

# Electronic Supplementary Material

## Plasma-exfoliated g-C<sub>3</sub>N<sub>4</sub> with oxygen doping: tailoring photocatalytic properties

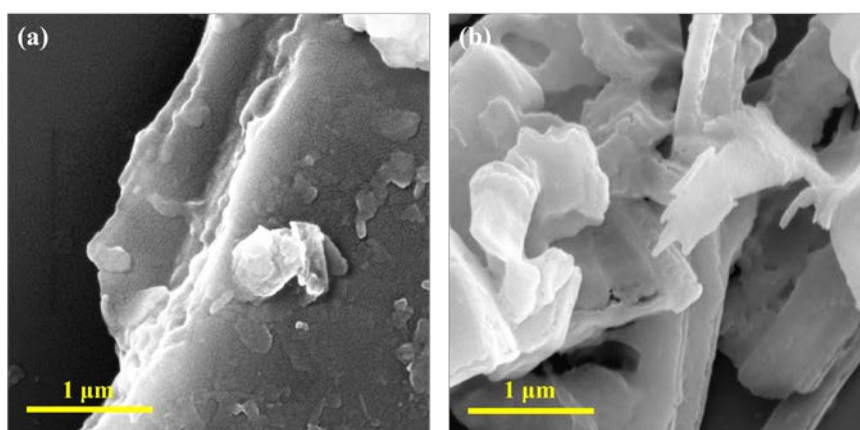
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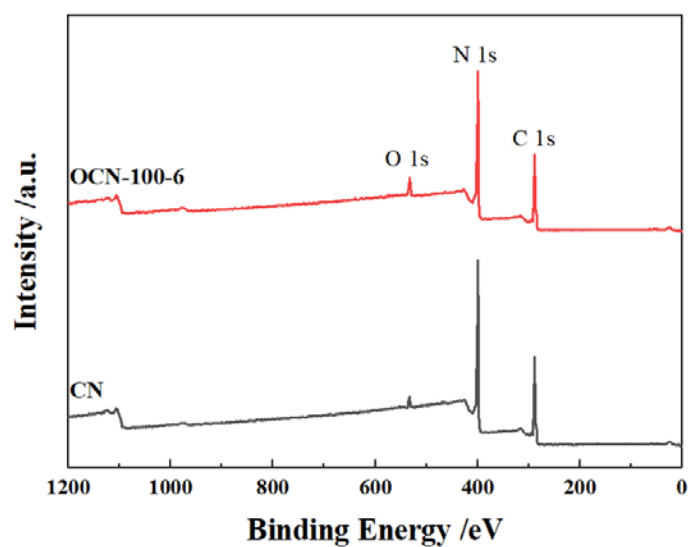
E-mail: wangzhao@tju.edu.cn



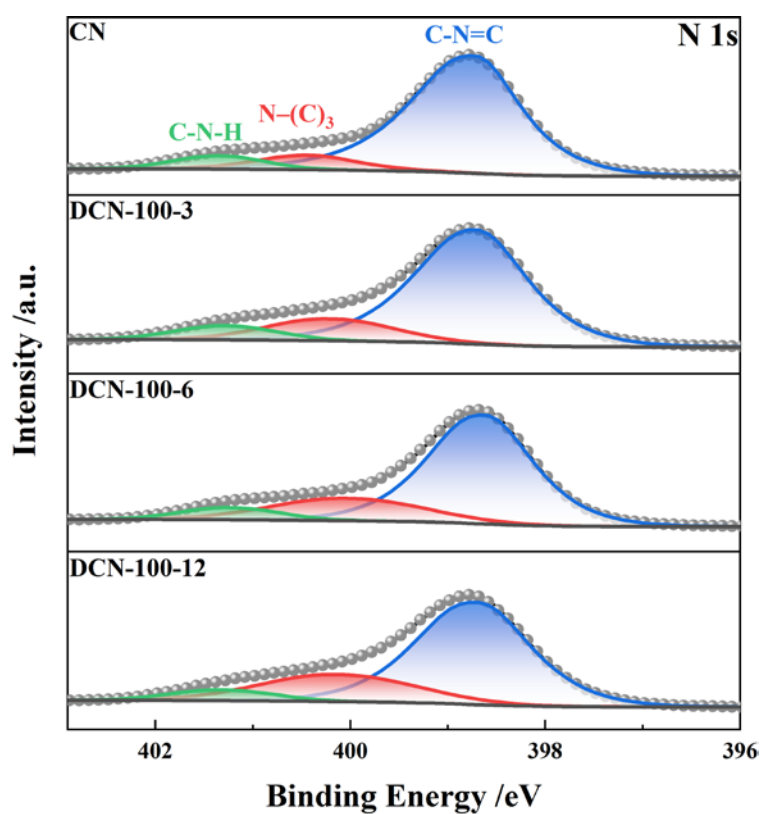
**Fig. S1.** Infrared image of OCN during plasma treatment.



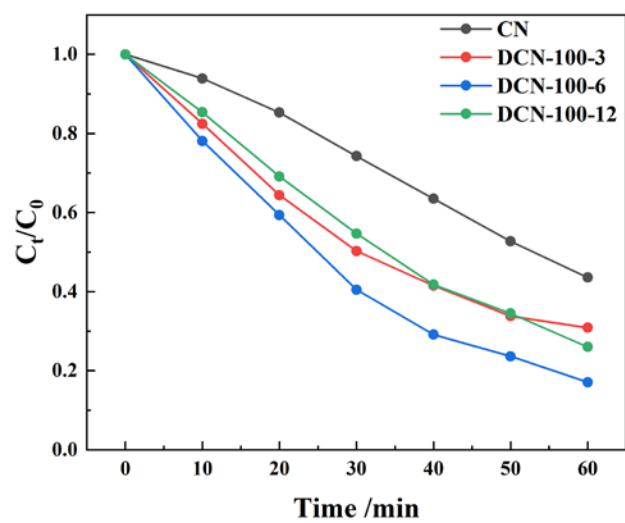
**Fig. S2.** SEM images of (a) OCN-100-3 and (b) OCN-100-12.



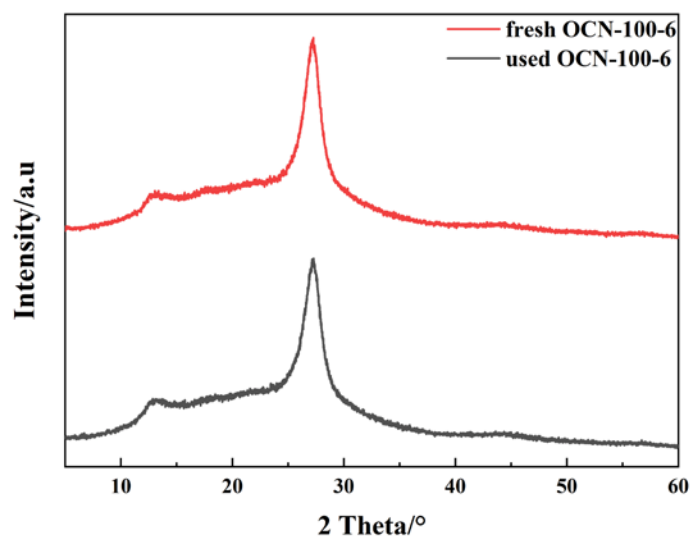
**Fig. S3.** XPS survey spectra of CN and OCN-100-6.



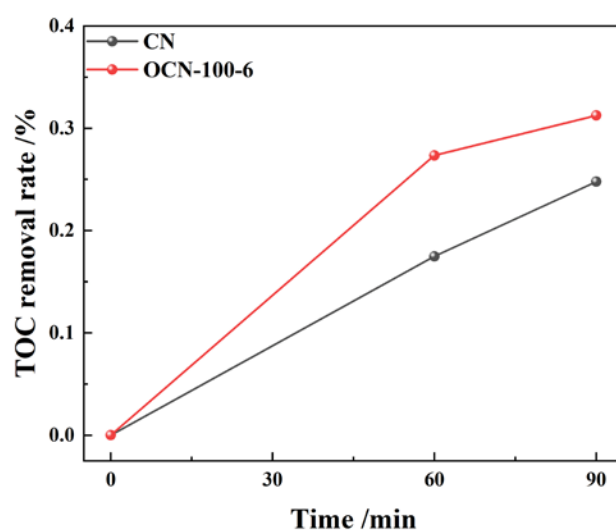
**Fig. S4.** High-resolution N 1s XPS spectra of CN and DCNs.



**Fig. S5.** Photocatalytic degradation of RhB over the catalysts.



**Fig. S6.** XRD patterns of OCN-100-6 before and after the photocatalytic tests.



**Fig. S7.** TOC removal rates of CN and OCN-100-6.

**Table S1** Percentage values of peak area in high-resolution XPS spectrum of N 1s

Sample	CN	DCN-100-3	DCN-100-6	DCN-100-12
Peak area/% (C-N=C)	83.85	76.55	72.52	69.99

**Table S2** The related studies about RhB photodegradation by previously reported g-C<sub>3</sub>N<sub>4</sub>-based catalysts.

Catalyst	C <sub>catalyst</sub> /g·L <sup>-1</sup>	C <sub>0</sub> (RhB) /mg·L <sup>-1</sup>	Light source	RhB removal efficiency/%	K/min <sup>-1</sup>	References
O-doped defective g-C <sub>3</sub> N <sub>4</sub>	0.5	20	300 W Xe lamp	100% (60 min)	0.069	This work
O-doped g-C <sub>3</sub> N <sub>4</sub>	1	30	30 W LED	94% (140 min)	0.01935	[1]
g-C <sub>3</sub> N <sub>4</sub> Nanosheets	0.5	20	300 W Xe lamp	98% (210 min)	0.0211	[2]
Porous g-C <sub>3</sub> N <sub>4</sub>	1	10	300 W	99.32%	0.09317	[3]

nanosheets			Xe lamp	(50 min)		
g-C <sub>3</sub> N <sub>4</sub> nanosheet	0.5	10	300 W	94%	0.0317	[4]
microspheres			Xe lamp	(60 min)		
Nitrogen-defective g-C <sub>3</sub> N <sub>4</sub>	1	10	300 W	100%	0.1304	[5]
Porous g-C <sub>3</sub> N <sub>4</sub>	1	10	300 W	100%	0.15	[6]
Ultra-thin g-C <sub>3</sub> N <sub>4</sub> nanosheets	1	10	300 W	100%		[7]
			Xe lamp	(60 min)		

## Reference

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