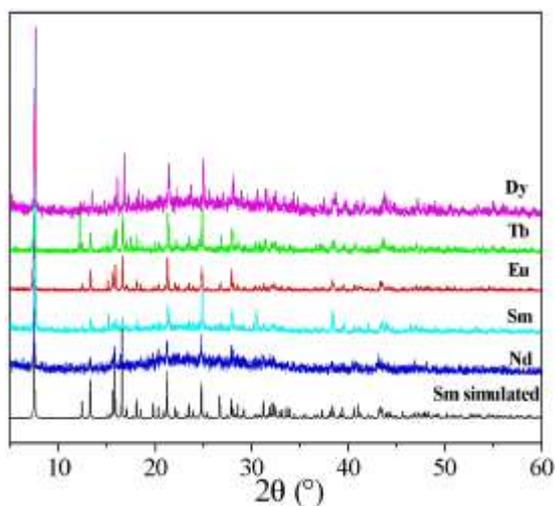


## Supporting information

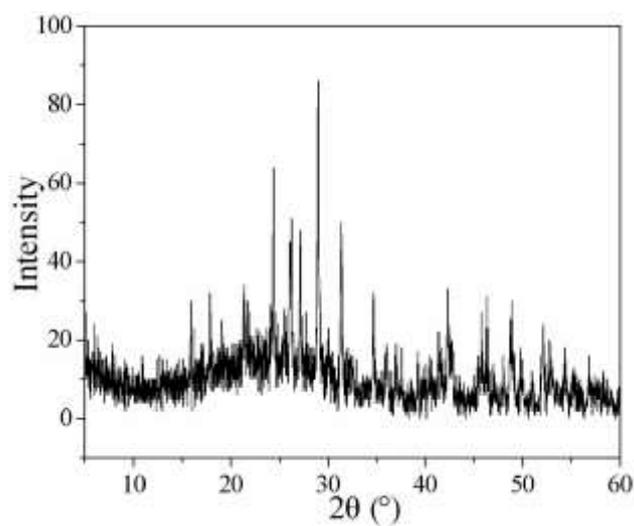
# Lanthanide(III) oxalatophosphonates: syntheses, crystal structures and luminescence properties

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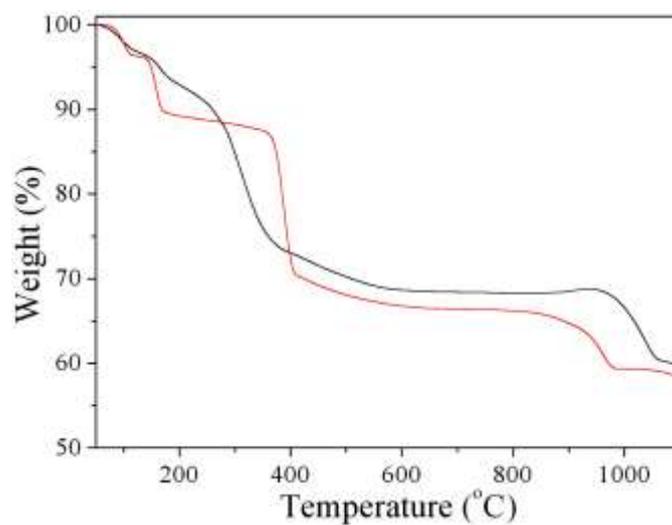


**Fig. S1** The X-ray powder diffraction patterns of compounds **1–5** and the simulated XRD pattern of compound **2**.

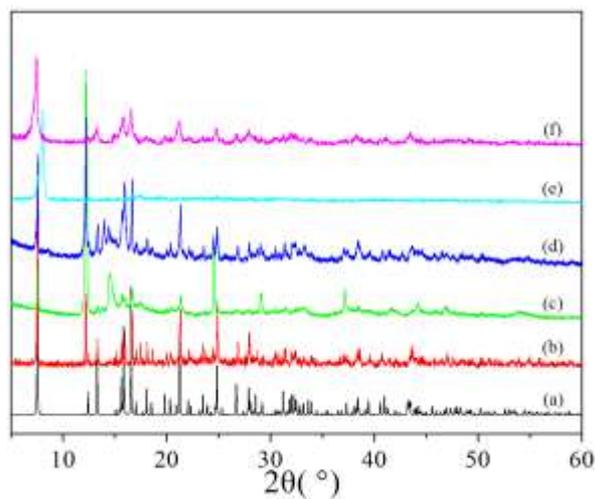


**Fig. S2** The X-ray powder diffraction pattern of the final product in the thermal decomposition for compound **2**.

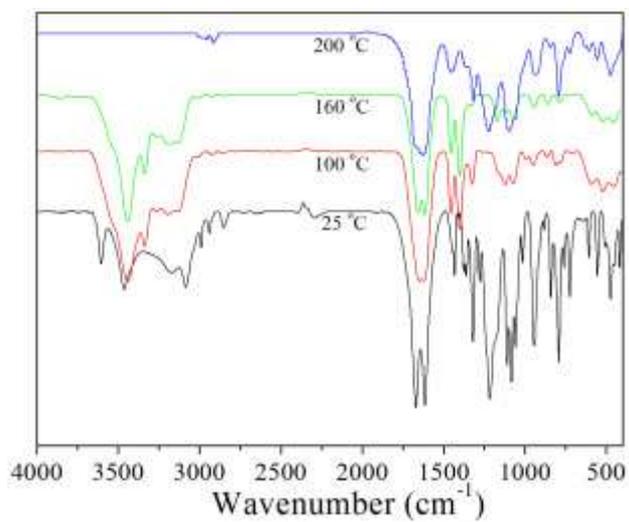
The final product is mixture of  $\text{Sm}(\text{PO}_3)_3$  (JCPDS 00-052-1762) and  $\text{SmPO}_4$  (JCPDS 01-083-0655).



**Fig. S3** TGA curves of compound **2** (black line) and  $[\text{Sm}(\text{H}_2\text{L})(\text{C}_2\text{O}_4)(\text{H}_2\text{O})] \cdot 2\text{H}_2\text{O}^1$  (red line).



**Fig. S4** Simulated (a), experimental (b), heated (100 °C) (c) and heated (160 °C) (d) powder X-ray diffraction patterns for compound **2** as prepared and experimental pattern for the dehydrated sample (200 °C) (e)/hydrated sample (f) of compound **2**.



**Fig. S5** Results of the temperature-dependent IR study of compound **2**.

## References

1. Y. Zhao, C.-Q. Jiao, Z.-G. Sun, Y.-Y. Zhu, K. Chen, C.-L. Wang, C. Li, M.-J. Zheng, H. Tian, S.-H. Sun and W. Chu, *Cryst. Growth Des.*, 2012, **12**, 3191.