Electronic Supplementary Material (ESI) for Dalton Transactions


# Supporting information

# Several (4,4)- and (5,6,8)-Connected Lanthanide-Organic Frameworks: Structures, Luminescence and Magnetic Properties

Xiao-Qing Zhao[ab], Xu-Hui Liu,[a] Bin Zhao[*,a]

[a]Department of Chemistry, Key Laboratory of Advanced Energy Material Chemistry, MOE, TKL of Metal and Molecule Based Material Chemistry, and Tianjin Co-Innovation Center of Chemical Science and Engineering, Nankai University, Tianjin 300071, China.

[b]College of Life and Basic Sciences, Sichuan Agricultural University, Ya'an 625014, China.

**Table S1**. Average bond lengths associated with Ln atoms (Å) of **2**–**6**.

| | **2** | **3** | **4** | **5** | **6** |
|---|---|---|---|---|---|
| Ln1-$O_c$ | 2.350 | 2.352 | 2.336 | 2.317 | 2.309 |
| Ln1-$O_m$ | 2.693 | 2.671 | 2.667 | 2.680 | 2.668 |
| Ln1-$O_w$ | 2.436 | 2.439 | 2.430 | 2.431 | 2.414 |
| Ln2-$O_c$ | 2.377 | 2.379 | 2.368 | 2.348 | 2.345 |
| Ln2-$O_m$ | 2.678 | 2.665 | 2.647 | 2.643 | 2.636 |
| Ln3-$O_c$ | 2.362 | 2.365 | 2.352 | 2.322 | 2.326 |
| Ln3-$O_m$ | 2.518 | 2.517 | 2.509 | 2.508 | 2.500 |
| Ln3-$O_w$ | 2.444 | 2.445 | 2.415 | 2.396 | 2.389 |

$O_c$, oxygen atom of the carboxyl group; $O_m$, oxygen atom of methyl group; $O_w$, oxygen atom of the coordinated water molecule.

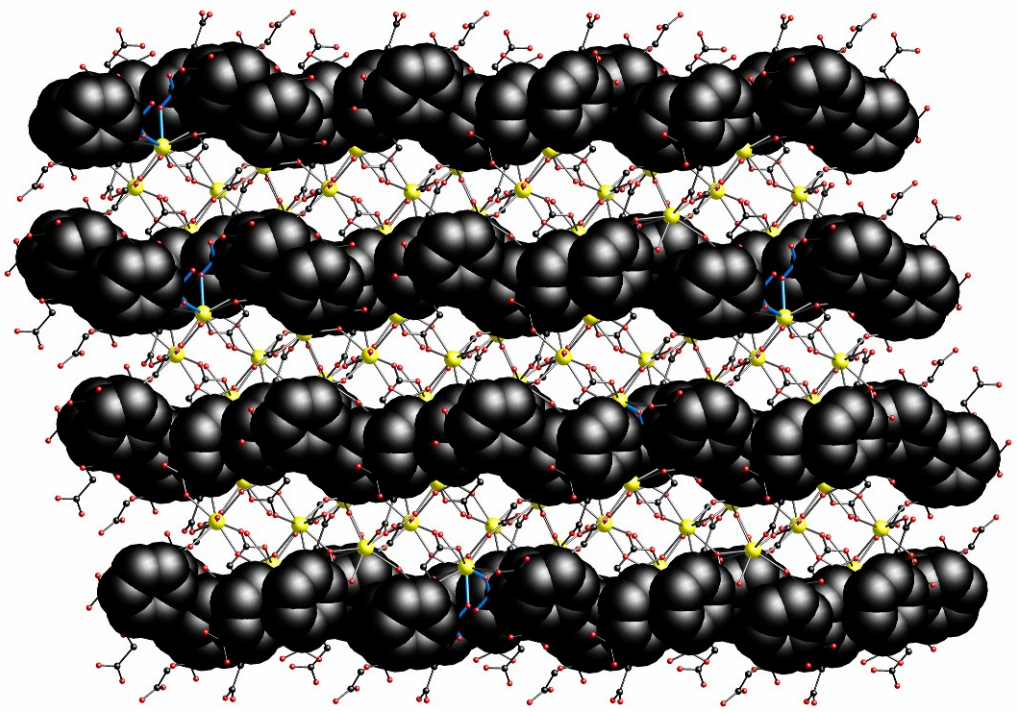

**Fig. S1** The 3D framework of **2** highlighting benzene rings.

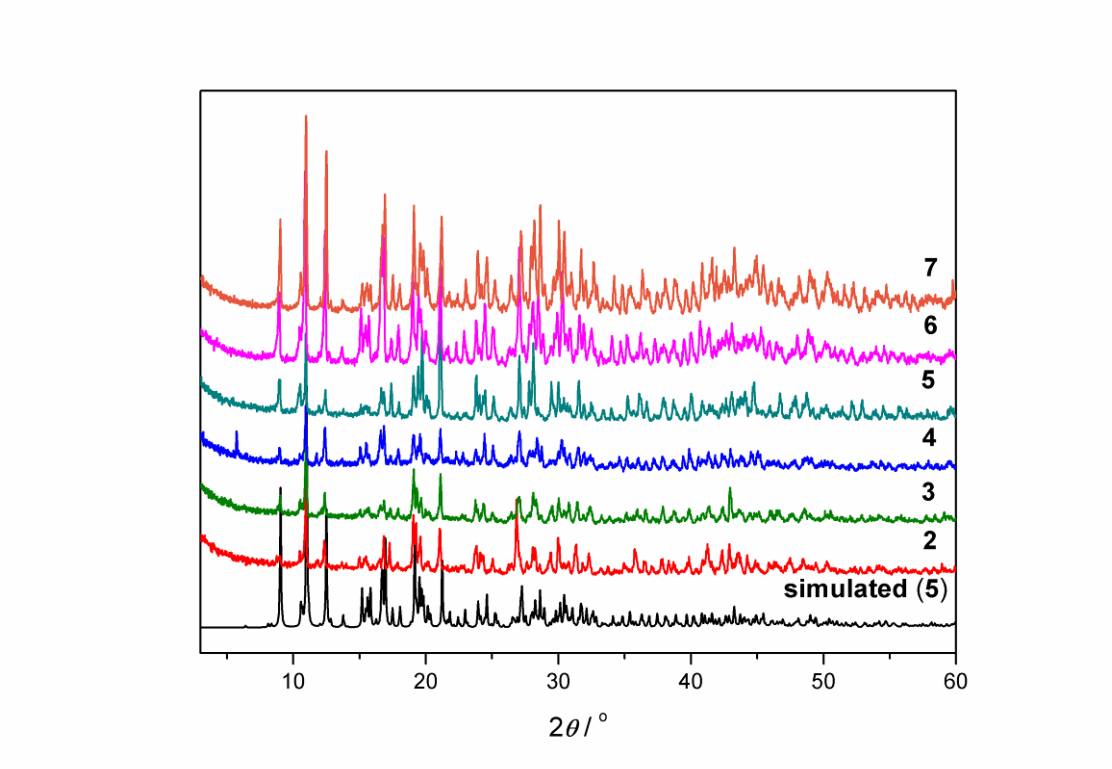


**Fig. S2** Theoretical and experimental powder X-ray diffraction patterns for **2-7**.

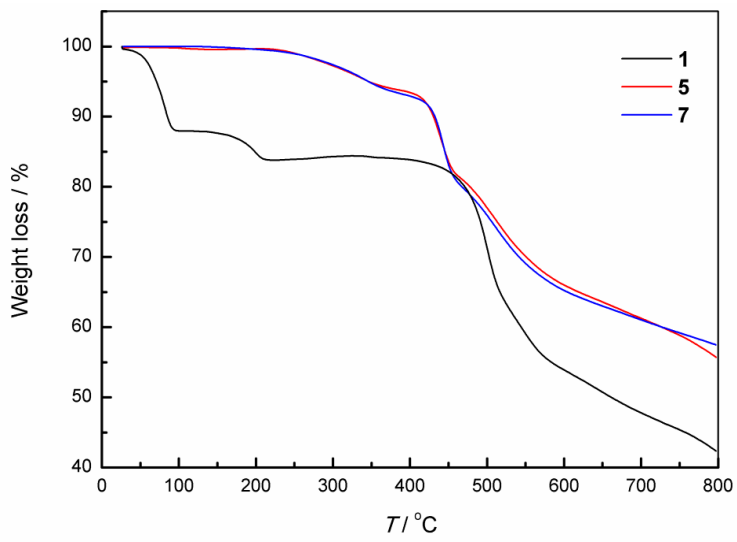


**Fig. S3** The TGA diagrams of **1**, **5**, and **7**.

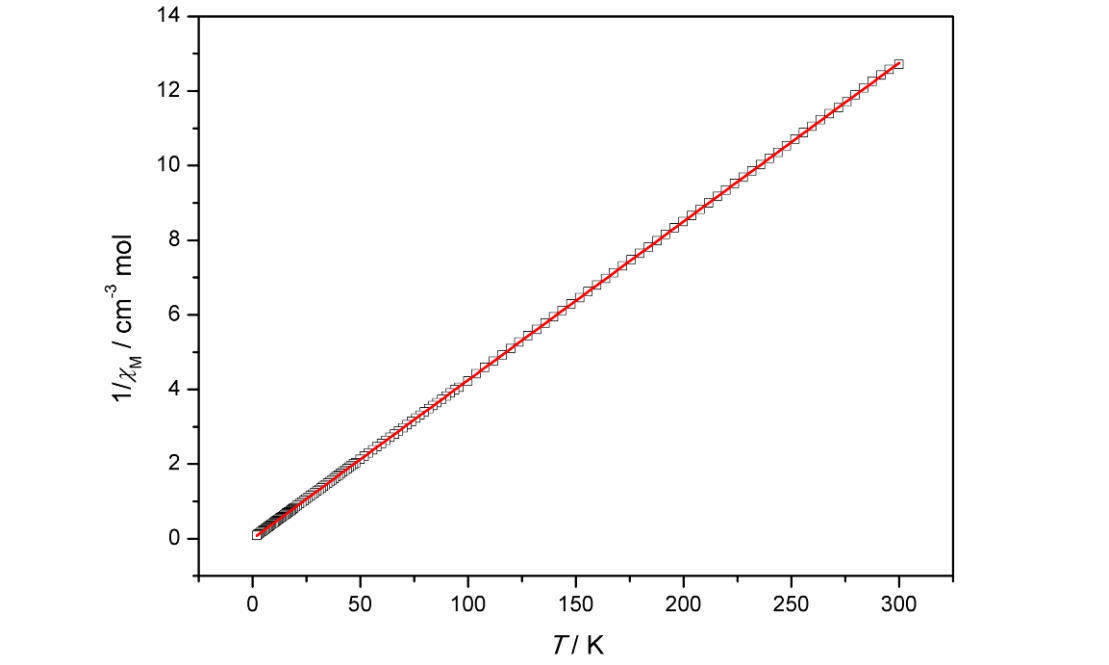


**Fig. S4** The plot of $1/\chi_M$ versus $T$ of compound **4**, and the red line represents the best fitting for Curie-Weiss law $\chi = C/(T-\theta)$