

Supporting Information

***In-Situ* Construction of Superhydrophilic g-C₃N₄ Film by Vapor-assisted Confined Deposition for Photocatalysis**

Fuhao Jia, Yizhu Zhang, Wenjuan Hu, Min Lv, Changchao Jia and Jian Liu^{*}

College of Materials Science and Engineering, Qingdao University of Science and Technology, Qingdao,
P.R. China

^{*}Correspondence: Dr. Jian Liu liujian@qust.edu.cn

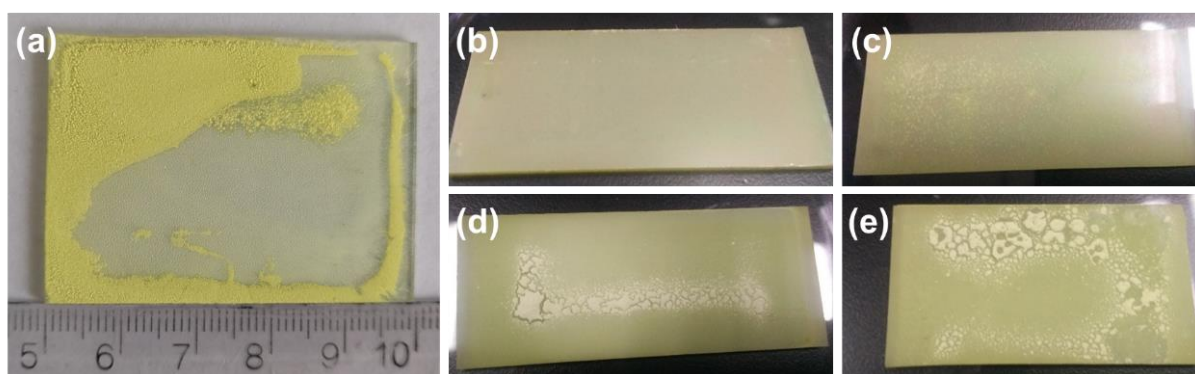


Figure S1| Digital photos of the g-C₃N₄ film prepared by different ratio of melamine and urea. (a) melamine alone; (b) melamine: urea=3:1; (c) melamine: urea=1:1; (d) melamine: urea=1:3; (e) urea alone.

Table S1| Comparisons of the g-C₃N₄ film based on previous reports.

Author	Precursor quality	Surface area	Substrate	References
Bian, et al	50 g	10 × 10 cm ²	FTO	Nano Energy, 2015, 15, 353–361
Bian, et al	10 g	5 × 5 cm ²	FTO	ChemPhysChem, 2015, 16, 954.
Xu, et al	3.1 g	unknown	FTO	Adv. Funct. Mater., 2015, 25, 6265–6271
Ye ,et al	2.45 g	2.5 × 2.5 cm ²	FTO	Applied Surface Science, 2016, 389, 1076–1083
Arazoe, et al	3 g	1.8 × 4 cm ²	Glass	Nat Mater., 2016, 15 (10), 1084-9
Lv, et al	3 g	Crucible with 10 mL volume	FTO	Carbon, 2017, 117, 343–350
Ruan, et al	50 mg	2 × 2 cm ²	FTO	Angew. Chem. Int. Ed. 2017, 56, 8221–8225
Lu, et al	3 g	Φ 2.5 cm	FTO	Applied Catalysis B: Environmental, 2017, 209 657–662
Xiao, et al	0.5 g	2.5 × 2.5 cm ²	Glass	Angew. Chem. Int. Ed., 2018, 57, 10123–10126
Peng, et al	1 g	1.6 × 2 cm ²	FTO	Angew. Chem. Int. Ed. 2018, 57, 1186–1192
Xiong et al	3 g	5 × 5 cm ²	FTO	ChemSusChem, 2018, 11 (15), 2497-2501
Xiao, et al	0.5 g	Φ 5 mm	AAO	Nat Commun. 2019, 10 (1), 74
Jia, Zhang, et al	50 mg	3.5 × 5 cm ²	Glass	This work

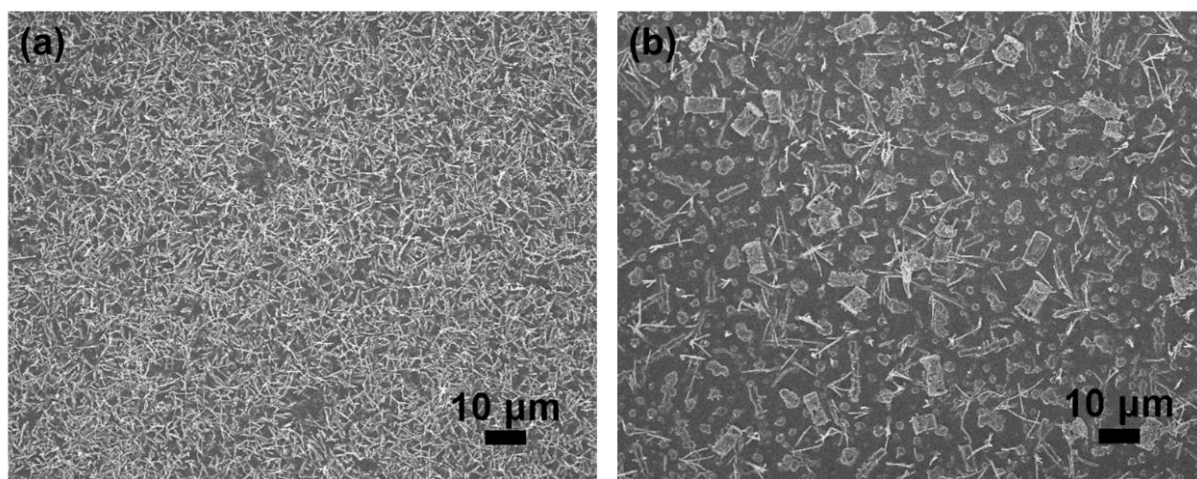


Figure S2| Low magnification SEM images of the g-C₃N₄ film, (a) CNFD, (b) CNFU.

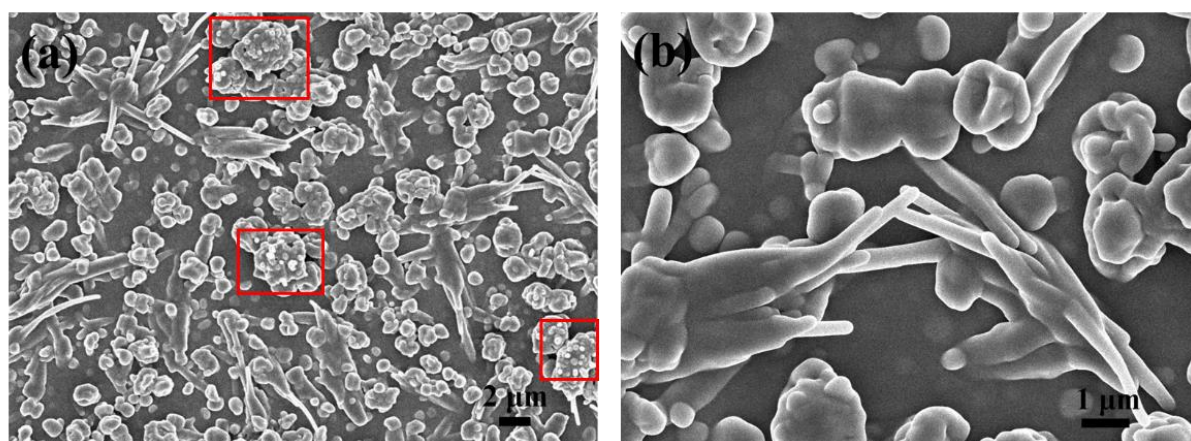
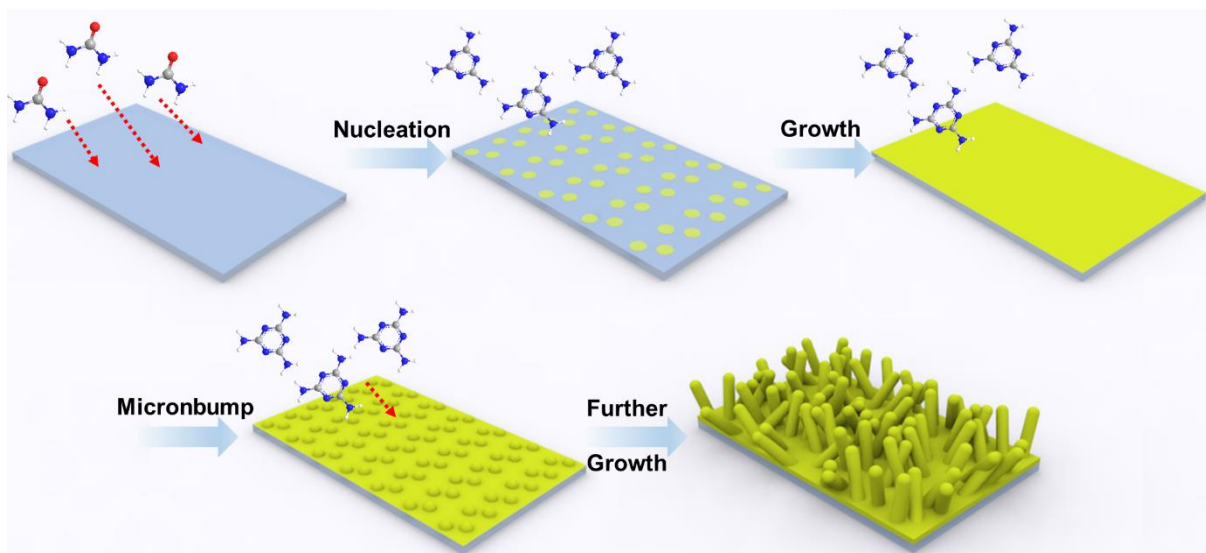


Figure S3| SEM images of the g-C₃N₄ film prepared from 100 mg precursor, (a) low magnification, (b) high magnification.



Scheme S1| Schematic process for the growth of g-C₃N₄ microfibers.

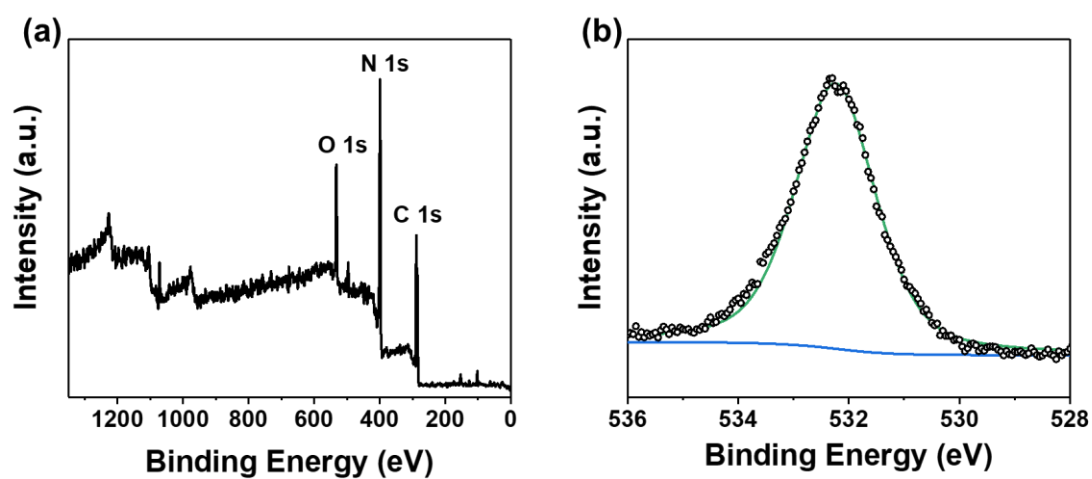


Figure S4| (a) The survey XPS spectrum of the g-C₃N₄ film, (b) O 1s XPS spectrum of the g-C₃N₄ film.

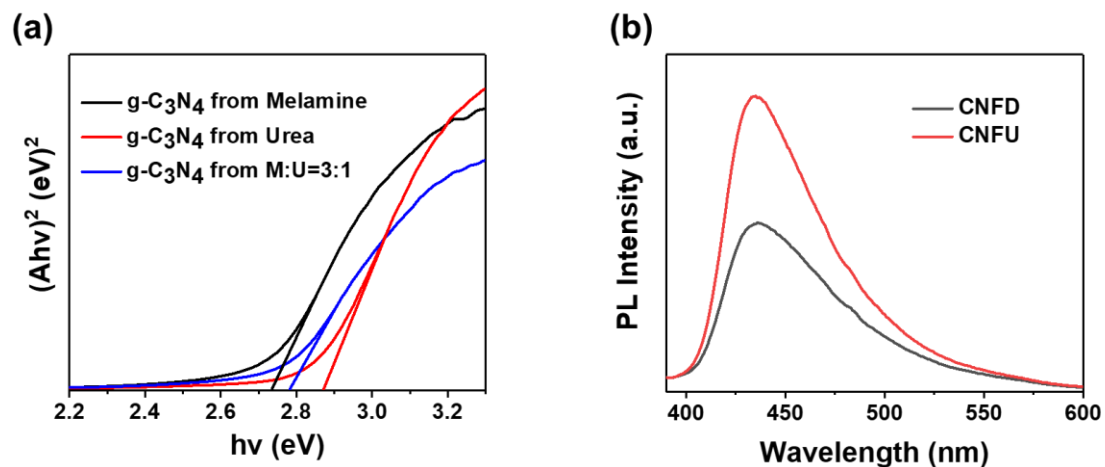


Figure S5| (a) Tauc plots of as-prepared g-C₃N₄ powder, (b) Photoluminescence spectra of the as-prepared g-C₃N₄ films.

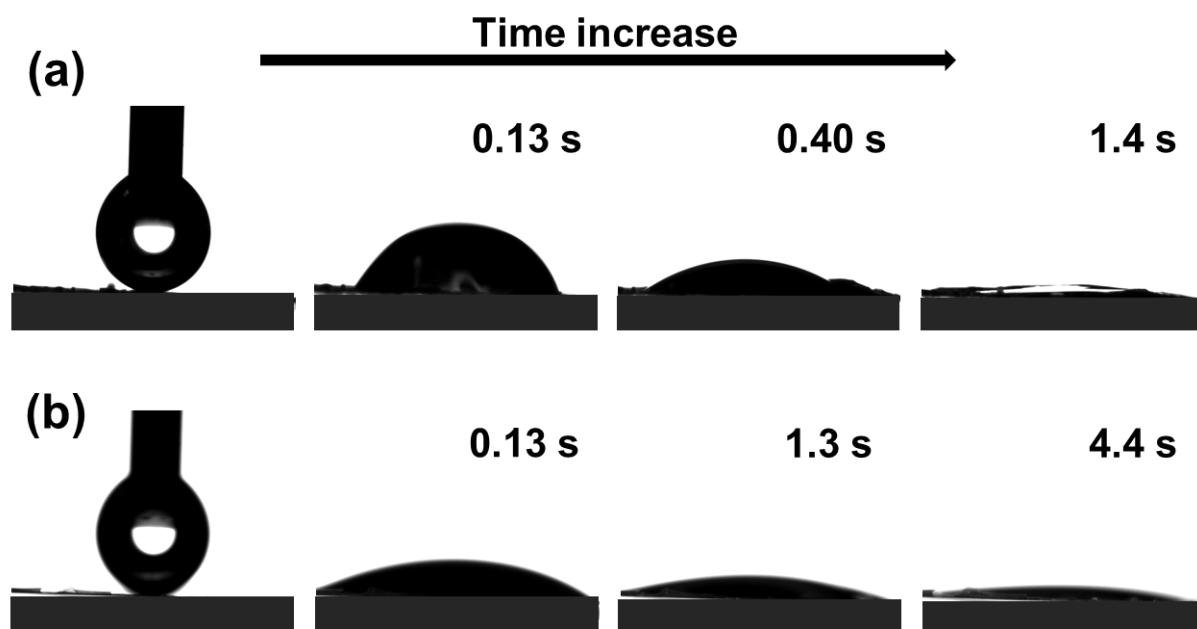


Figure S6| Optical CA images of water on g-C₃N₄ films after degradation experiment, (a) CNFD, (b) CNFU.

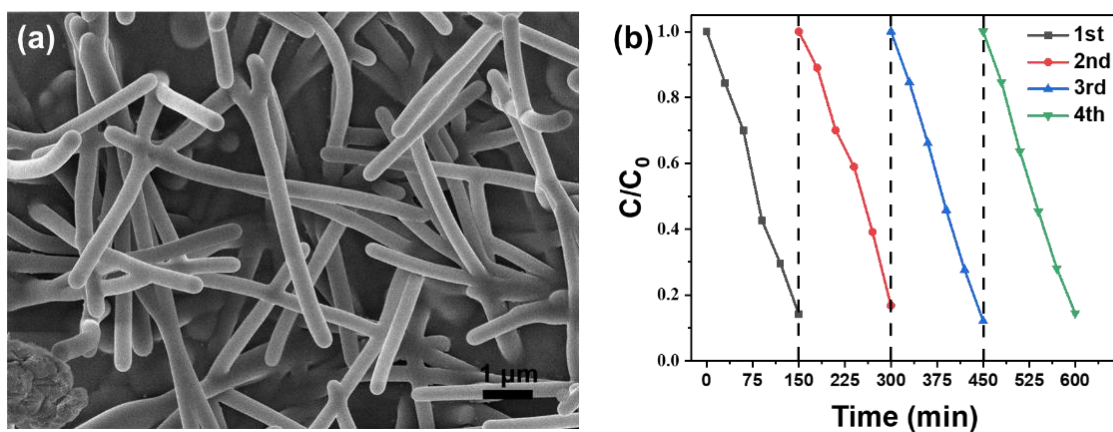


Figure S7| (a) SEM images of the NFCNF film, (b) cyclic degradation of NFCNF under white light LED.

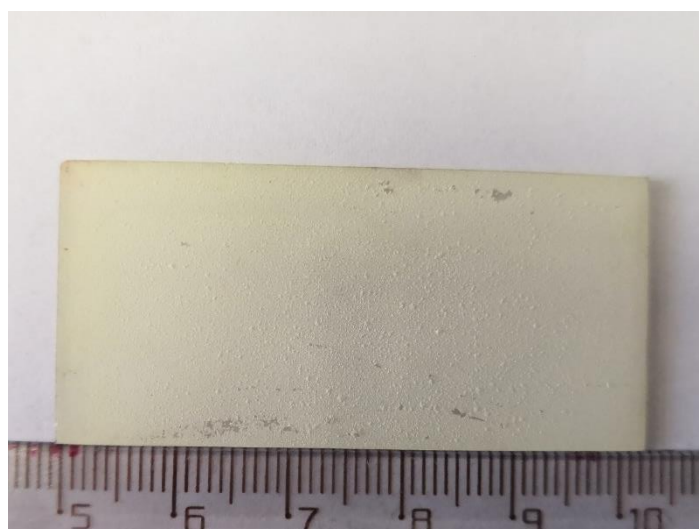


Figure S8| Digital photo of NFCNF after four cycles.