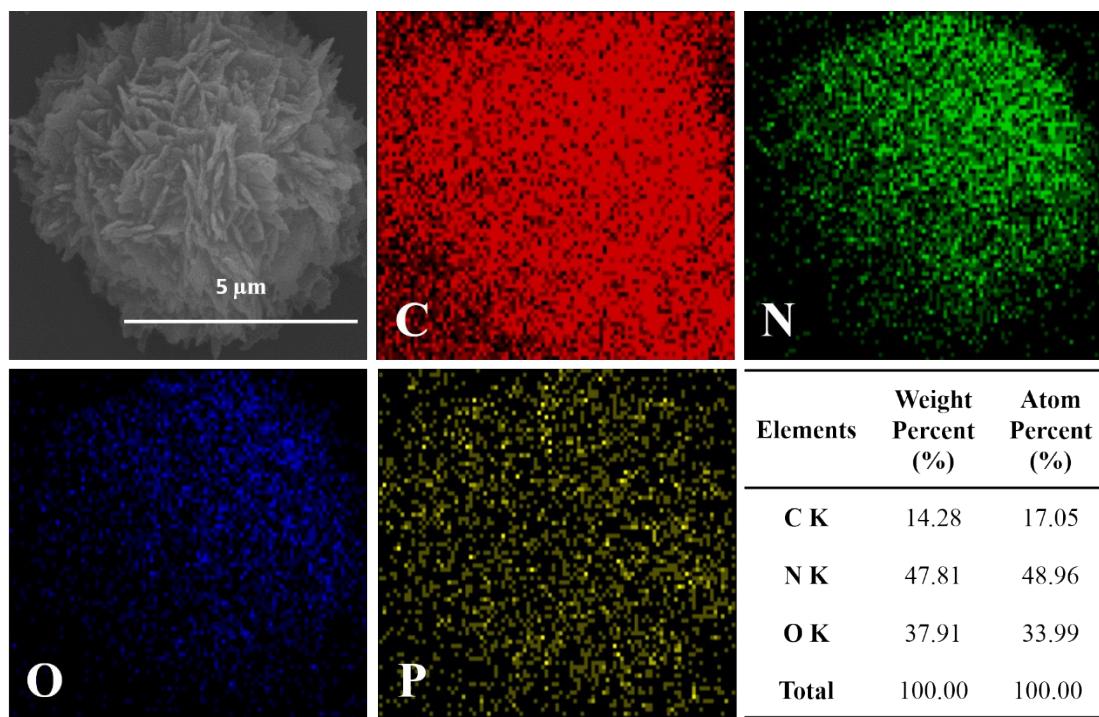
\* Corresponding authors.

E-mail: [ymzhou@seu.edu.cn](mailto:ymzhou@seu.edu.cn)

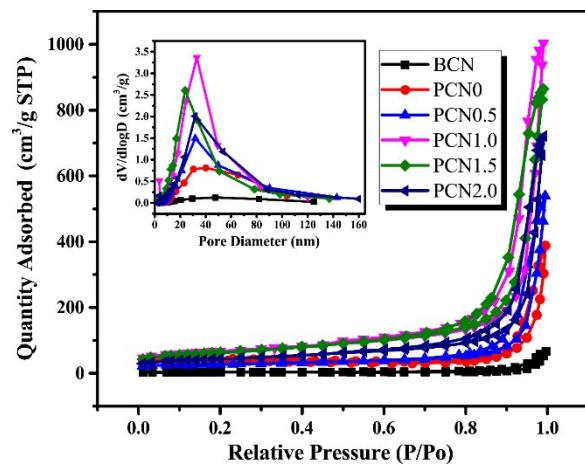
Tel: +86 25 52090617; Fax: +86 25 52090617



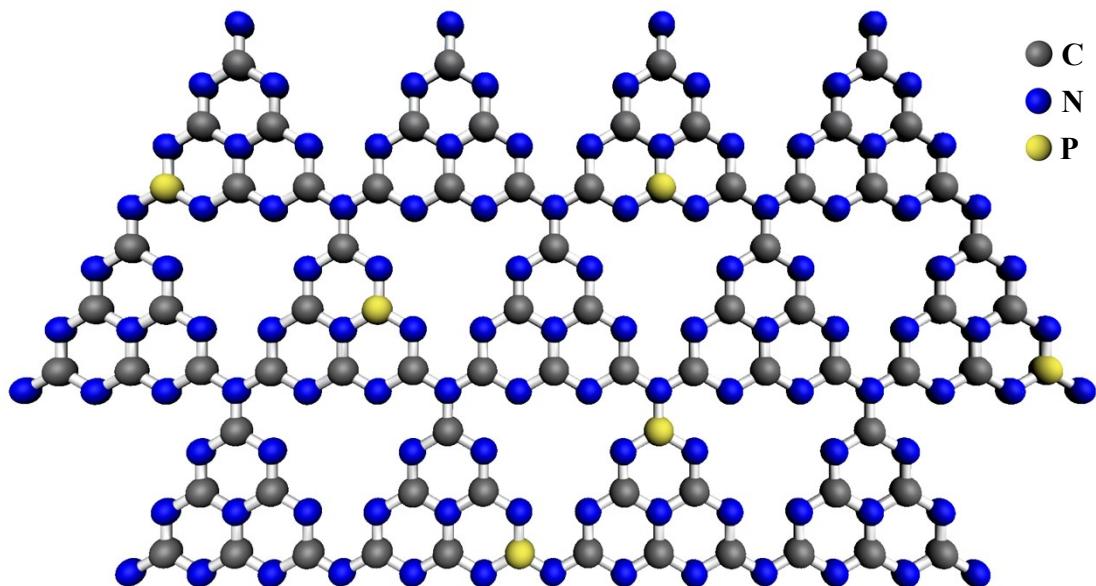
**Fig. S1.** SEM images of (a) CM0, (b) CM0.5, (c) CM1.0, (d) CM2.0, (e) PCN0, (f) PCN0.5, (g) PCN1.0, (h) PCN2.0.



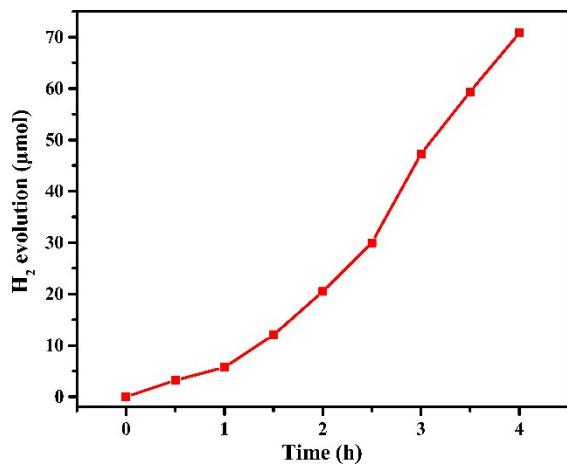
**Fig. S2.** The corresponding elemental mapping images of CM1.5 in SEM.



**Fig. S3.** Nitrogen adsorption-desorption isotherms and the corresponding pore size distribution of carbon nitride samples.



**Fig. S4.** A possible existing form of phosphorus atoms in the structure of g-C<sub>3</sub>N<sub>4</sub>.



**Fig. S5.** Photocatalytic hydrogen evolution with the use of the PCN1.5 sample in absence of Pt co-catalyst under visible light irradiation.