

# Hydrothermal Synthesis of Two 2D Uranyl Coordination Polymers, Structures, Luminescence, and Photocatalytic

## Degradation of Rhodamine B

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## Supporting materials

Table S1 Selected bond length (Å) and angles (°) for **1** and **2**

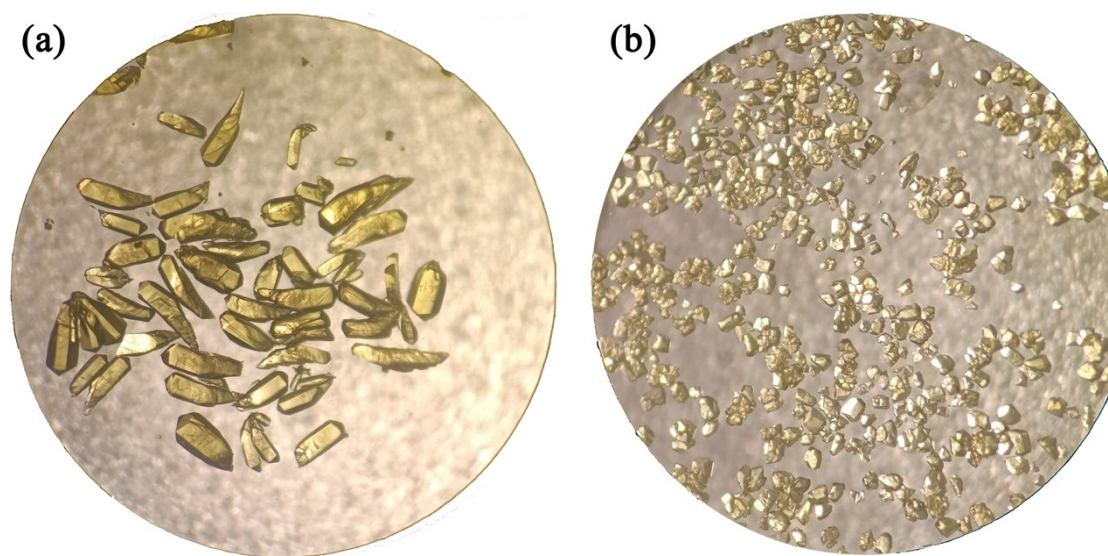
<b>1</b>			
<b>Bond length</b>			
U(1)-O(5)	1.747(3)	U(1)-O(6)	1.741(3)
U(1)-O(2)#3	2.361(3)	U(1)-O(1)#2	2.288(3)
U(1)-O(4)	2.416(3)	U(1)-O(3)#4	2.475(3)
U(1)-O(3)	2.595(3)		
<b>Bond angles</b>			
O(2)#3-U(1)-O(4)	154.30(10)	O(2)#3-U(1)-O(3)#4	75.40(9)
O(2)#3-U(1)-O(3)	153.47(9)	O(5)-U(1)-O(2)#3	85.18(12)
O(5)-U(1)-O(1)#2	93.43(12)	O(5)-U(1)-O(4)	90.93(12)
O(5)-U(1)-O(3)	91.07(11)	O(5)-U(1)-O(3)#4	96.18(11)
O(1)#2-U(1)-O(2)#3	79.36(10)	O(1)#2-U(1)-O(4)	126.29(10)
O(1)#2-U(1)-O(3)	74.65(9)	O(1)#2-U(1)-O(3)#4	152.06(10)
O(4)-U(1)-O(3)	51.74(9)	O(4)-U(1)-O(3)#4	79.79(9)
O(3)#4-U(1)-O(3)	131.13(11)	O(6)-U(1)-O(2)#3	97.09(12)
O(6)-U(1)-O(5)	177.56(13)	O(6)-U(1)-O(1)#2	86.10(12)
O(6)-U(1)-O(4)	87.42(12)	O(6)-U(1)-O(3)	86.49(11)
O(6)-U(1)-O(3)#4	85.31(11)		
Symmetrical code: #1 x+1,y-1,z-1; #2 1-x,-y,-z; #3 x+1,y,z-1; #4 -x,y+3/2,-z+1/2; #5 -x,y+3/2,-z+3/2.			
<b>2</b>			
<b>Bond length</b>			
U(1)-O(1)	2.360(3)	U(1)-O(2)#1	2.321(3)
U(1)-O(3)#2	2.474(4)	U(1)-O(4)#2	2.426(4)
U(1)-O(5)	2.341(4)	U(1)-O(6)	1.756(4)
U(1)-O(7)	1.756(4)		

**Bond angles**

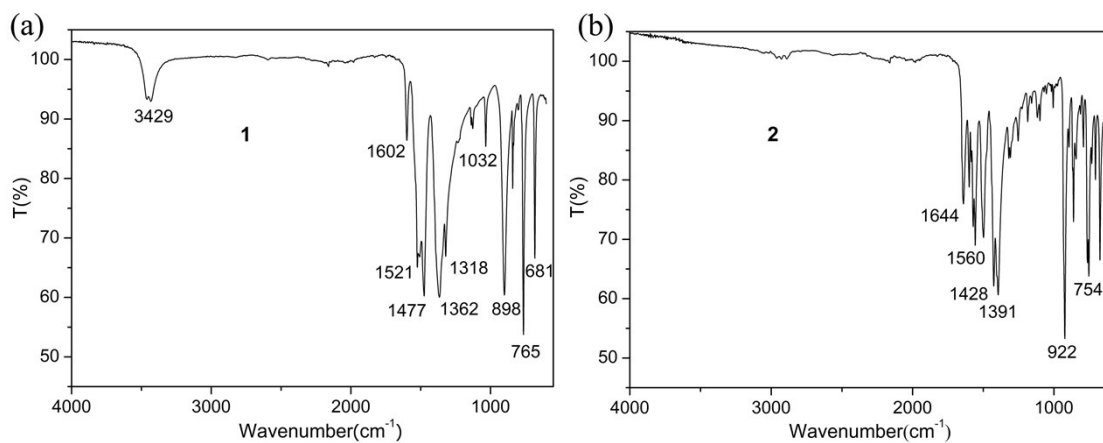
O(1)-U(1)-O(3)#2	150.17(12)	O(1)-U(1)-O(4)#2	156.85(12)
O(2)#1-U(1)-O(1)	79.74(12)	O(7)-U(1)-O(6)	178.27(18)
O(2)#1-U(1)-O(3)#2	130.08(12)	O(2)#1-U(1)-O(4)#2	77.17(12)
O(2)#1-U(1)-O(5)	155.66(14)	O(5)-U(1)-O(1)	75.95(14)
O(5)-U(1)-O(3)#2	74.22(14)	O(5)-U(1)-O(4)#2	127.16(13)
O(6)-U(1)-O(1)	91.32(16)	O(6)-U(1)-O(2)#1	87.77(16)
O(6)-U(1)-O(3)#2	89.42(17)	O(6)-U(1)-O(4)#2	89.53(17)
O(6)-U(1)-O(5)	91.46(18)	O(7)-U(1)-O(1)	88.72(15)
O(7)-U(1)-O(2)#1	90.54(16)	O(7)-U(1)-O(3)#2	91.40(17)
O(7)-U(1)-O(4)#2	89.76(16)	O(7)-U(1)-O(5)	90.23(18)

Symmetrical code: #1  $-x, 2-y, -z$ ; #2  $x-1, y, z$ ; #3  $x-1, y-1, z$ .

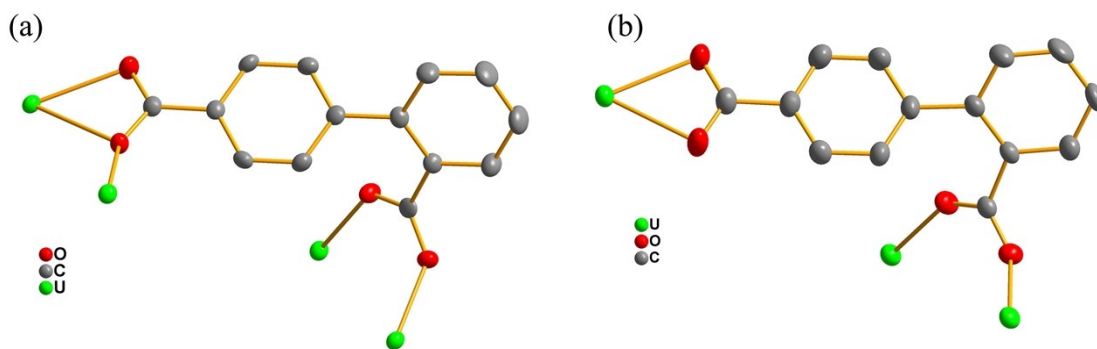
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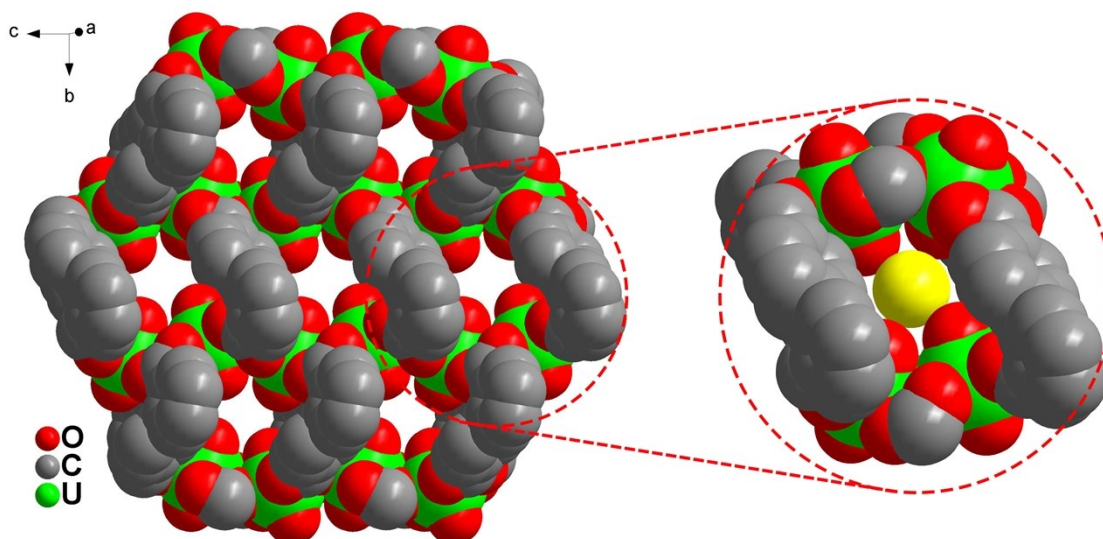
**Fig. S1** Photographs of crystal **1** and **2** under light field (forty times magnified).



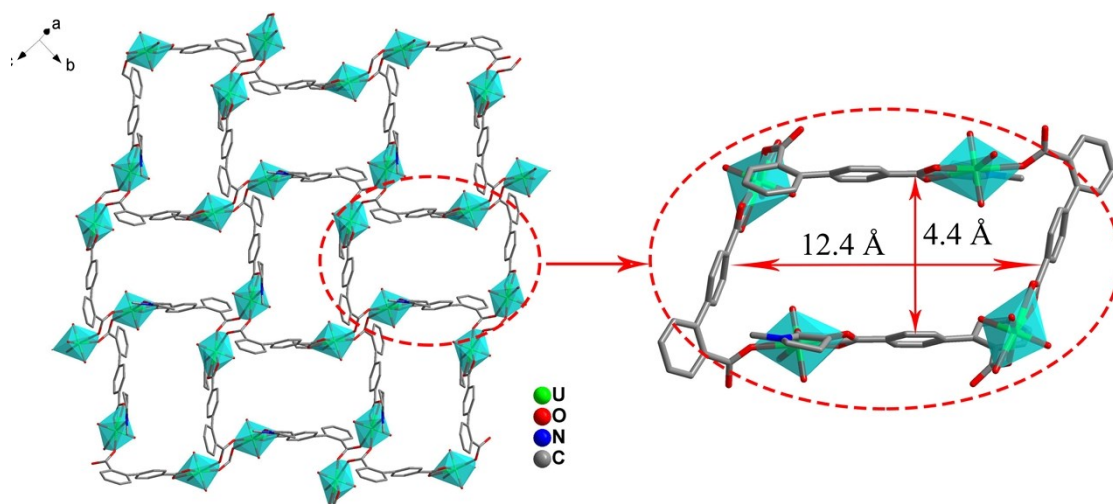
**Fig. S2** IR spectra of **1** and **2**.



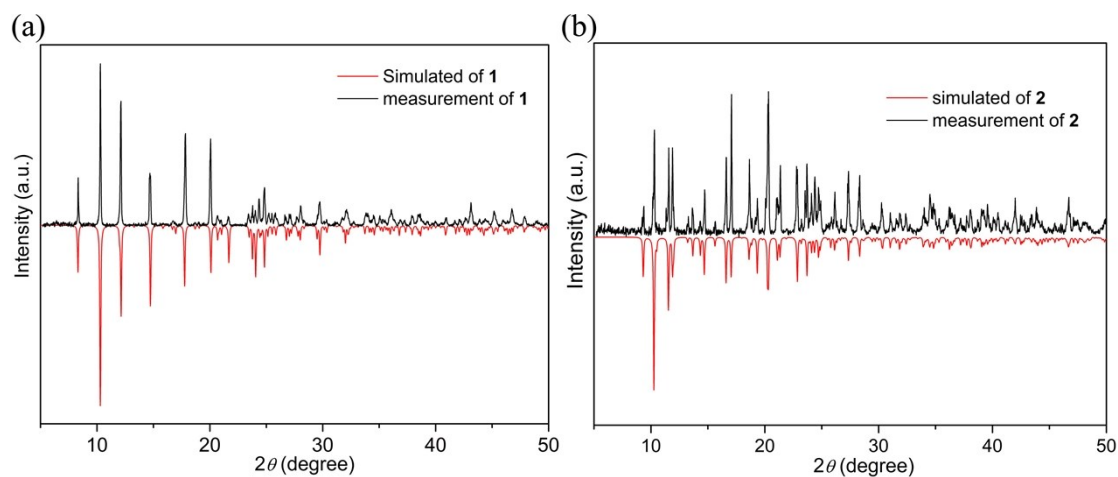
**Fig. S3** Coordination modes of bpda in **1** (a) and **2** (b).



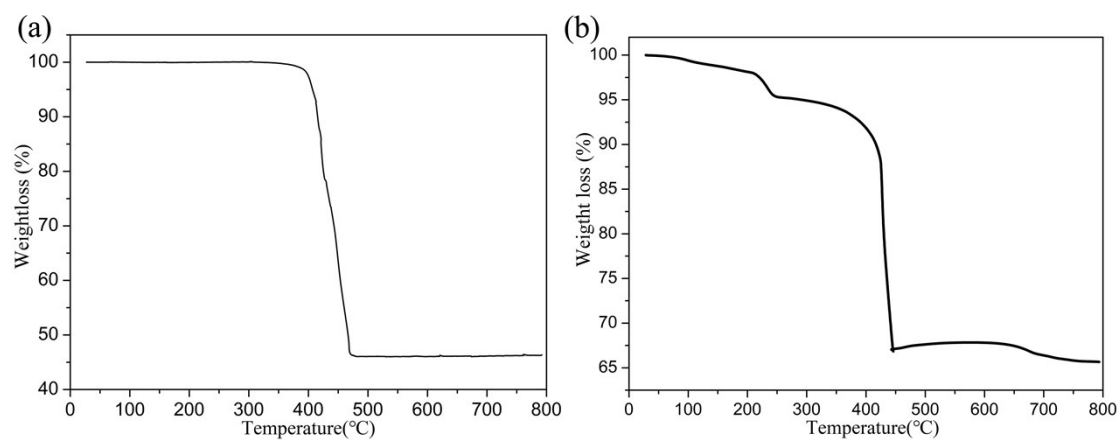
**Fig. S4** Space-filling mode of the 2D honeycomb network of **1** with pore diameter of 3.0 Å.



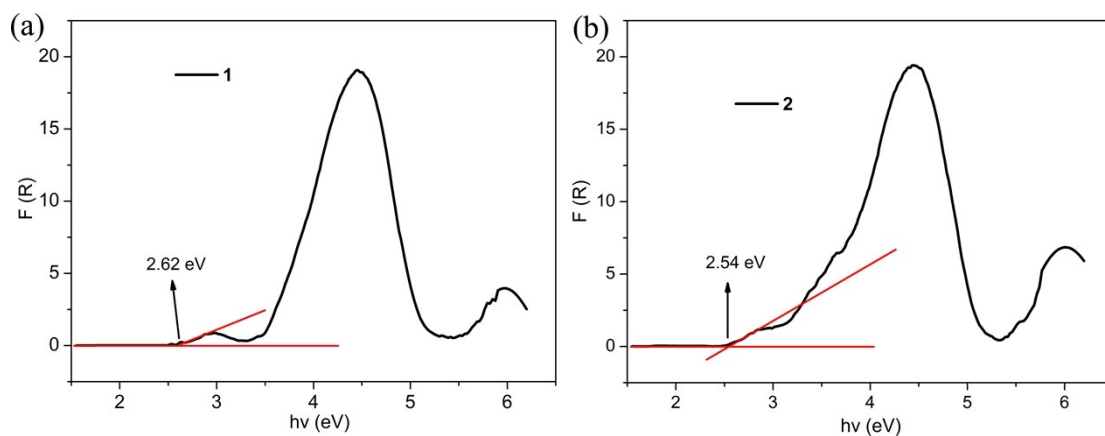
**Fig. S5** 2D rectangular sheet structure of **2** with size of  $12.4 \text{ \AA} \times 4.4 \text{ \AA}$  (the Van der Waals radius of carbons were subtracted).



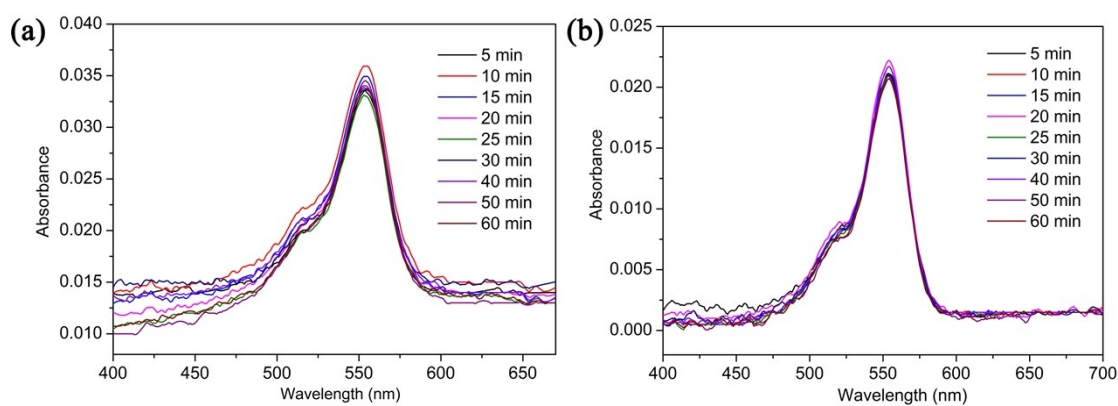
**Fig. S6** The PXRD patterns of **1** (a) and **2** (b).



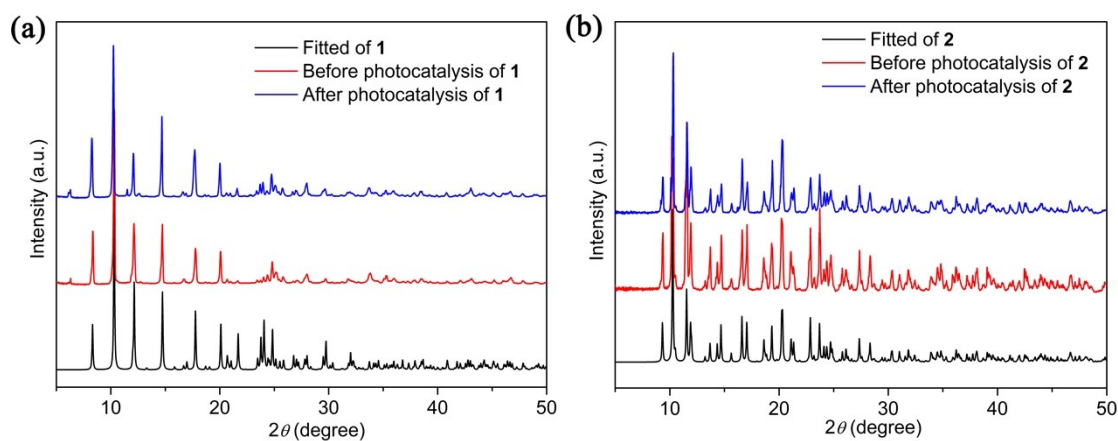
**Fig. S7** TGA profiles of **1** (a) and **2** (b).



**Fig. S8** The calculated band gaps of **1** and **2** based on the  $(ah\nu)^2-h\nu$  curves.



**Fig. S9** UV/Vis spectra of RhB solutions in the presence of **1** (a) or **2** (b) measured at different time.



**Fig. S10** Comparison of the PXRD patterns of **1** (a) and **2** (b) before and after photocatalysis experiment.