Electronic Supplementary Material (ESI) for Environmental Science: Nano.


# Constructing a novel super-crosslinked triazine COFs through molecular expansion for enhanced photocatalytic performance under visible light

Yuxuan Shao,[a] Dan You,[a] Yuqi Wan,[b*] Zhiquan Pan[a] and Qingrong Cheng[a*]

[a] Engineering Research Center of Phosphorous Development and Utilization of Ministry of Education, Wuhan Institute of Technology, Wuhan, 430205, PR China.

[b] The Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, 999077, PR China.


| Element | Weight% | Wt % Sigma | Atomic% |
|---|---|---|---|
| Atomic | 99.12 | 0.19 | 99.24 |
| Nitrogen | 0.88 | 0.19 | 0.76 |
| Total | 100.00 | | 100.00 |

Fig.S1 EDX mapping of HCTF-2.

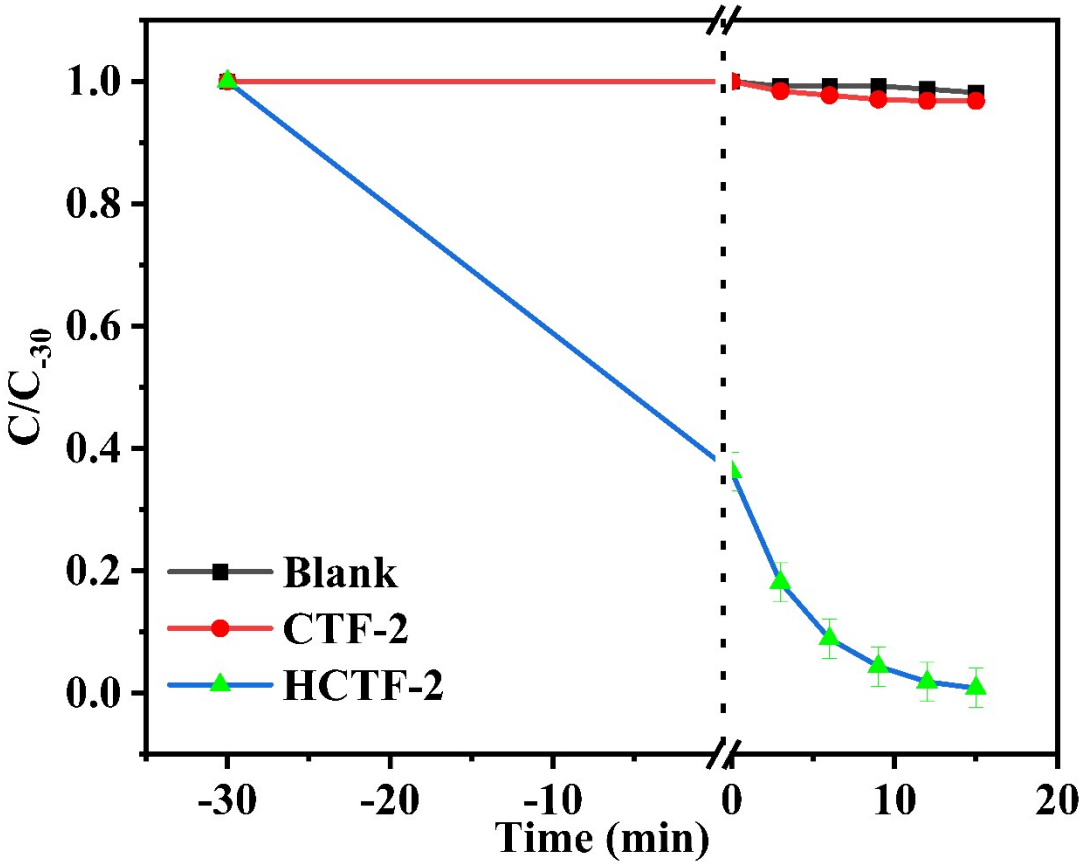


Fig.S2 The degradation curves of RhB by CTF-2 and HCTF-2;

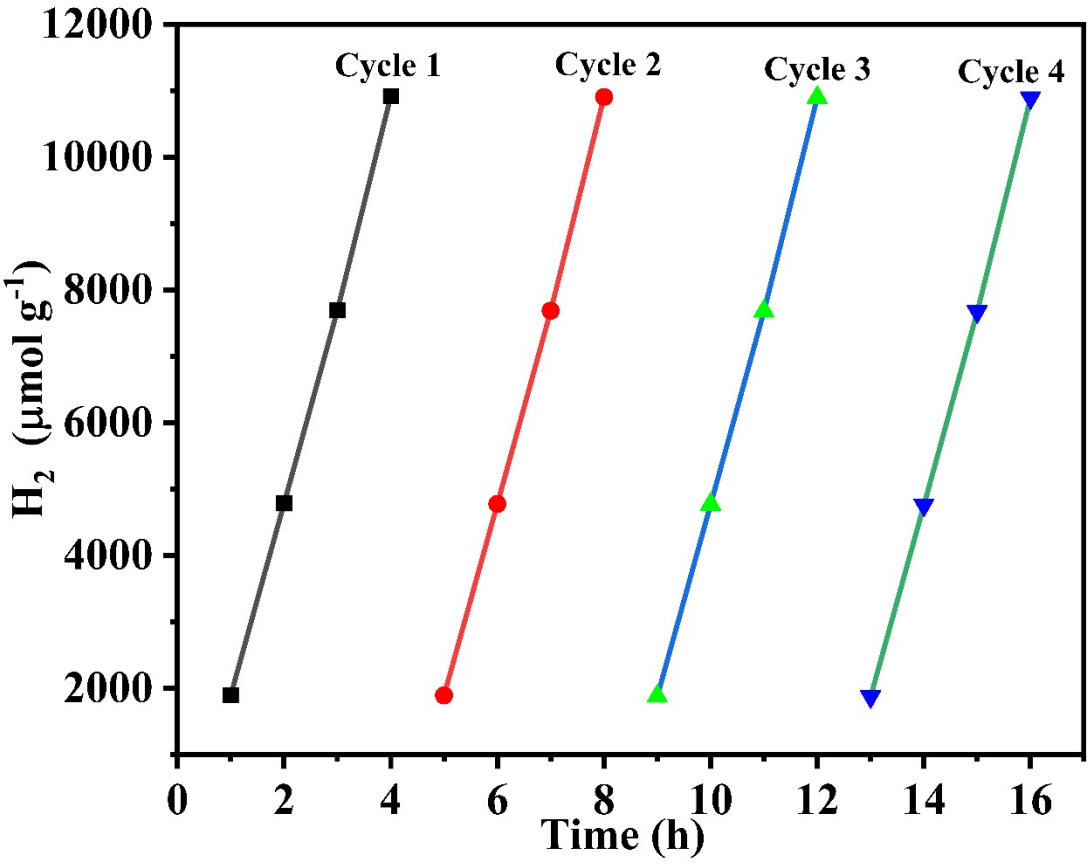

Fig.S3 Four-cycle photocatalytic hydrogen production image of HCTF-2

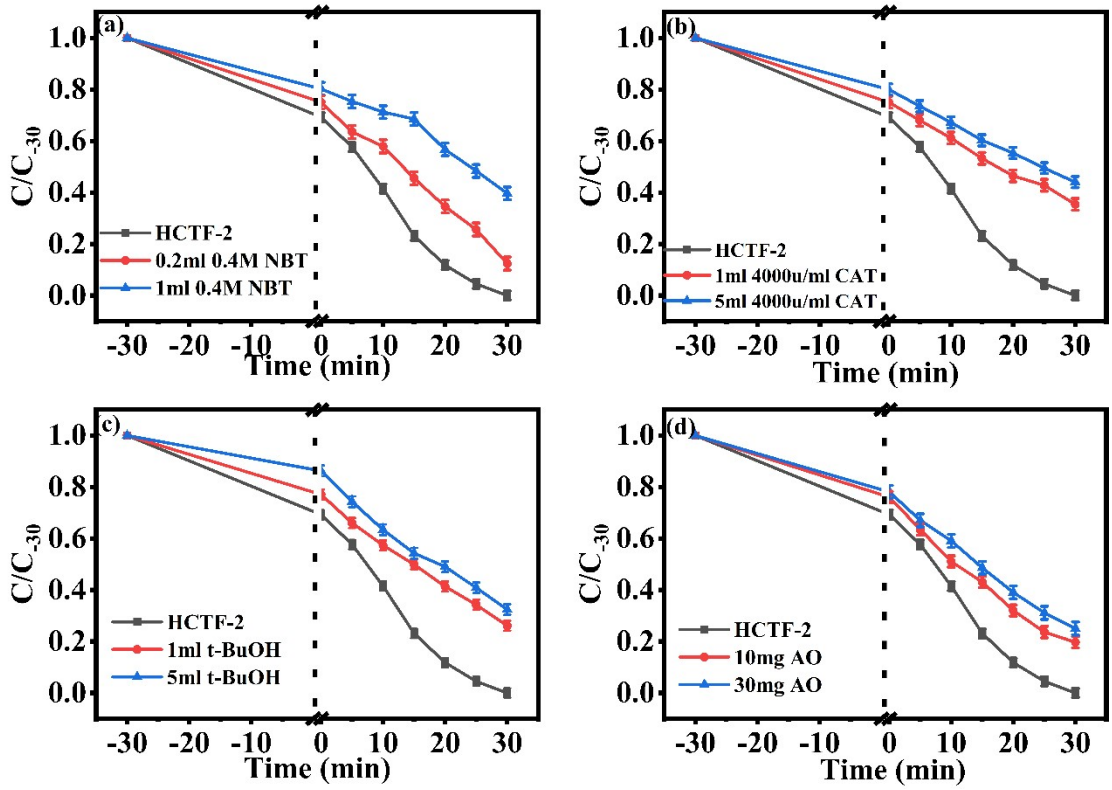


**Fig.S4** (a-d) the effects of different dosages of trapping agents on the photodegradation of LEF by HCTF-2

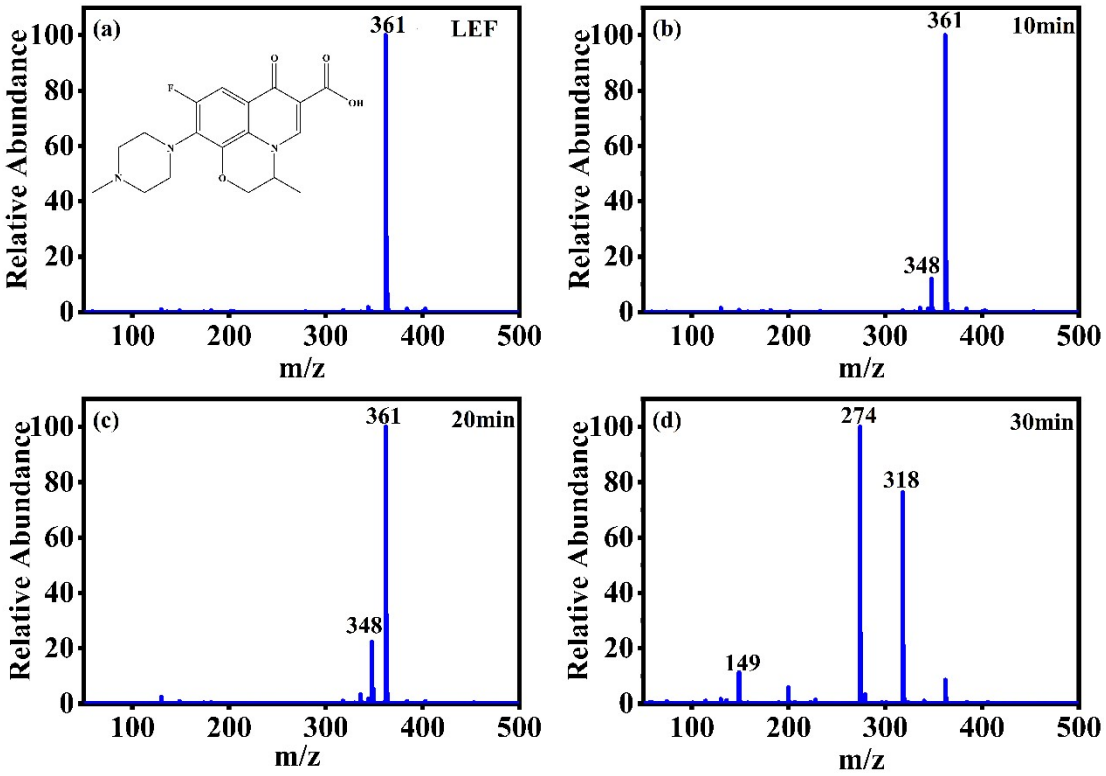


**Fig.S5** Variations in the relative intensity of intermediate products of LEF with different reaction time, as obtained in the LC-MS spectra.

**Table.S1** Comparison of HCTF-2 for photocatalytic TC degradation.

| ***Catalyst / mg*** | ***V (mL) / $C_{-30}$ (mg·L$^{-1}$)*** | ***Light source*** | ***Time (min)*** | ***Result (%)*** | ***TOF*** | ***Ref*** |
|---|---|---|---|---|---|---|
| HCTF-2/10 | 50/20 | Visible light | 21 | 99.0 | 4.714 | This work |
| TpMa/5 | 20/20 | Visible light | 70 | 19.7 | 0.225 | [1] |
| COF-Ph/10 | 50/20 | Visible light | 90 | 29.0 | 0.322 | [2] |
| TpPa-1/10 | 20/80 | Sun light | 40 | 70.0 | 2.800 | [3] |

$$TOF = \frac{C_{-30} \times V_{TC} \times Degradation\ rate}{m_{photocatalyst} \times t}$$

**Table.S2** Comparison of HCTF-2 for photocatalytic $H_2$ evolution.

| ***Photocatalysts/mg*** | ***Light source*** | ***$H_2$ generation rate $\mu mol \cdot g^{-1}h^{-1}$*** | ***Ref*** |
|---|---|---|---|
| HCTF-2/30 | Visible light | 2728.61 | This work |
| TpPa-1/40 | Visible light | 137.00 | [4] |
| TpBD/25 | Visible light | 141.00 | [5] |
| TpPa-2/10 | Visible light | 2200.00 | [6] |
| TFPT-COF/10 | Ultraviolet light | 230.00 | [7] |

# References


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