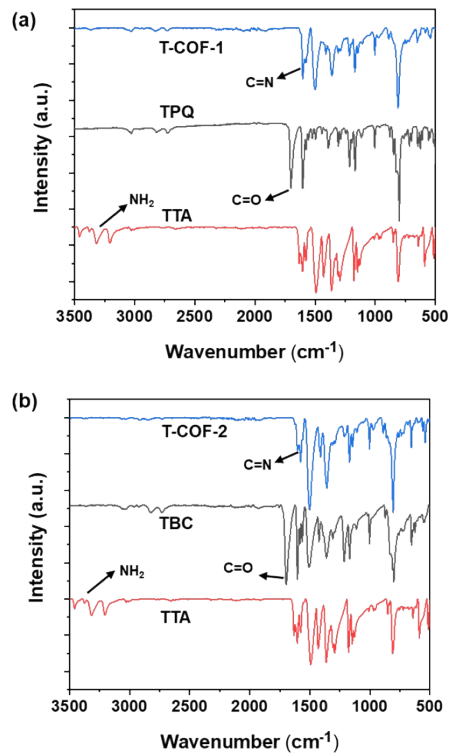


## **Supplementary Information**

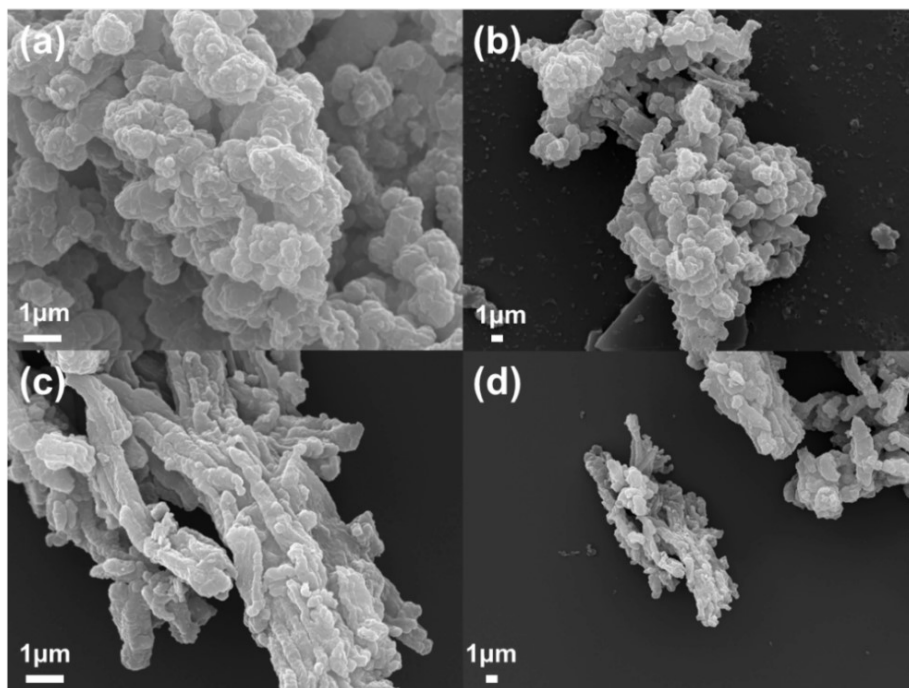
### **Covalent Organic Frameworks with Triazine Units for Iodine Capture via Weak Molecular Interaction**

Qianyuan Niu,<sup>a</sup> Qingxue Cui,<sup>a</sup> Xutong Meng,<sup>a</sup> Pei Zhang,<sup>a</sup> Yining Zhou,<sup>a</sup> Hao Fu,<sup>a</sup> Baiwei Ma,<sup>a,\*</sup> Na Qin<sup>a,\*</sup> and Lipeng Zhai<sup>a</sup>

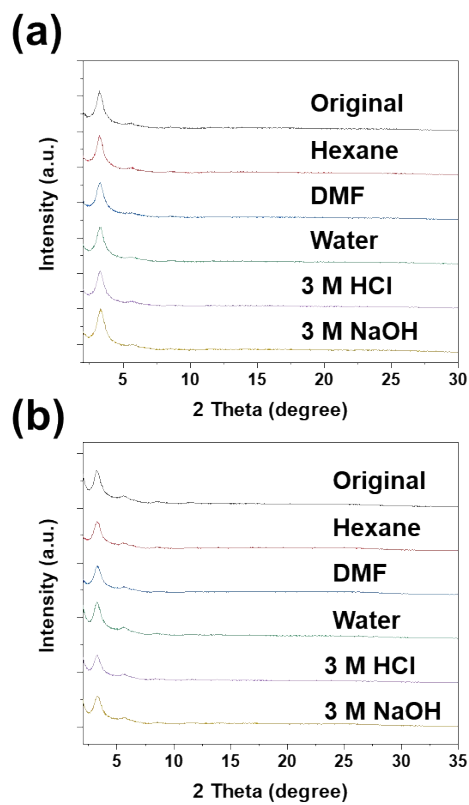
<sup>a</sup>Henan Key Laboratory of Functional Salt Materials, Center for Advanced Materials Research, Zhongyuan University of Technology, Zhengzhou, 450007 P. R. China.



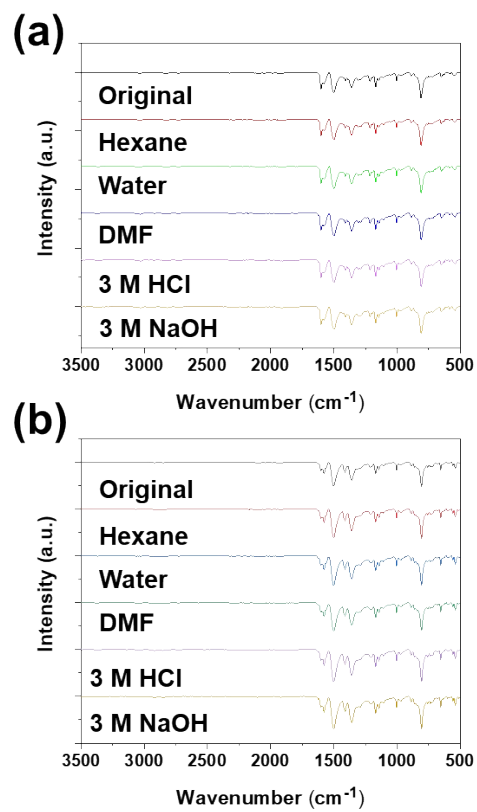
**Fig. S1.** FT IR spectra of (a) T-COF-1 and (b) T-COF-2.



**Fig. S2.** FE SEM images of (a) (b) T-COF-1 and (c) (d) T-COF-2.

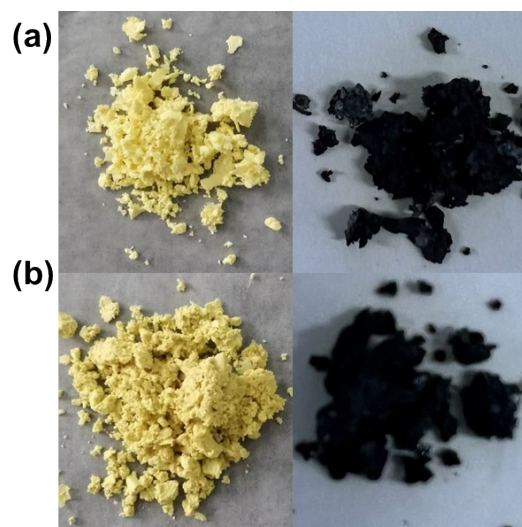


**Fig. S3.** PXRD patterns of (a) T-COF-1 and (b) T-COF-2 under different conditions.

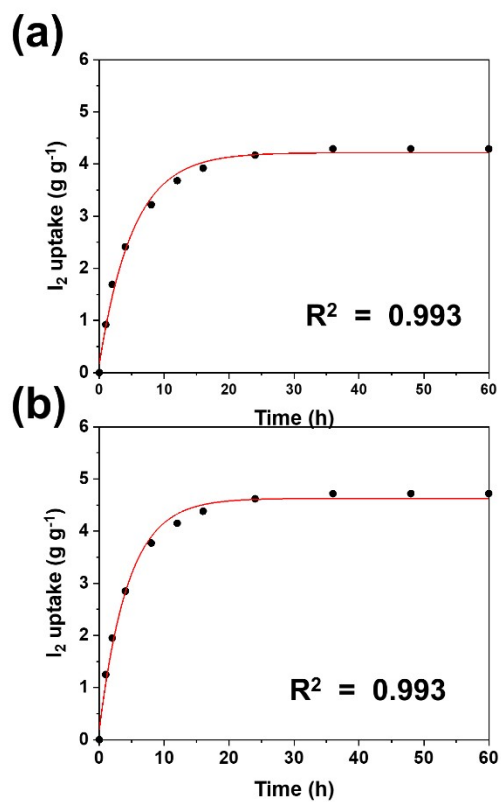


**Fig. S4.** FT IR patterns of (a) T-COF-1 and (b) T-COF-2 under different conditions.

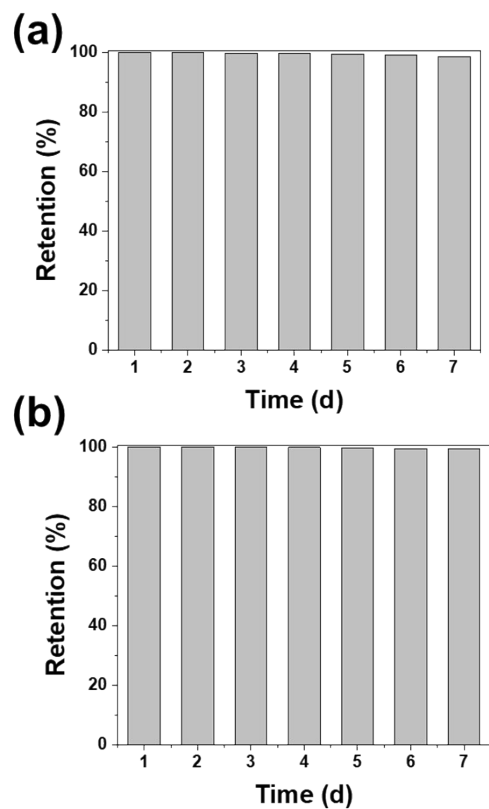




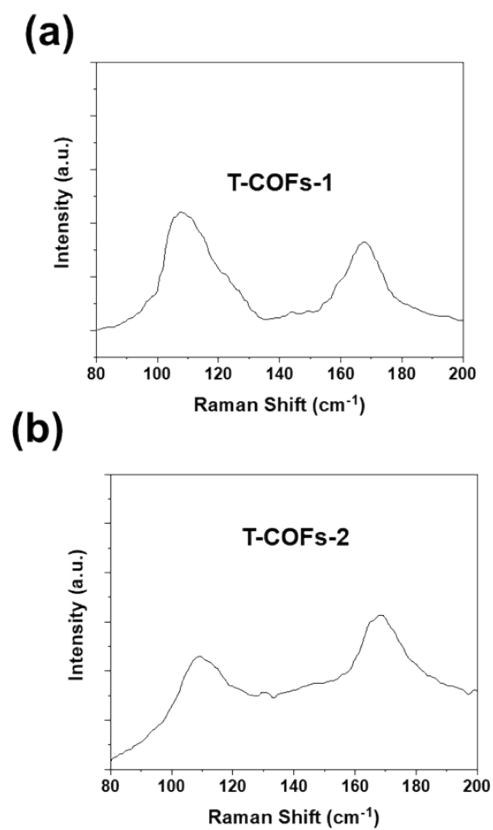
**Fig. S5.** The images of COFs before and after iodine capture: (a) T-COF-1 and (b) T-COF-2.



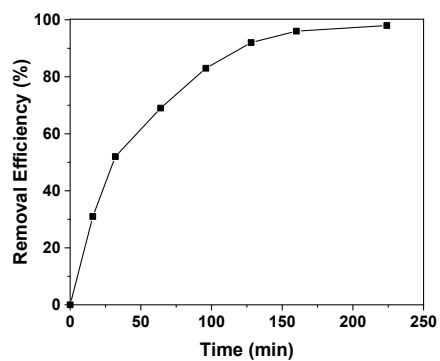
**Fig. S6.** The pseudo-first-order kinetic model of (c) T-COF-1 and (d) T-COF-2.



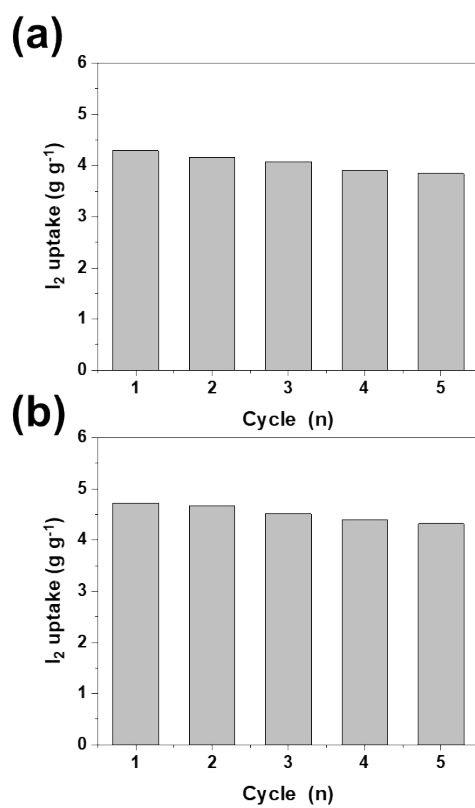
**Fig. S7.** Retention ability of (a) T-COF-1 and (b) T-COF-2.



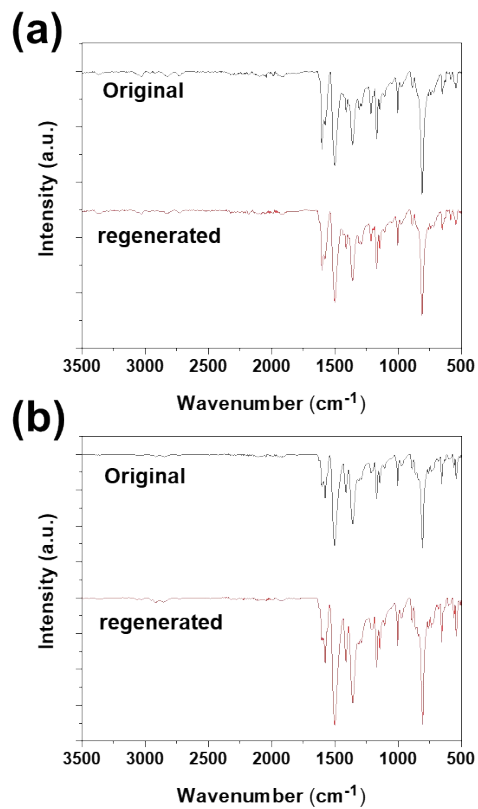
**Fig. S8.** Raman spectra of (a) T-COF-1 and (b) T-COF-2.



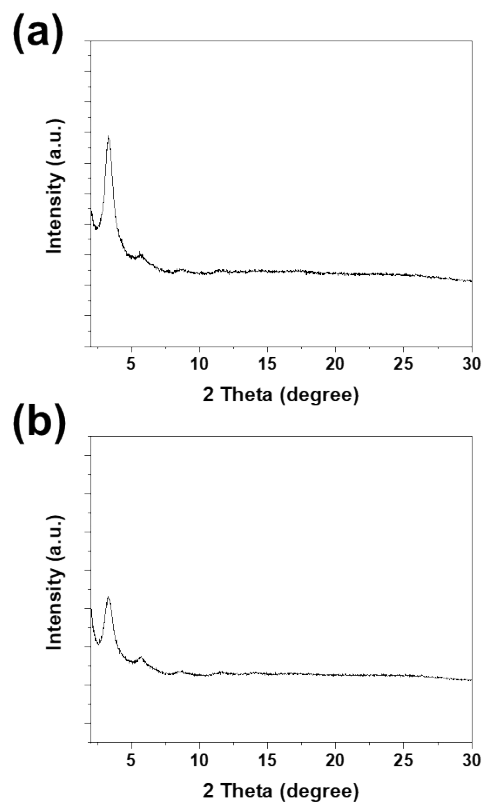
**Fig. S9.** Iodine uptake of T-COF-2 (15 mg) in hexane (iodine: 1.5 mmol L<sup>-1</sup>, 3 mL).



**Fig. S10.** Recycle ability of (a) T-COF-1 and (b) T-COF-2.

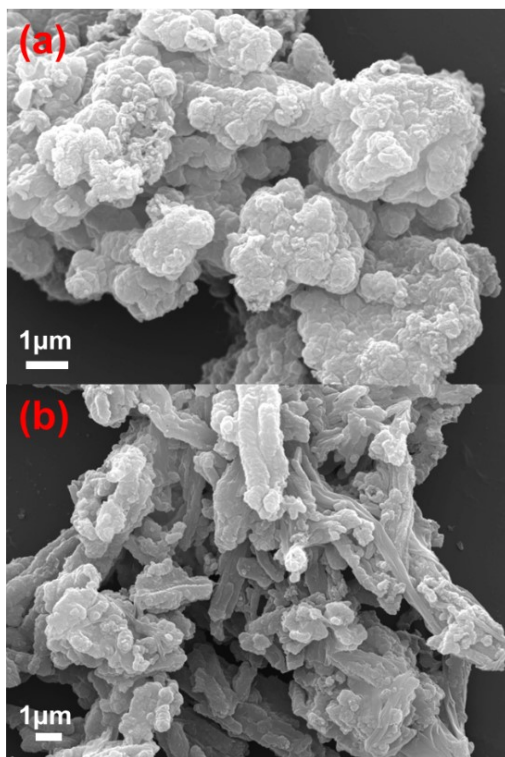


**Fig. S11.** FT IR spectra of (a) T-COF-1 and (b) T-COF-2.



**Fig. S12.** PXRD patterns of regenerated (a) T-COF-1 and (b) T-COF-2.





**Fig. S13.** FE SEM images of regenerated (a) T-COF-1 and (b) T-COF-2.

**Table S1.** Elemental analysis of T-COF-1 and T-COF-2.

		C (%)	H (%)	N (%)
T-COF-1	Calcd.	86.79	4.40	8.81
	Found	86.01	4.92	8.16
T-COF-2	Calcd.	82.76	4.08	13.16
	Found	81.23	4.52	13.06

**Table S2.** Iodine sorption capacity compared with other materials.

Samples	Temperature (°C)	I <sub>2</sub> uptake (g g <sup>-1</sup> )	Rate constant	Ref.
T-COF-1	77	4.29		This work
T-COF-2		4.72		
TPB-DMTP COF	75	6.26	0.13	S1
TTA-TTB COF		4.95	0.14	
ETTA-TPA COF		4.79	0.12	
M-COF	77	4.56	-	S2
TPT-DHBD-COF	75	5.43	0.14	S3
TPT-Azine-COF	-	2.19	-	S4
SOF	-	4.46	-	S5
AzoPPN	77	2.90	0.18	S6
NTP	75	1.80	0.11	S7
NiP-CMP	75	2.02	0.17	S8

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