

## Supporting Information

Synthesis, structures, luminescence and magnetism of nine lanthanide complexes with three-dimensional frameworks constructed from 2-(pyridyl-N-oxide)methylphosphonic acid and oxalic acid

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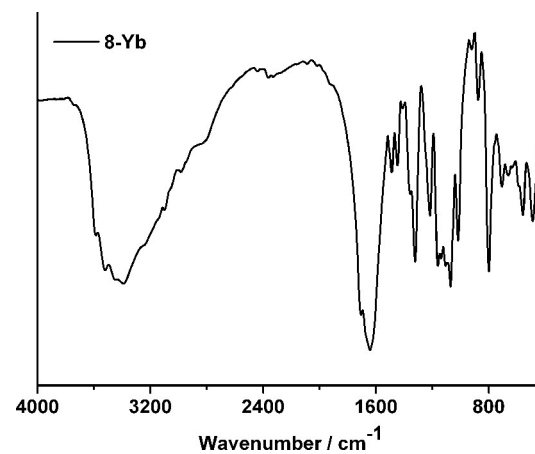
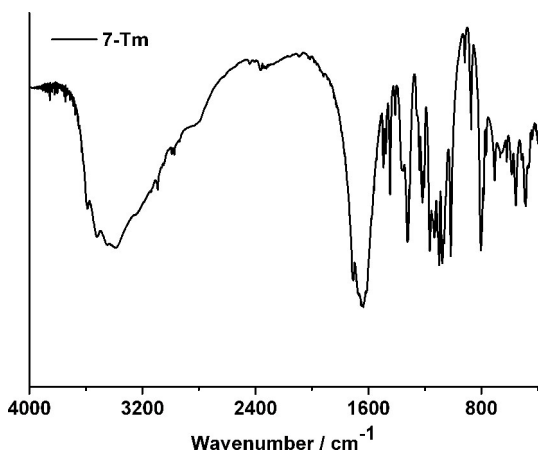
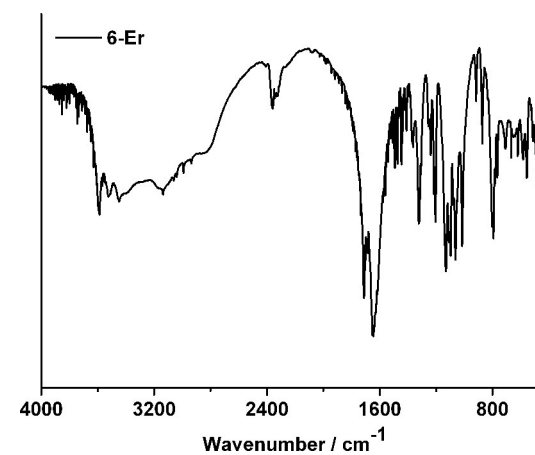
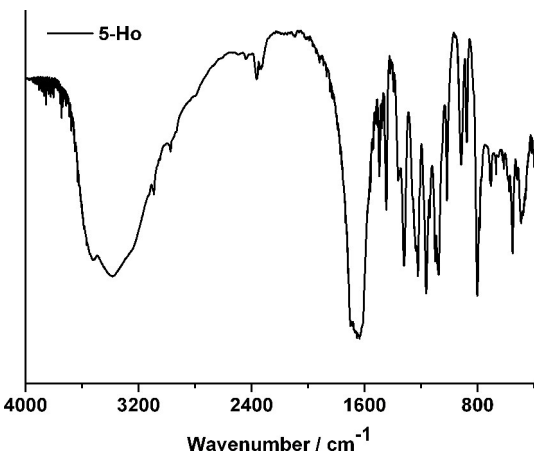
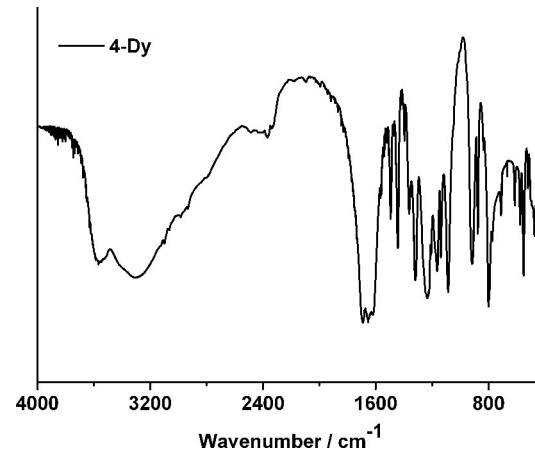
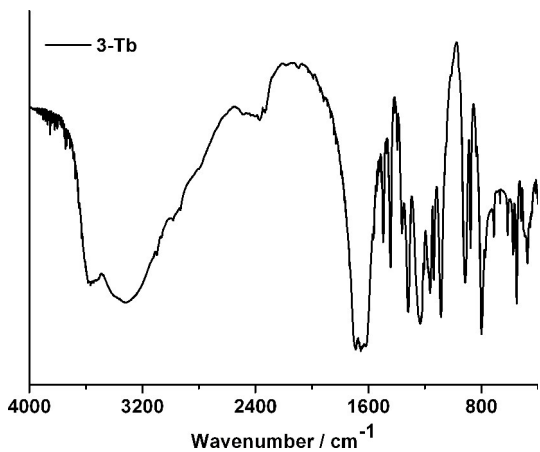
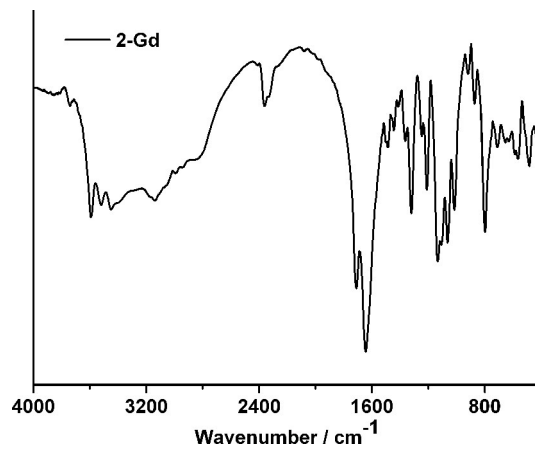
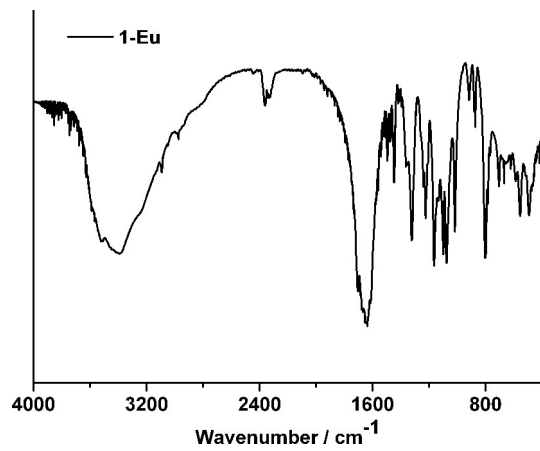
Table S1. Selected bond distances (Å) for **1–5**.

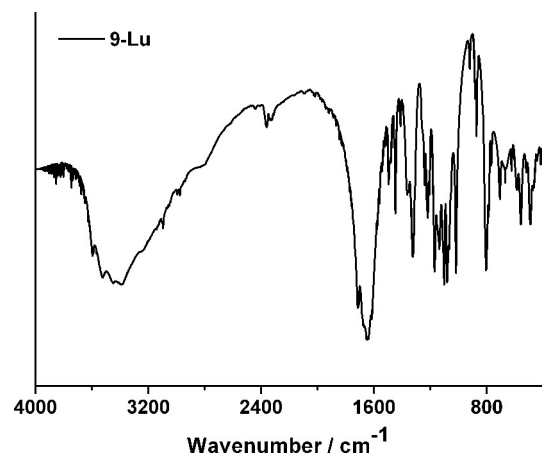
	<b>1-Eu</b>	<b>2-Gd</b>	<b>3-Tb</b>	<b>4-Dy</b>	<b>5-Ho</b>
Ln(1)-O(3) <sup>I</sup>	2.298(3)	2.295(3)	2.273(3)	2.265(3)	2.255(3)
Ln(1)-O(1)	2.313(3)	2.310(3)	2.289(3)	2.276(3)	2.264(3)
Ln(1)-O(4) <sup>I</sup>	2.397(3)	2.389(3)	2.379(3)	2.370(3)	2.363(3)
Ln(1)-O(9)	2.402(4)	2.399(3)	2.372(3)	2.363(4)	2.349(3)
Ln(1)-O(5) <sup>II</sup>	2.425(3)	2.414(3)	2.394(3)	2.380(3)	2.373(3)
Ln(1)-O(6)	2.447(3)	2.443(3)	2.426(3)	2.418(3)	2.412(3)
Ln(1)-O(7)	2.453(3)	2.448(3)	2.430(3)	2.421(3)	2.410(3)
Ln(1)-O(8) <sup>III</sup>	2.474(3)	2.468(3)	2.452(3)	2.443(3)	2.436(3)

Symmetric codes: I:  $-x, -0.5+y, 0.5-z$ ; II:  $-x, 2-y, 1-z$ ; III:  $1-x, 2-y, 1-z$ .

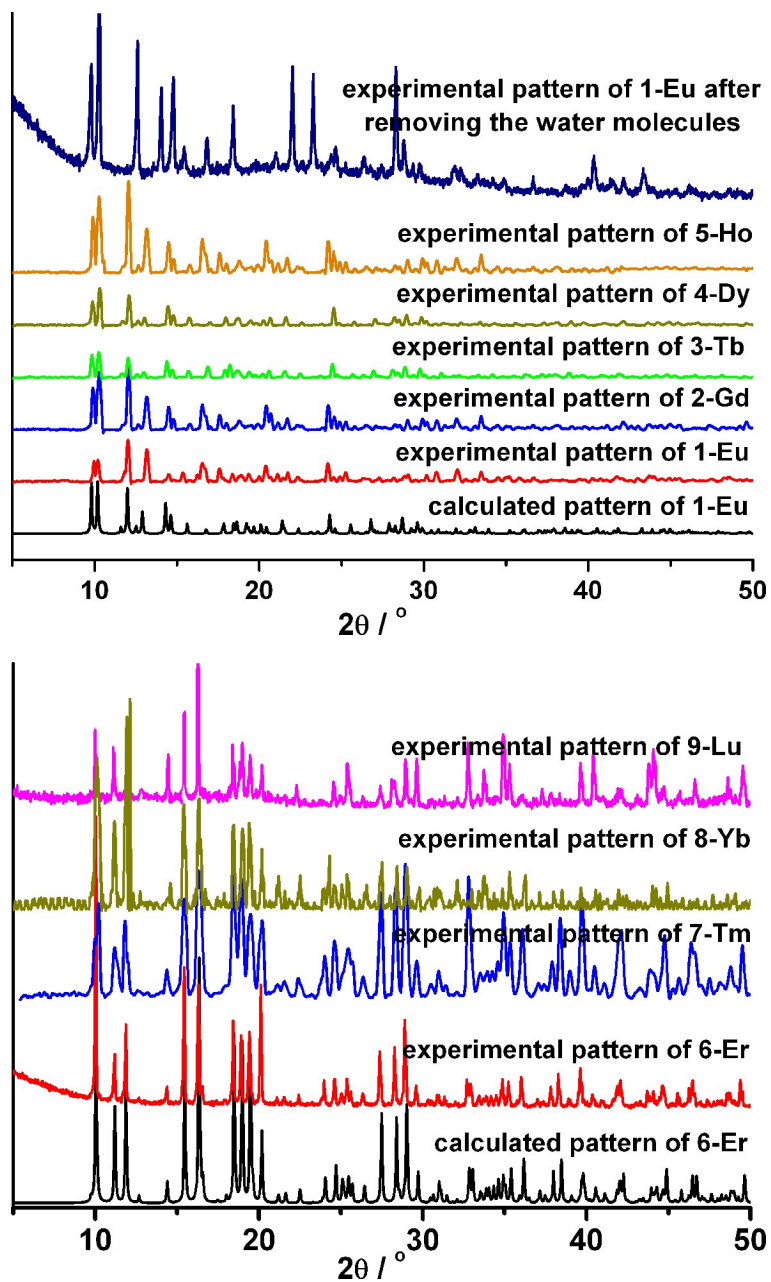
	<b>6-Er</b>	<b>7-TM</b>	<b>8-Yb</b>	<b>9-Lu</b>
Ln(1)-O(1)	2.202(4)	2.189(7)	2.171(3)	2.159(5)
Ln(1)-O(3) <sup>I</sup>	2.218(3)	2.203(7)	2.195(4)	2.185(5)
Ln(1)-O(14)	2.301(4)	2.284(8)	2.267(5)	2.266(6)
Ln(1)-O(4) <sup>I</sup>	2.311(4)	2.292(7)	2.274(4)	2.269(5)
Ln(1)-O(13)	2.325(4)	2.308(7)	2.293(4)	2.285(5)
Ln(1)-O(7)	2.368(4)	2.347(7)	2.352(4)	2.341(5)
Ln(1)-O(5)	2.384(4)	2.377(7)	2.352(5)	2.353(5)
Ln(2)-O(2)	2.213(4)	2.200(6)	2.187(4)	2.178(5)
Ln(2)-O(9)	2.325(4)	2.302(7)	2.302(4)	2.288(6)
Ln(2)-O(15)	2.327(4)	2.296(7)	2.288(4)	2.285(5)
Ln(2)-O(12) <sup>III</sup>	2.354(3)	2.335(6)	2.327(4)	2.313(5)
Ln(2)-O(11)	2.379(4)	2.362(7)	2.345(4)	2.341(5)
Ln(2)-O(10) <sup>III</sup>	2.400(4)	2.382(7)	2.379(4)	2.370(5)
Ln(2)-O(8) <sup>II</sup>	2.410(4)	2.399(7)	2.378(4)	2.372(5)
Ln(2)-O(6) <sup>II</sup>	2.422(4)	2.407(7)	2.399(4)	2.399(5)

Symmetric codes: I:  $-x, -0.5+y, 0.5-z$ ; II:  $-x, 2-y, 1-z$ ; III:  $1-x, 2-y, 1-z$ .

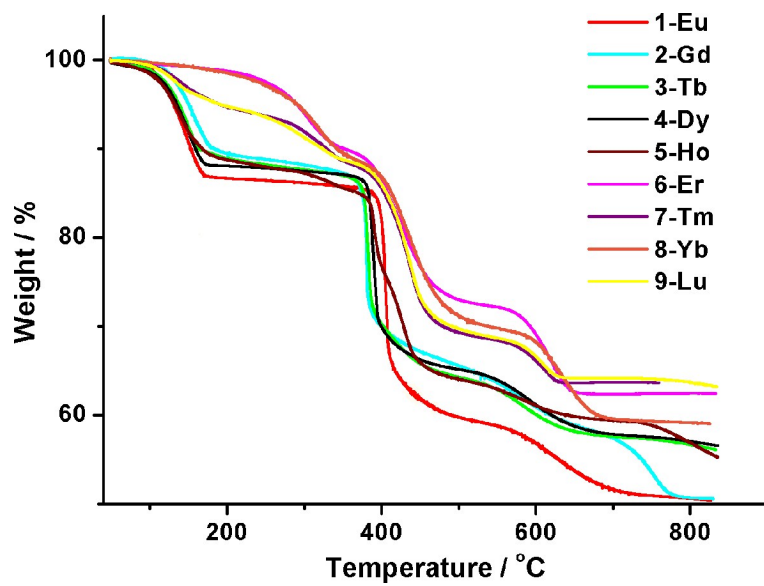




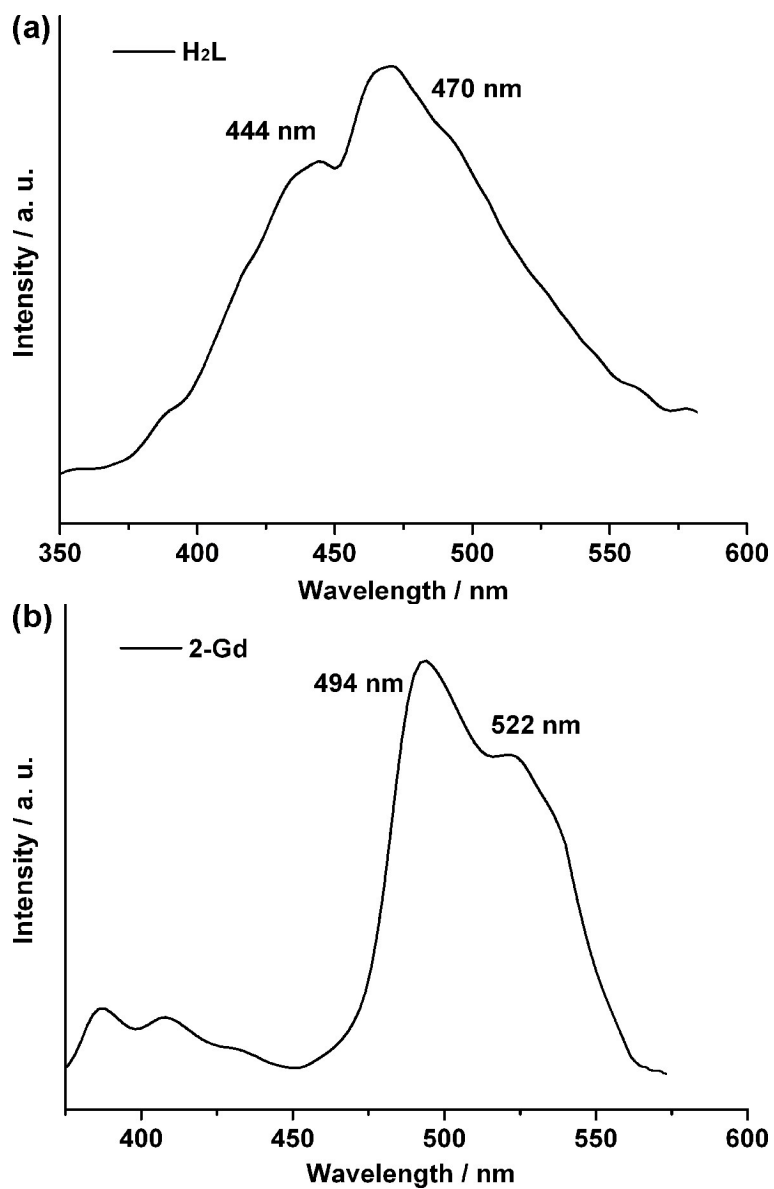
**Fig. S1** IR of complexes 1–9.



**Fig. S2** Calculated and experimental XPD patterns of complexes 1–5 and 6–9 (Only the calculated patterns of 1 and 6 are only shown due to isomorphism).



**Fig. S3** TGA curves of complexes 1–9.



**Fig. S4** Solid-state emission spectra of H<sub>2</sub>L and complex 2.

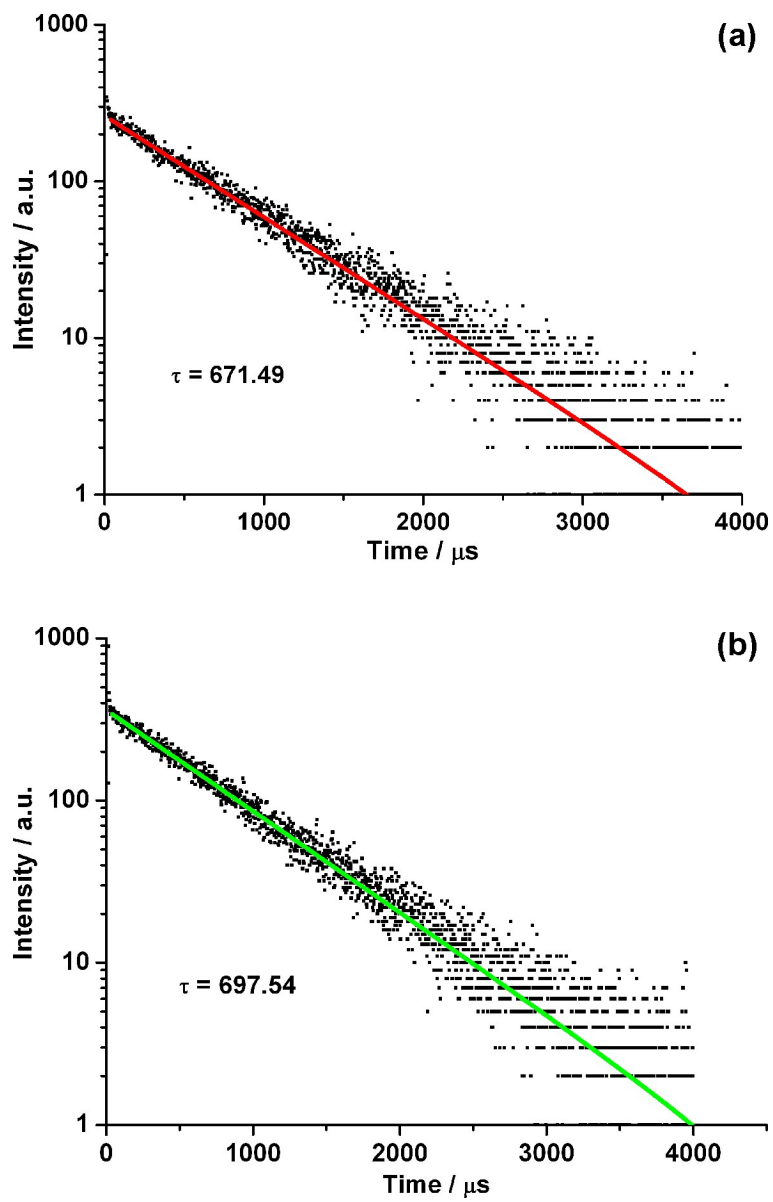


Fig. S5 Luminescent decay curves for complex 1 (a) and 3 (b).