

Electronic Supplementary Information for

Fluorescent Turn-on Detection of Uric Acid by a Water-Stable Metal-Organic Nanotube with High Selectivity and Sensitivity

Xuelian Xin,^{ab} Minghui Zhang,^b Jianwei Zhao,^c Chengyou Han,^b Xiuping Liu,^b Zhenyu Xiao,^b Liangliang Zhang,^b Ben Xu,^b Wenyue Guo,^b Rongming Wang^{*ab} and Daofeng Sun^{*ab}

^a State Key Laboratory of Heavy Oil Processing, China University of Petroleum (East China), Qingdao Shandong 266580, China. ^b College of Science, China University of Petroleum (East China), Qingdao 266580, China. ^c College of Chemical Engineering, China University of Petroleum (East China), Qingdao 266580, China.

Email: rmwang@upc.edu.cn; dfsun@upc.edu.cn.

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1. Structure of CD-MONT-2.

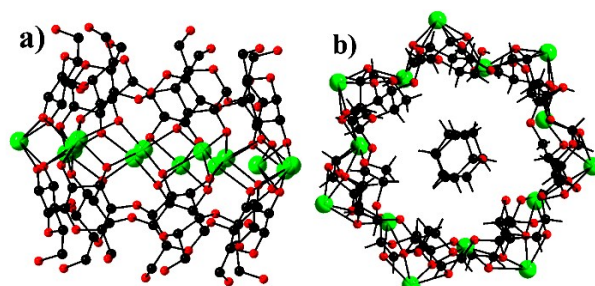


Fig. S1 Structure of **CD-MONT-2**. a) Side view of **CD-MONT-2** (cyclohexanol molecules and hydrogen atoms are omitted for clarity). (b) Top view of **CD-MONT-2**, showing the fourteen-nuclearity lead metallamacrocycle and cyclohexanol molecules in the cavity (hydrogen atoms are omitted for clarity). (green: Pb(II), black: C and red: O).

2. PXRD of CD-MONT-2.

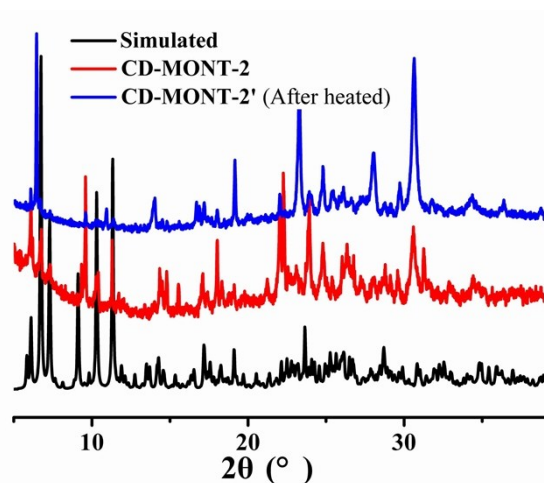


Fig. S2 PXRD patterns of simulated based on crystal data, as-synthesized and after heated at 120 °C for half an hour.

3. Fluorescent spectrum of 1 mg/mL CD-MONT-2' in H₂O.

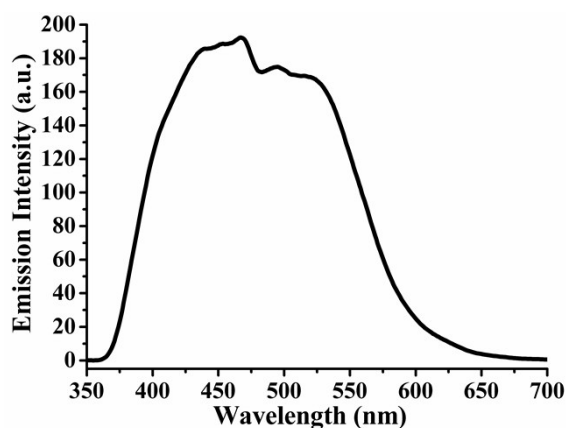


Fig. S3 Fluorescent spectrum of 1 mg/mL **CD-MONT-2'** in H₂O.

4. Reports for the LOD of UA detection.

Table 1. Reports for the Detection of UA¹⁻⁴

Sample name	Test method	Detection limit (μM)	refs
this work	Fluorescent spectra	4.3	
Dual enzyme	Fluorescent spectra	125	1
NCs	Fluorescent spectra	0.12	2
Nanoparticle	Colorimetry	48	3
	Amperometric sensor	100	4
	HPLC-UV	1.42	5
OM-CFc	Electrochemical	1.8	6

5. Fluorescent intensity comparison.

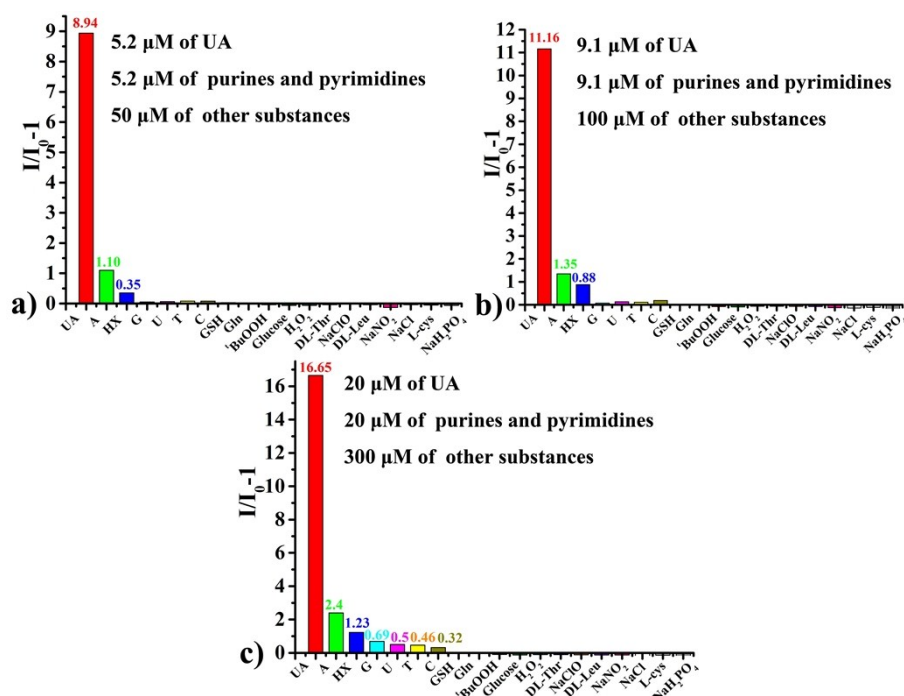


Fig. S4 Fluorescent intensity of I/I_0-1 (526 nm) spectra with a), 5.2 μM of UA, purines, pyrimidine, 50 μM of inorganic salts, reducing agents, amino acids, RNS and ROS, respectively; b), 9.1 μM of UA, purines, pyrimidine, 100 μM of inorganic salts, reducing agents, amino acids, RNS and ROS, respectively; c), 20 μM of UA, purines, pyrimidine, 300 μM of inorganic salts, reducing agents, amino acids, RNS and ROS, respectively.

6. Fluorescent spectra of purines and pyrimidines.

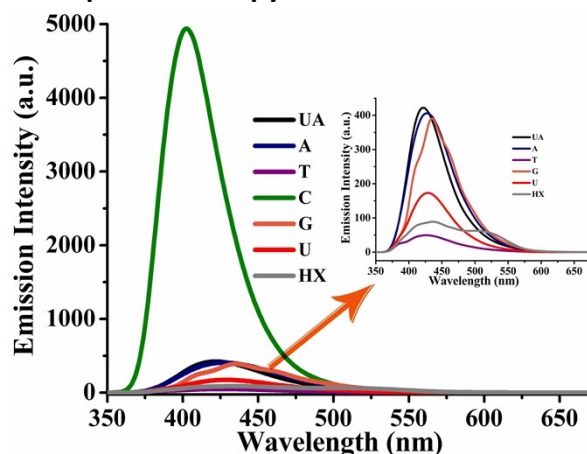


Fig. S5 Fluorescent spectra of purines and pyrimidines (at concentration of 1 mM in H_2O), and the insert picture shows the enlarged view.

7. Fluorescent spectra of 1 mg/mL CD-MONT-2' in H_2O with different purines and pyrimidines.

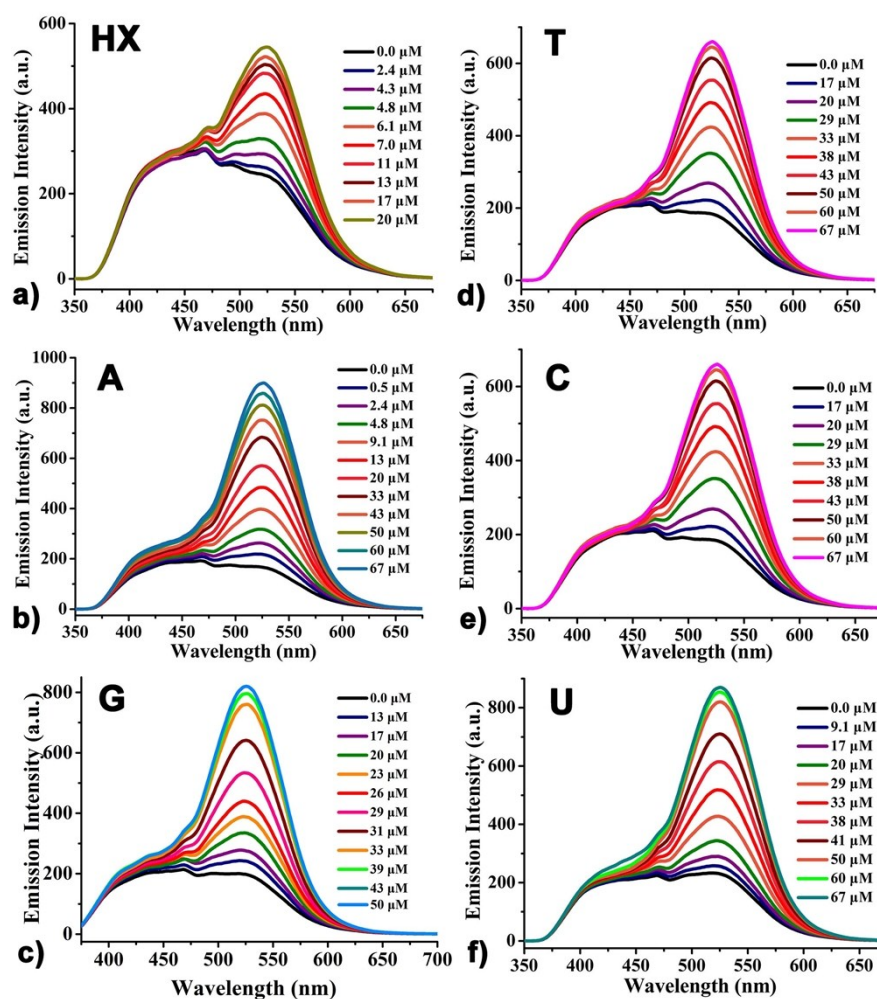


Fig. S6 Fluorescent spectra of 1 mg/mL **CD-MONT-2'** in H_2O treated with: a) HX, b) A, c) G, d) C, and e) U.

8. Fluorescent spectra of the CD-MONT-2' in H₂O with different substances.

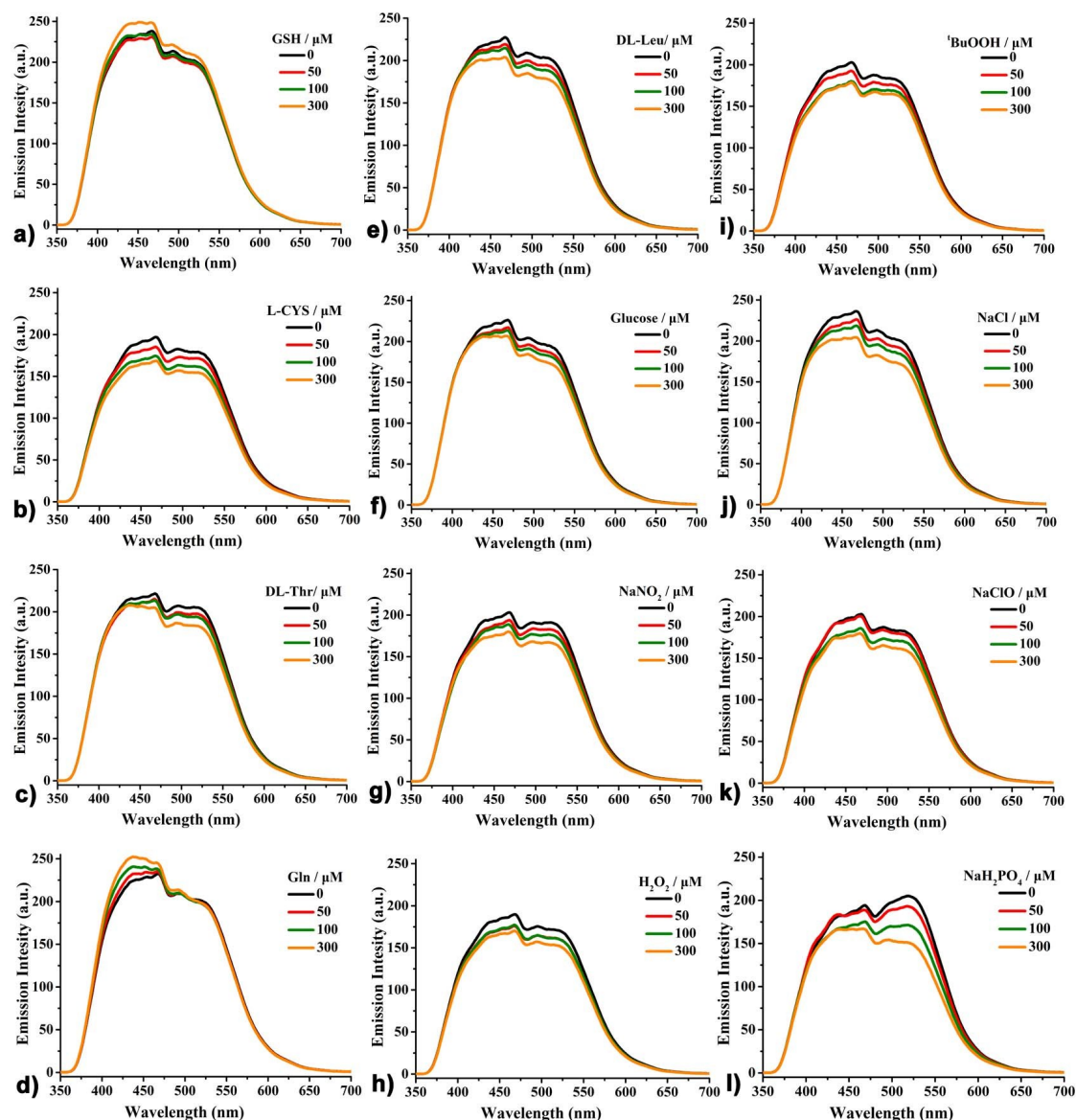


Fig. S7 Fluorescent spectra of 1 mg/mL **CD-MONT-2'** in H₂O treated with: a) GSH, b) L-cys, c) DL-Thr, d) Gln, e) DL-Leu, f) glucose, g) NaNO₂, h) H₂O₂, i) ^tBuOOH, j) NaCl, k) NaClO, and l) NaH₂PO₄.

9. Interference experiments.

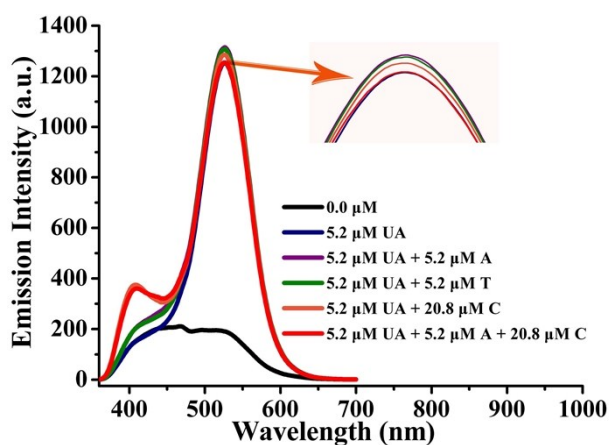


Figure S8. Fluorescent spectra of interference experiments.

10. Structures of the molecules inside the pore.

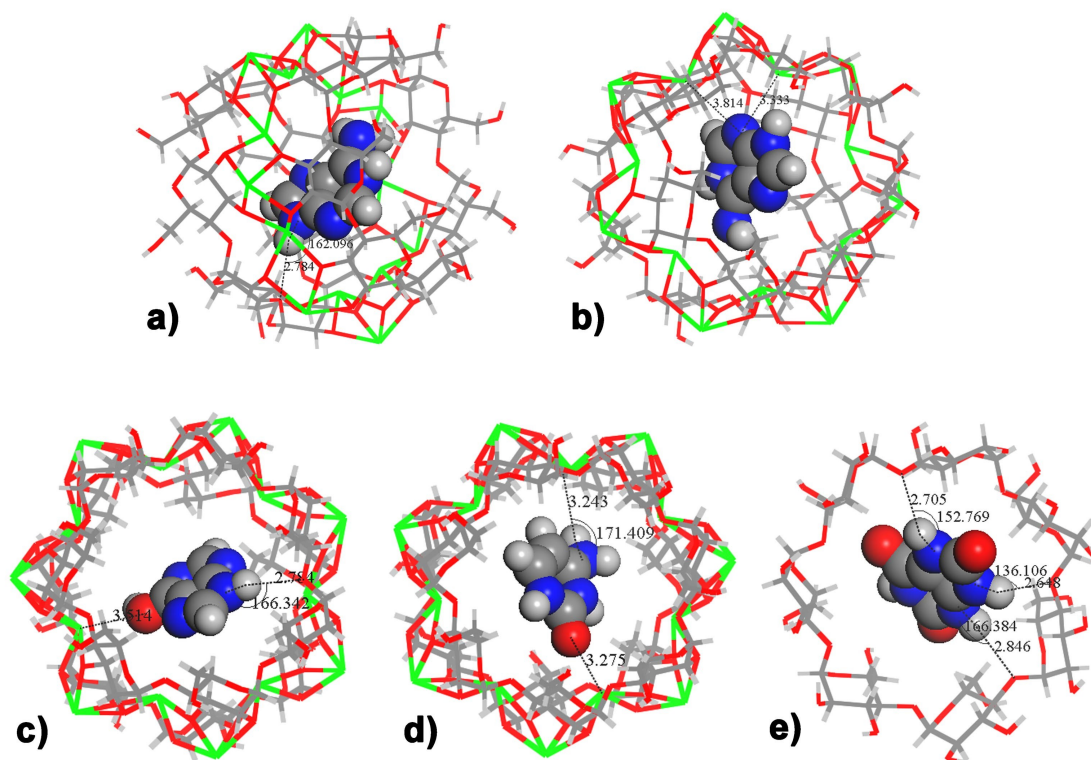


Fig. S9 Structures of the molecules inside the pore with the distance and angles marked (a) A in **CD-MONT-2'**: N-H...O, (b) A in **CD-MONT-2'**: Pb(II)-O, (c) HX in **CD-MONT-2'**: N-H...O and O-H...O, (d) C in **CD-MONT-2'**: N-H...O and Pb(II)-O and (d) UA in β -CD: N-H...O. (green: Pb(II), gray: C, red: O, and light grey: H).

11. Vis-UV spectra of UA adsorbed by CD-MONT-2'.

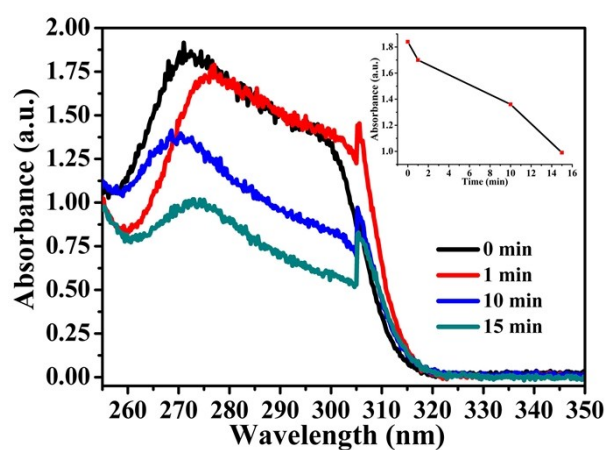


Figure S10. Vis-UV spectra of UA adsorbed by CD-MONT-2'.

12. HPLC analysis of UA adsorbed by CD-MONT-2'.

Table S2. Table of areas of UA.

Time (min)	Retention time	Area
0	8.73	5188714
1	8.72	3656625
5	8.69	2802430
10	8.71	2219528
15	8.74	1189820

13. PXRD of UA, CD-MONT-2' and UA@CD-MONT-2'.

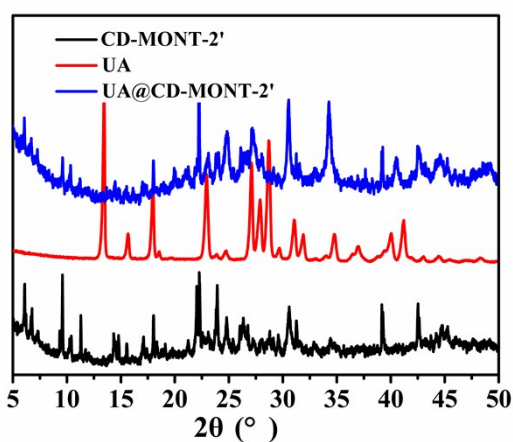


Fig. S11 PXRD patterns of UA, CD-MONT-2' and UA@CD-MONT-2'.

14. FTIR spectra of UA, CD-MONT-2' and UA@CD-MONT-2'.

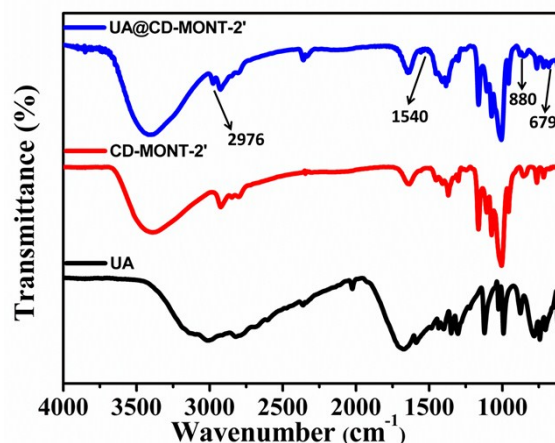


Fig. S12 FTIR spectra of UA, CD-MONT-2' and UA@CD-MONT-2'.

15. TGA spectra of CD-MONT-2' and UA@CD-MONT-2'.

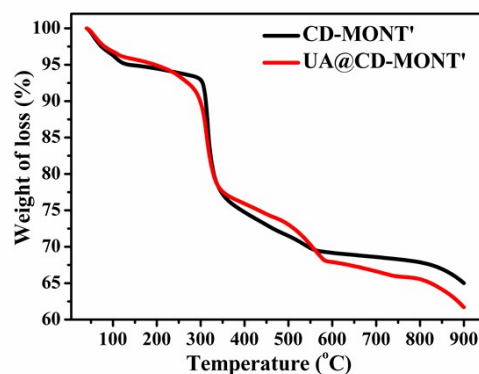


Fig. S13 TGA spectra of UA@CD-MONT-2'.

16. REFERENCES

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