Electronic supporting information (ESI)

2D lanthanide MOFs driven by a rigid 3,5-bis(3-carboxy-phenyl)pyridine building block: solvothermal syntheses, structural features, photoluminescence and sensing properties

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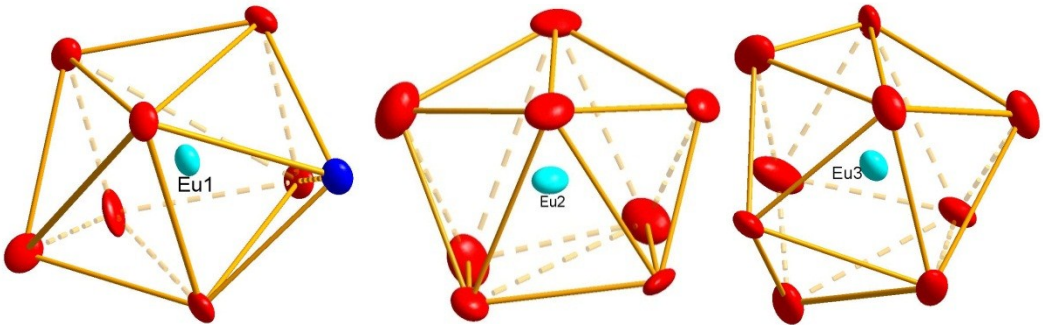

Figure S1. Simplified representation of coordination environments around Eu1, Eu2, and Eu3 centers in the structure of **1**.

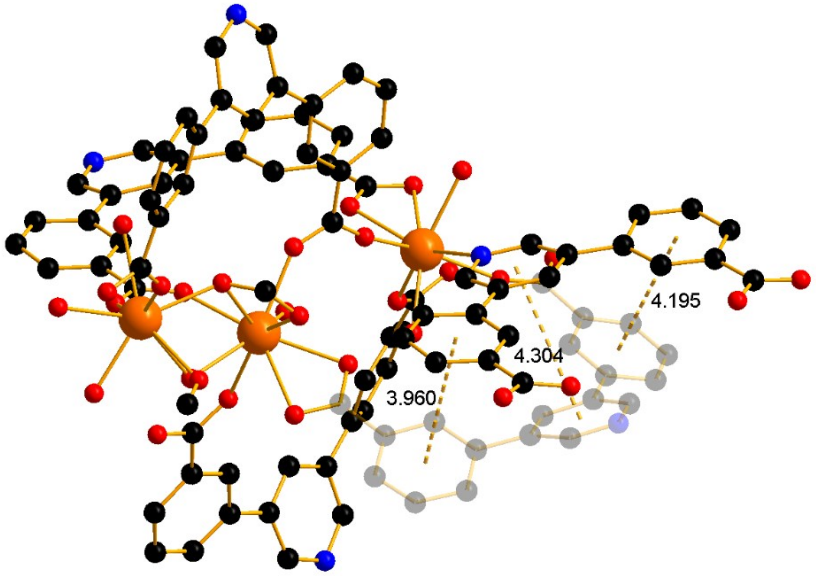

Figure S2 The intramolecular π–π stacking interactions in the compound **1**.

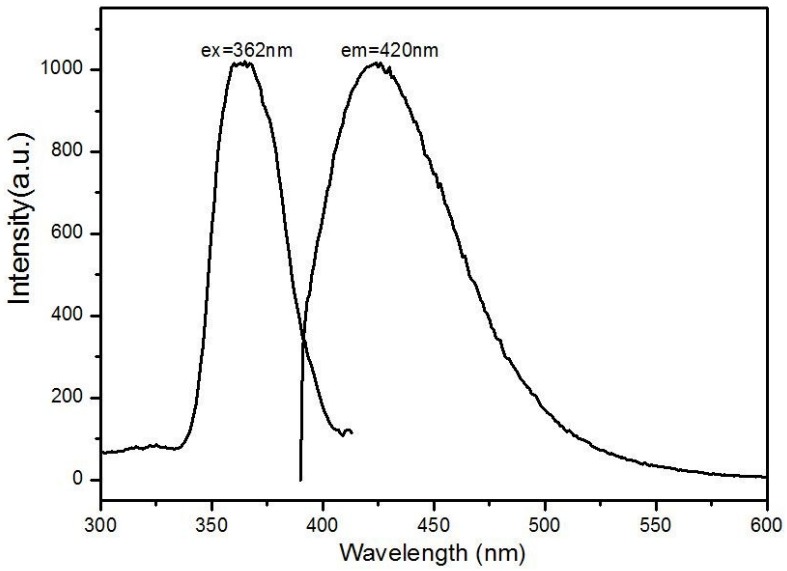

Figure S3 Excitation (λ_{ex}=362 nm) and emission (λ_{em}=420 nm) spectra of compound **3** recorded on the crystalline sample at room temperature.

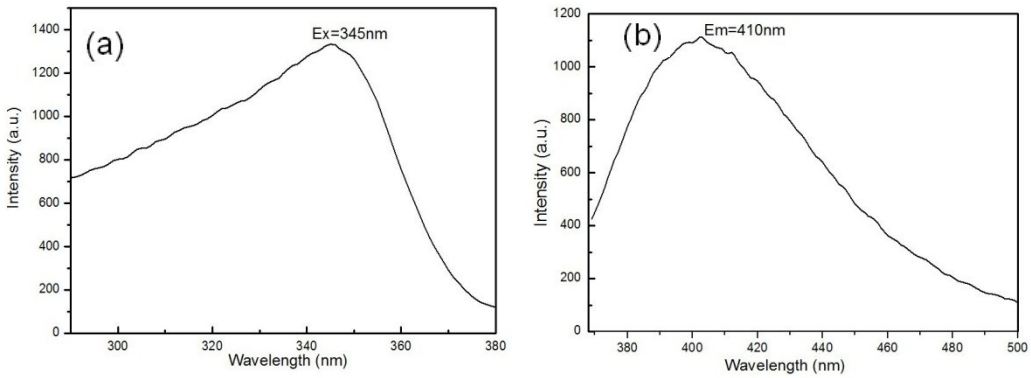

Figure S4 (a) Solid-state excitation spectrum for H_2bcpb in the solid state at room temperature; (b) Solid-state emission spectrum for H_2bcpb in the solid state at room temperature

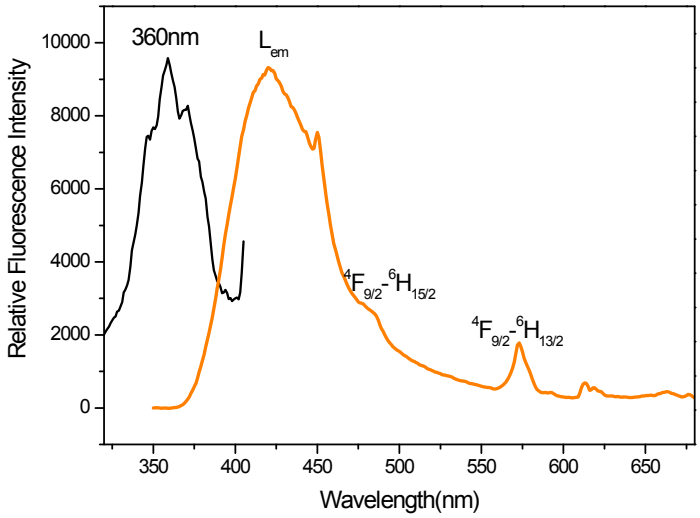

Figure S5 Excitation (black, λ_{ex} = 360 nm) and emission (orange, λ_{em} = 479 and 574 nm) spectra of compound **4** recorded on the crystalline sample at room temperature.

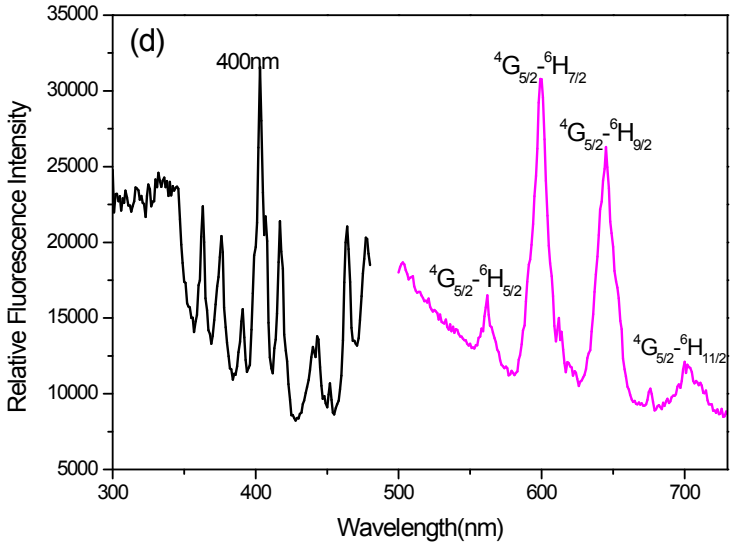

Figure S6 Excitation (black, λ_{ex} = 400 nm) and emission (purple, λ_{em} = 562 and 596 nm, 642 and 703 nm) spectra of compound **5** recorded on the crystalline sample at room temperature.

Table S1. The I_{tot}/I_{MD} calculation for compound 1.

Integral ranges	Transitions	Integral intensities	Integral ratio	I_{tot}/I_{MD}
577-581 nm	J = 0	175130	0.002712544	368.6575972
583-603 nm	J = 1	8095660	0.125391623	7.975014390
605-638 nm	J = 2	39264180	0.608152919	1.644323273
647-657 nm	J = 3	894355	0.013852437	72.18946056
666-715 nm	J = 4	15413530	0.238736254	4.188722829
Total integration		64563005		

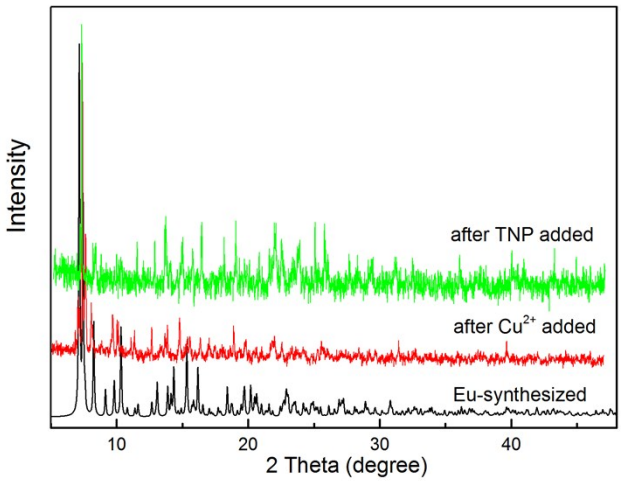

Figure S7 PXRD patterns of **1** treated before and after the interaction with $Cu(NO_3)_2$ or TNP.

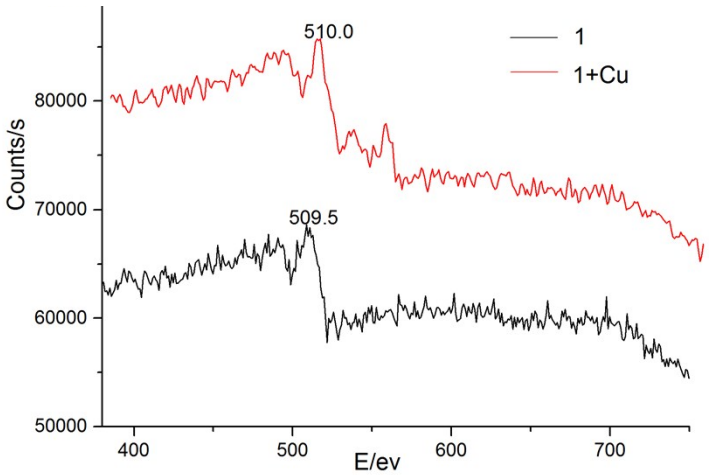

Figure S8 The N1s XPS spectra of the original **1** and Cu-incorporated Cu^{2+}-**1** samples.

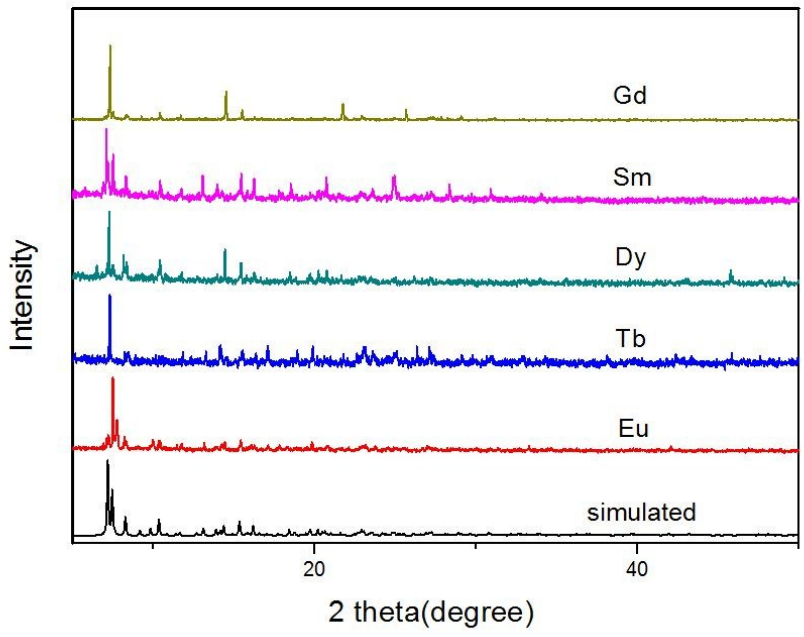

Figure. S9 PXRD patterns of **1** (simulated from the single crystal X-ray data) and as-synthesized samples of **1–5**

Table S2. The molar ratio of the starting Tb/Eu salt and that in compounds $[Tb_{3(1-x)}Eu_{3x}(bcpb)_4(\mu\text{-}HCOO)(\mu\text{-}H_2O)(H_2O)_2(DEF)]_n$ (**2a–2j**) calculated by ICP analysis.

Compound	Molar ratio of the starting Tb/Eu salts	Molar Tb/Eu ratio in **2a**–**2j** calculated by ICP analysis
2a $Tb_{0.999}Eu_{0.001}$	1:0.001	1:0.0009
2b $Tb_{0.998}Eu_{0.002}$	1:0.002	1:0.0018
2c $Tb_{0.995}Eu_{0.003}$	1:0.003	1:0.0028
2d $Tb_{0.99}Eu_{0.01}$	1:0.01	1:0.0101
2e $Tb_{0.98}Eu_{0.02}$	1:0.02	1:0.0192
2f $Tb_{0.97}Eu_{0.03}$	1:0.03	1:0.0309
2g $Tb_{0.95}Eu_{0.04}$	1:0.04	1:0.0368
2h $Tb_{0.90}Eu_{0.10}$	1:0.10	1:0.1007
2i $Tb_{0.85}Eu_{0.15}$	1:0.15	1:0.1449
2j $Tb_{0.80}Eu_{0.20}$	1:0.20	1:0.2089

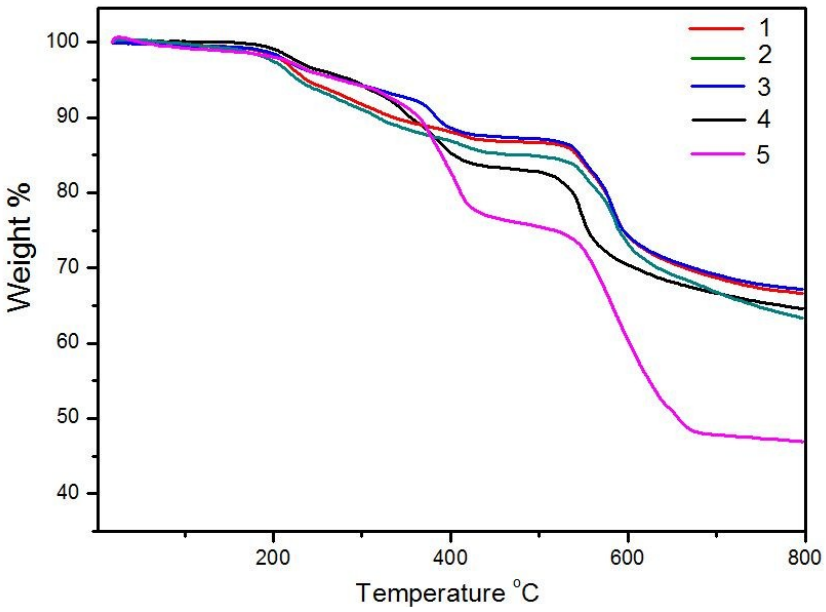

Figure S10 TGA curves for compounds **1−5**