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Electronic Supplementary Information

**Self-assembly synthesis of hollow phosphorus-doped
graphitic carbon nitride microboxes for the
photodegradation of organic pollutants**

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1. Orthogonal experimental design

Table S1 factor level.

Level	Factor				
	A (MR)	B (CPA)	C (HT)	D (HTi)	E (CT)
1	1:1	0.25	120	6	490
2	3:1	0.5	140	9	520
3	6:1	1	160	12	550
4	9:1	1.5	180	15	580
5	12:1	2	200	18	610

Table S2 Orthogonal experimental program ($L_{25}(5^5)$) and corresponding kinetic rate constants (k).

Samples	MR	CPA (mol/L)	HT (°C)	HTi (h)	CT (°C)	k (min ⁻¹)
PCN-1	1:1	0.25	120	6	490	0.4925
PCN-2	1:1	0.5	140	9	520	0.3488
PCN-3	1:1	1	160	12	550	0.8373
PCN-4	1:1	1.5	180	15	580	2.7141
PCN-5	1:1	2	200	18	610	–
PCN-6	3:1	0.25	140	12	580	0.6119
PCN-6	3:1	0.5	160	15	610	1.3576
PCN-8	3:1	1	180	18	490	0.5926
PCN-9	3:1	1.5	200	6	520	0.4418
PCN-10	3:1	2	120	9	550	0.5587
PCN-11	6:1	0.25	160	18	520	0.5564
PCN-12	6:1	0.5	180	6	550	0.7003
PCN-13	6:1	1	200	9	580	2.7086
PCN-14	6:1	1.5	120	12	610	0.0015
PCN-15	6:1	2	140	15	490	0.3159
PCN-16	9:1	0.25	180	9	610	–
PCN-17	9:1	0.5	200	12	490	0.3018
PCN-18	9:1	1	120	15	520	0.0232
PCN-19	9:1	1.5	140	18	550	0.6153
PCN-20	9:1	2	160	6	580	2.0518
PCN-21	12:1	0.25	200	15	550	0.3738
PCN-22	12:1	0.5	120	18	580	0.0231
PCN-23	12:1	1	140	6	610	0.0015
PCN-24	12:1	1.5	160	9	490	0.3749
PCN-25	12:1	2	180	12	520	1.1534

2. Results of Characterizations

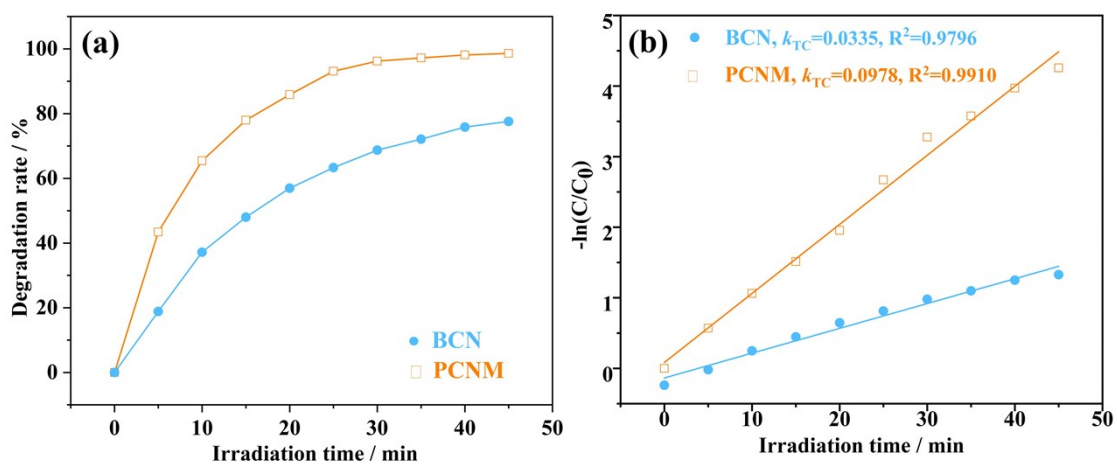


Fig. S1 (a) The photocatalytic activities and (b) kinetic rate constants of PCNM and BCN for degradation TC.