Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

Designed Synthesis of a sp^2 Carbon-Conjugated Fluorescent Covalent Organic Framework for Selective Detection of Fe^{3+}

Jia You, Qianqian Kong, Cuiling Zhang* and Yuezhong Xian*

Shanghai Engineering Research Center of Molecular Therapeutics and New Drug Development, Department of Chemistry, School of Chemistry and Molecular Engineering, East China Normal University, Shanghai 200241, China.

E-mails: clzhang@chem.ecnu.edu.cn, yzxian@chem.ecnu.edu.cn.

Table of Content

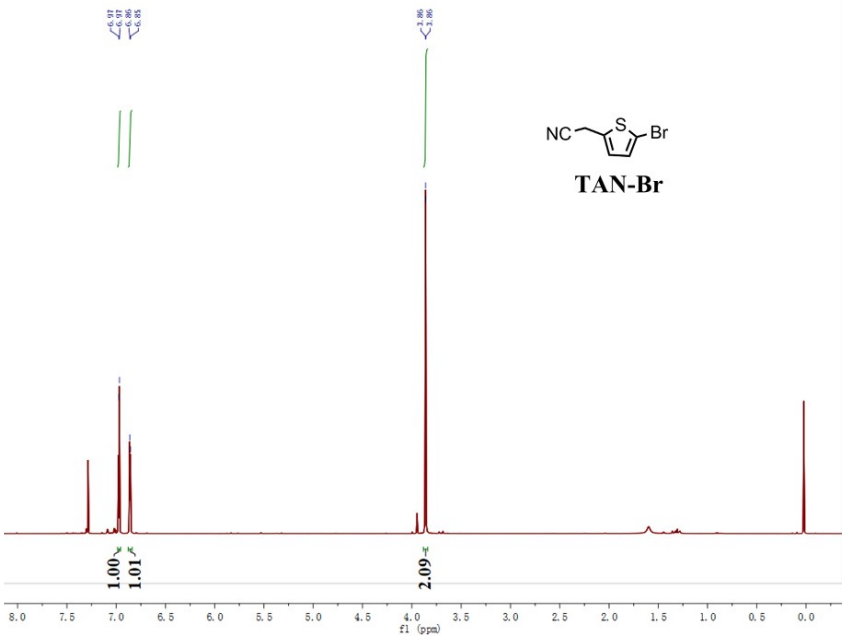

Figure S1. ^{1}H NMR of TAN-Br.

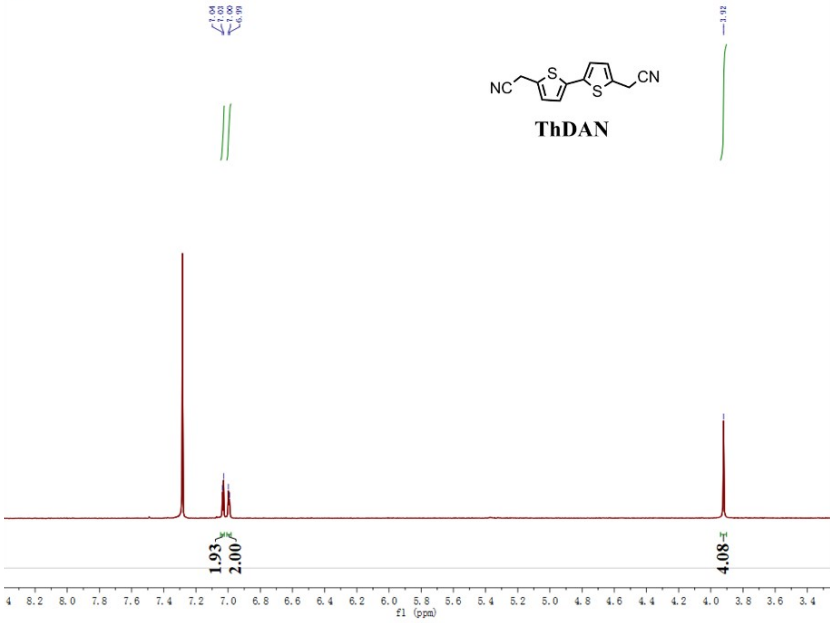

Figure S2. ^{1}H NMR of ThDAN.

Table S1. Synthesis of the $COF_{TFPPy\text{-}ThDAN}$ under different conditions.

No.	Solvent	Ratio	Temperature	Catalyst	Product
1	*o*-DCB/ *n*-BuOH	1/1	120 ℃	NaOH	Amorphous polymer
2	*o*-DCB/ *n*-BuOH	1/1	120 ℃	DBU	Amorphous Polymer
3	*o*-DCB/ *n*-BuOH	1/1	120 ℃	Cs_2CO_3	Amorphous Polymer
4	1,4-dioxane/ Mesitylene	1/1	120 ℃	NaOH	Amorphous Polymer
5	1,4-dioxane/ Mesitylene	1/1	120 ℃	DBU	Amorphous Polymer
6	1,4-dioxane/ Mesitylene	1/1	120 ℃	Cs_2CO_3	Poor crystallinity
7	1,4-dioxane/ Mesitylene	1/1	120 ℃	Cs_2CO_3	Amorphous Polymer
8	1,4-dioxane/ Mesitylene	1/1	120 ℃	Cs_2CO_3	Medium crystallinity
9	1,4-dioxane/ Mesitylene	1/1	120 ℃	Cs_2CO_3	High crystallinity
10	1,4-dioxane/ Mesitylene	1/1	120 ℃	Cs_2CO_3	Medium crystallinity

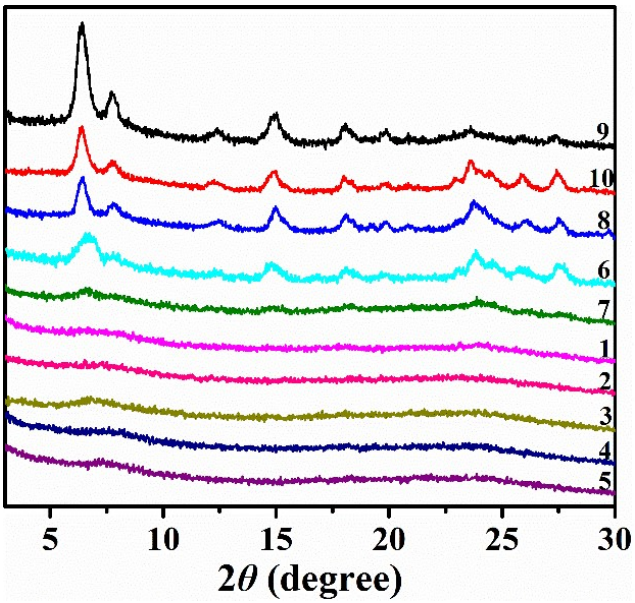

Figure S3. PXRD spectra of products under different synthesis conditions (the numbers correspond to the serial numbers in Table S1).

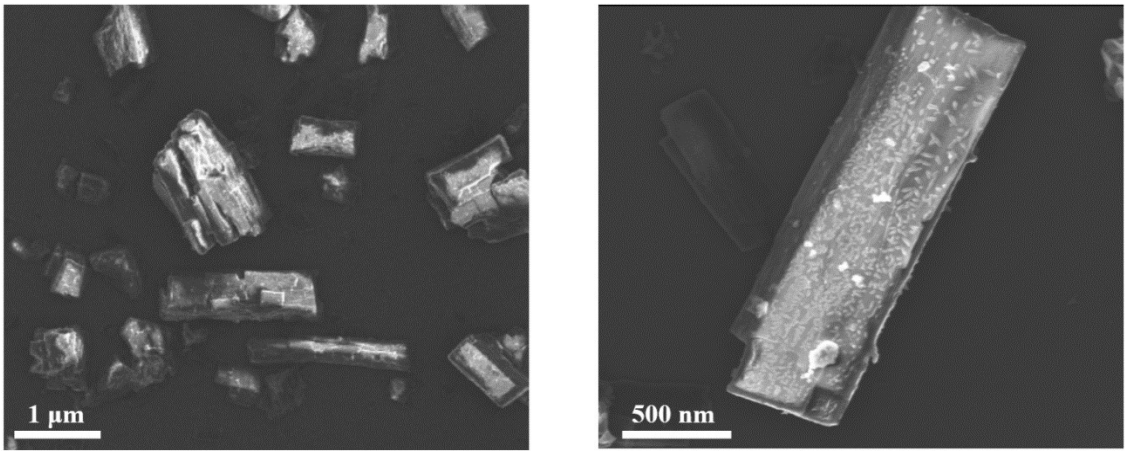

Figure S4. SEM images of $COF_{TFPPy\text{-}ThDAN}$.

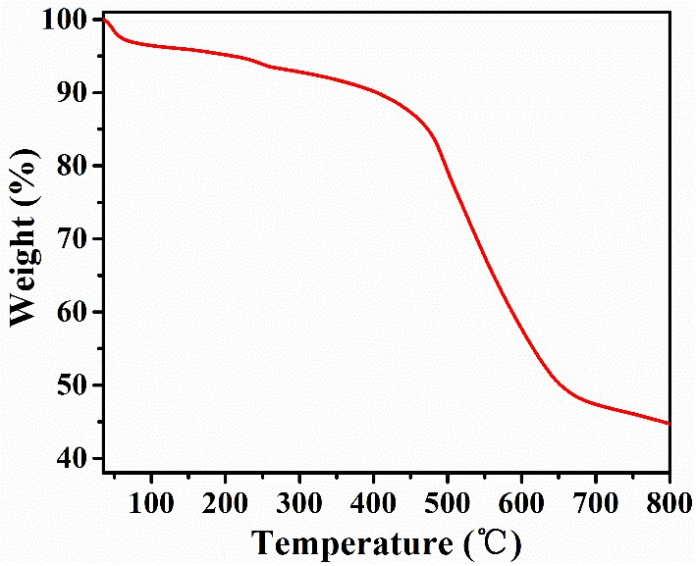

Figure S5. Thermogravimetric analysis curve of $COF_{TFPPy\text{-}ThDAN}$.

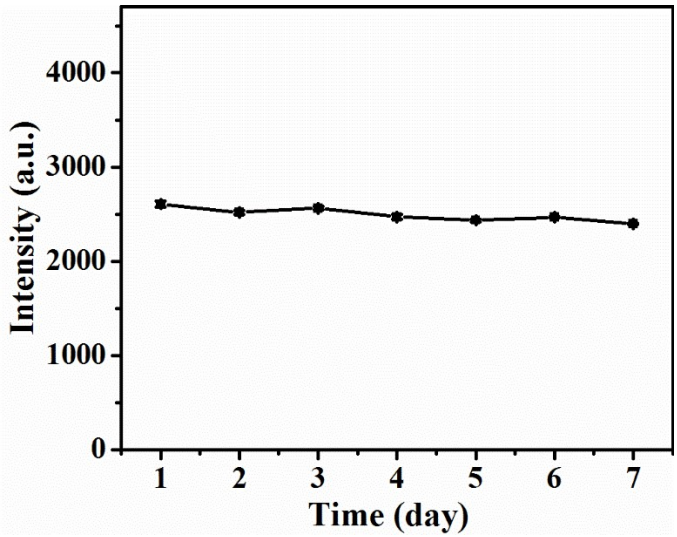

Figure S6. The fluorescence stability of $COF_{TFPPy\text{-}ThDAN}$ within 7 days.

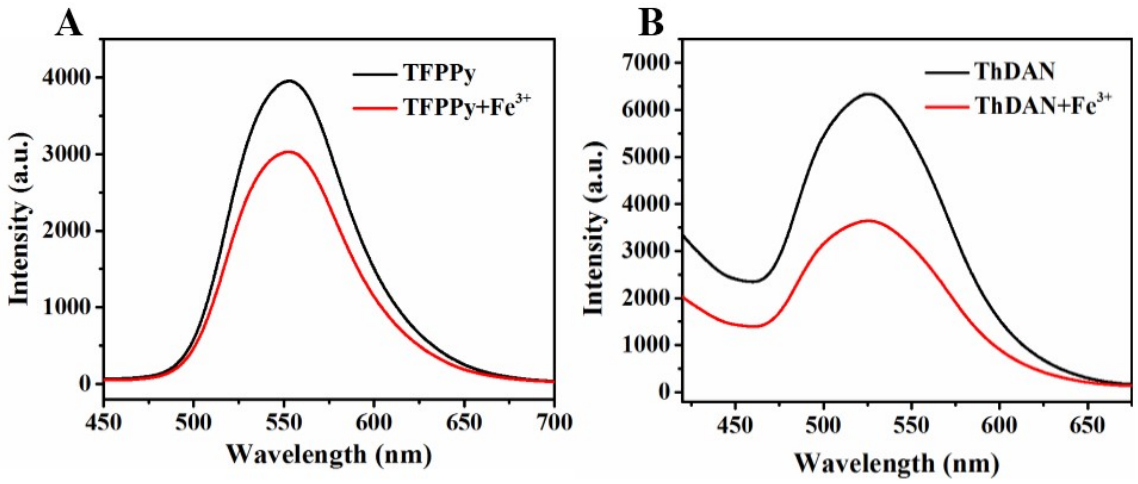

Figure S7. Fluorescence responses of TFPPy and ThDAN towards Fe^{3+}. The concentration of Fe^{3+} is 200 μM.

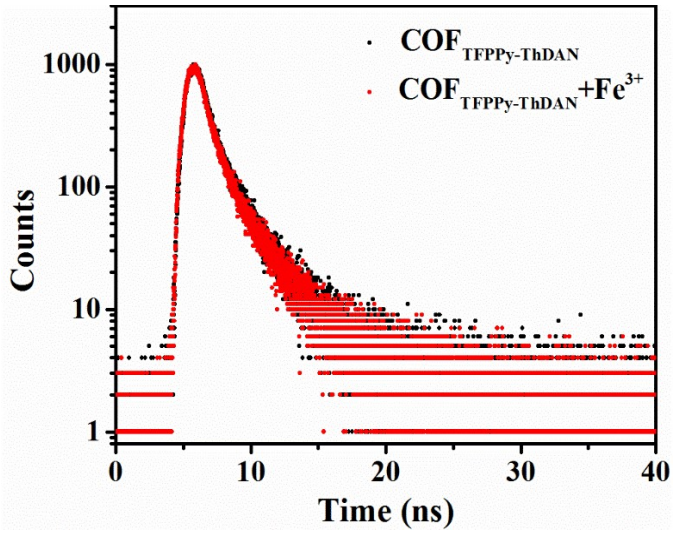

Figure S8. Fluorescence decay curves of $COF_{TFPPy\text{-}ThDAN}$ before and after adding 200 μM Fe^{3+}.

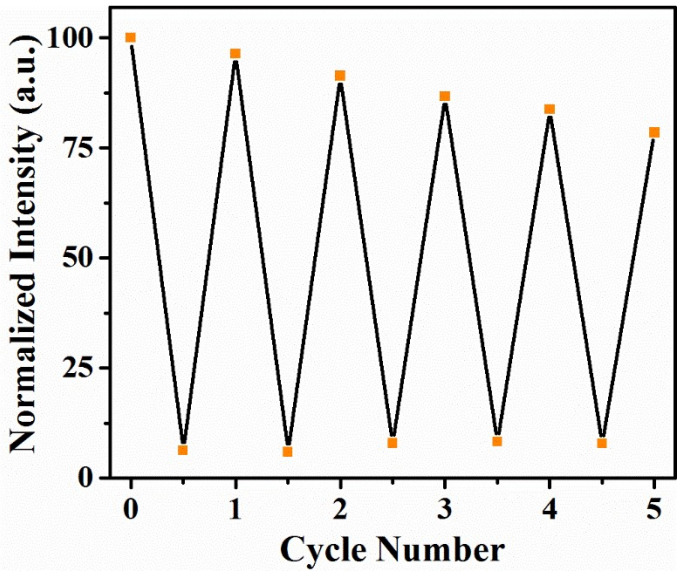

Figure S9. The reusable performance of $COF_{TFPPy\text{-}ThDAN}$ for Fe^{3+} detection. The concentration of Fe^{3+} is 200 μM.