

## Electronic Supplementary Information

### **New two-dimensional porous graphitic carbon nitride nanosheets for highly efficient photocatalytic hydrogen evolution under visible- light irradiation**

Longshuai Zhang,<sup>ad</sup> Ning Ding,<sup>ad</sup> Jionghua Wu,<sup>ad</sup> Kodai Iwasaki,<sup>b</sup> Lihua Lin,<sup>c</sup> Yuichi Yamaguchi,<sup>b</sup> Yuko Shibayama,<sup>b</sup> Jiangjian Shi,<sup>a</sup> Huijue Wu,<sup>a</sup> Yanhong Luo,<sup>ad</sup> Kazuya Nakata,<sup>b</sup> Dongmei Li,<sup>\*ad</sup> Xinchun Wang,<sup>c</sup> Akira Fujishima,<sup>\*b</sup>, and Qingbo Meng,<sup>\*ad</sup>

<sup>a</sup>Key Laboratory for Renewable Energy, Chinese Academy of Sciences (CAS), Beijing Key Laboratory for New Energy Materials and Devices, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, CAS, Beijing 100190, China

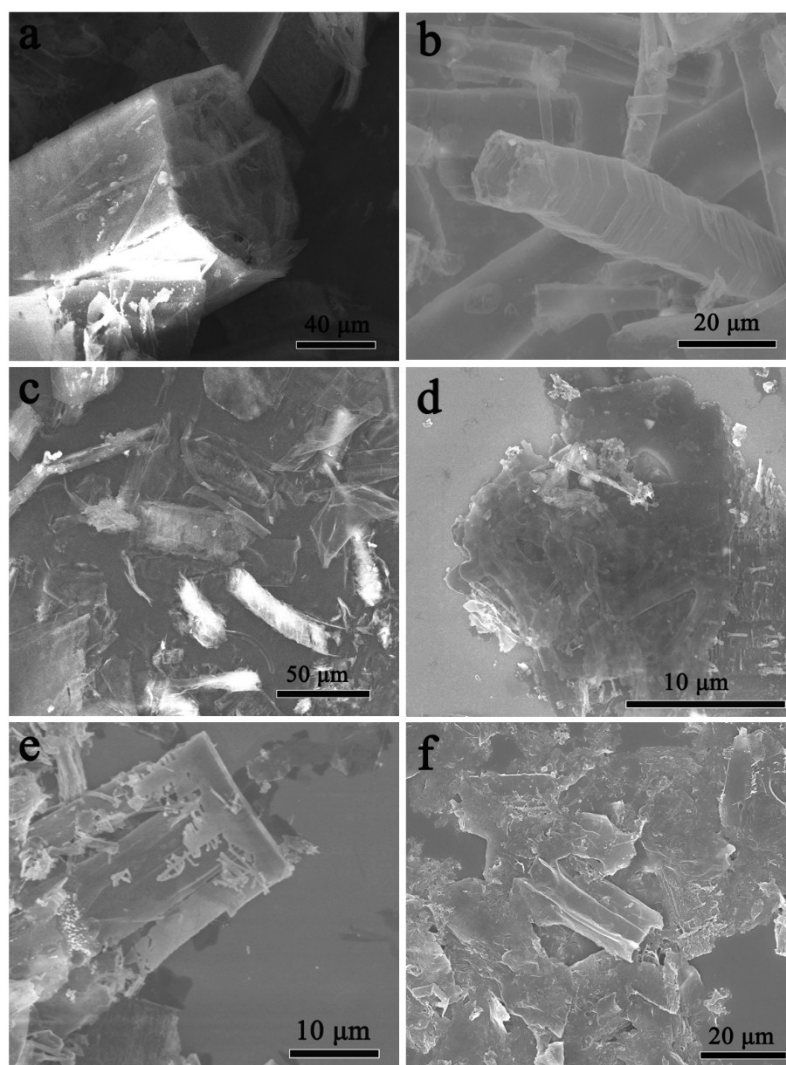
<sup>b</sup>Photocatalysis International Research Center, Research Institute for Science and Technology, Tokyo University of Science, 2641 Yamazaki, Noda, Chiba, 278-0022, Japan

<sup>c</sup>State Key Laboratory of Photocatalysis on Energy and Environment, College of Chemistry, Fuzhou University, Fuzhou 350002, China

<sup>d</sup>School of Physical Sciences, University of Chinese Academy of Sciences, Beijing 100049, China

\*To whom correspondence should be addressed.

E-mail: dmli@iphy.ac.cn, fujishima\_akira@admin.tus.ac.jp, qbmeng@iphy.ac.cn



**Fig. S1** SEM images of supramolecular precursor (0.125M) under different calcination temperature: a) 450°C, b) 550°C, and c) 600°C; and 2DPCN with different HCl concentration: d) 0.075 M, e) 0.1 M, and f) 0.15 M.

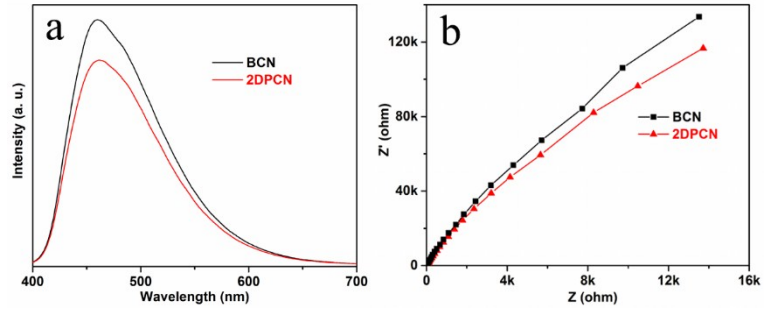


Fig. S2 XPS survey spectra of 2DPCN and BCN.

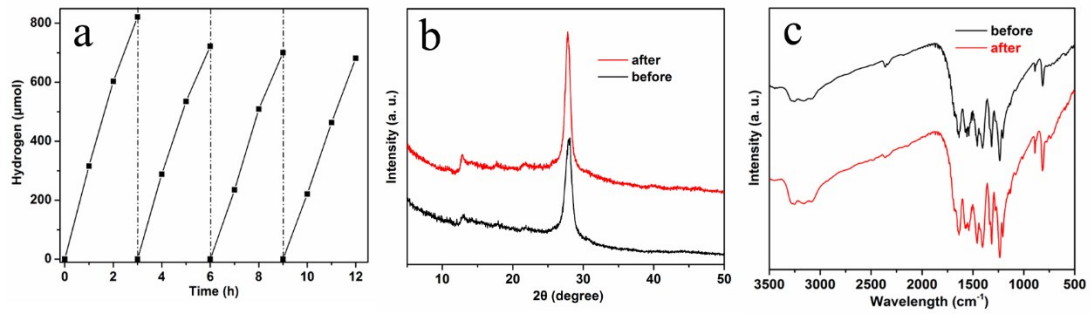


Fig. S3 a) Time course of hydrogen evolution for 2DPCN, b) XRD patterns and c) FT-IR spectra of 2DPCN

before and after the photocatalytic reaction.