Supporting Information for the manuscript:

Effect of lanthanide contraction on crystal structures of Ln(III) coordination polymers with dinuclear SBUs based on 3-(4-hydroxypyridinium-1-yl) phthalic acid and oxalic acid

Xiao-Li Sun, Bing-Xue Shen, Shuang-Quan Zang, and Chen-Xia Du

†College of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou, 450001, P. R. China

*To whom correspondence should be addressed. E-mail: zangsqzg@zzu.edu.cn; dcx@zzu.edu.cn

Fax: +86-371-67780136; +86-371-67763390.
This PDF file includes Table S1–S2, and Figure S1–S8

**Table S1.** Selected Bond Distances and Angles for Compounds 1–11.

**Table S2.** Hydrogen bonds parameters in 1.

**Fig. S1.** Hydrogen-bonding tape in 1.

**Fig. S2.** Views of hydrogen-bond interactions in 3.

**Fig. S3.** Local coordination environment of 6 with 30% thermal ellipsoids.

**Fig. S4.** Local coordination environment of 8 with 30% thermal ellipsoids.

**Fig. S5.** Thermogravimetric curve of the compounds 1, 3, 6, and 8.

**Fig. S6.** Thermogravimetric curve of the compounds 2, 4, 5, 7 and 9–11.

**Fig. S7.** The simulated and experimental XRPD patterns for 1–2.

**Fig. S8.** The simulated and experimental XRPD patterns for 3–11.
**Table S1.** Selected Bond Distances and Angles for Compounds 1–11.

<table>
<thead>
<tr>
<th>Compound 1&lt;sup&gt;a&lt;/sup&gt;</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>La(1)–O(1)</td>
<td>2.633(4)</td>
<td>La(1)–O(2)#1</td>
<td>2.577(3)</td>
</tr>
<tr>
<td>La(1)–O(2)</td>
<td>2.654(3)</td>
<td>La(1)–O(3)#1</td>
<td>2.475(3)</td>
</tr>
<tr>
<td>La(1)–O(1W)</td>
<td>2.555(4)</td>
<td>La(1)–O(5)#2</td>
<td>2.452(3)</td>
</tr>
<tr>
<td>La(1)–O(2W)</td>
<td>2.612(4)</td>
<td>La(1)–O(7)#3</td>
<td>2.583(3)</td>
</tr>
<tr>
<td>La(1)–O(6)</td>
<td>2.560(3)</td>
<td>O(1)–La(1)–O(2)</td>
<td>49.16(10)</td>
</tr>
<tr>
<td>O(2W)–La(1)–O(2)</td>
<td>75.65(11)</td>
<td>O(7)#3–La(1)–O(2)</td>
<td>70.39(11)</td>
</tr>
<tr>
<td>O(2)#1–La(1)–O(2)</td>
<td>65.72(12)</td>
<td>O(6)–La(1)–O(2)</td>
<td>88.58(11)</td>
</tr>
<tr>
<td>O(1W)–La(1)–O(2)</td>
<td>144.72(11)</td>
<td>O(3)#1–La(1)–O(2)</td>
<td>126.94(11)</td>
</tr>
<tr>
<td>O(5)#2–La(1)–O(2)</td>
<td>129.16(12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O(7)#3–La(1)–O(1)</td>
<td>101.69(11)</td>
<td>O(2)#1–La(1)–O(1)</td>
<td>111.78(11)</td>
</tr>
<tr>
<td>O(6)–La(1)–O(1)</td>
<td>70.48(13)</td>
<td>O(1W)–La(1)–O(1)</td>
<td>142.58(13)</td>
</tr>
<tr>
<td>O(3)#1–La(1)–O(1)</td>
<td>137.52(12)</td>
<td>O(5)#2–La(1)–O(1)</td>
<td>80.26(12)</td>
</tr>
<tr>
<td>O(7)#3–La(1)–O(2W)</td>
<td>142.15(11)</td>
<td>O(2)#1–La(1)–O(2W)</td>
<td>81.90(12)</td>
</tr>
<tr>
<td>O(6)–La(1)–O(2W)</td>
<td>133.49(13)</td>
<td>O(1W)–La(1)–O(2W)</td>
<td>137.46(12)</td>
</tr>
<tr>
<td>O(3)#1–La(1)–O(2W)</td>
<td>72.22(13)</td>
<td>O(5)#2–La(1)–O(2W)</td>
<td>79.86(12)</td>
</tr>
<tr>
<td>O(2)#1–La(1)–O(7)#3</td>
<td>69.37(10)</td>
<td>O(6)–La(1)–O(7)#3</td>
<td>62.47(10)</td>
</tr>
<tr>
<td>O(1W)–La(1)–O(7)#3</td>
<td>74.32(12)</td>
<td>O(3)#1–La(1)–O(7)#3</td>
<td>116.50(11)</td>
</tr>
<tr>
<td>O(5)#2–La(1)–O(7)#3</td>
<td>135.44(12)</td>
<td>O(6)–La(1)–O(2)#1</td>
<td>130.80(10)</td>
</tr>
<tr>
<td>O(1W)–La(1)–O(2)#1</td>
<td>101.66(12)</td>
<td>O(3)#1–La(1)–O(2)#1</td>
<td>68.83(10)</td>
</tr>
<tr>
<td>O(5)#2–La(1)–O(2)#1</td>
<td>151.51(11)</td>
<td>O(1W)–La(1)–O(6)</td>
<td>75.17(13)</td>
</tr>
<tr>
<td>O(3)#1–La(1)–O(6)</td>
<td>143.32(13)</td>
<td>O(5)#2–La(1)–O(6)</td>
<td>77.13(11)</td>
</tr>
<tr>
<td>O(3)#1–La(1)–O(1W)</td>
<td>69.97(13)</td>
<td>O(5)#2–La(1)–O(1W)</td>
<td>78.05(13)</td>
</tr>
<tr>
<td>O(5)#2–La(1)–O(3)#1</td>
<td>84.79(11)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compound 2&lt;sup&gt;b&lt;/sup&gt;</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ce(1)–O(1)</td>
<td>2.446(3)</td>
<td>Ce(1)–O(3)</td>
<td>2.564(3)</td>
</tr>
<tr>
<td>Ce(1)–O(4)#3</td>
<td>2.609(3)</td>
<td>Ce(1)–O(3)#3</td>
<td>2.643(3)</td>
</tr>
<tr>
<td>Ce(1)–O(1W)</td>
<td>2.540(4)</td>
<td>Ce(1)–O(5)#1</td>
<td>2.424(3)</td>
</tr>
<tr>
<td>Ce(1)–O(2W)</td>
<td>2.576(4)</td>
<td>Ce(1)–O(7)#2</td>
<td>2.535(3)</td>
</tr>
<tr>
<td>Ce(1)–O(6)</td>
<td>2.566(3)</td>
<td>O(1)–Ce(1)–O(7)#2</td>
<td>142.83(12)</td>
</tr>
<tr>
<td>O(5)#1–Ce(1)–O(1)</td>
<td>84.72(11)</td>
<td>O(5)#1–Ce(1)–O(1W)</td>
<td>77.63(13)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Distances in Å, angles in degree.

<sup>b</sup> Distances in Å, angles in degree.
<table>
<thead>
<tr>
<th>Compound 3</th>
<th>Pr(1)–O(1)</th>
<th>2.541(3)</th>
<th>Pr(1)–O(9)#2</th>
<th>2.476(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pr(1)–O(2)</td>
<td>2.843(3)</td>
<td>Pr(1)–O(10)</td>
<td>2.483(3)</td>
</tr>
<tr>
<td></td>
<td>Pr(1)–O(1W)</td>
<td>2.456(3)</td>
<td>Pr(1)–O(3)#1</td>
<td>2.594(3)</td>
</tr>
<tr>
<td></td>
<td>Pr(1)–O(2W)</td>
<td>2.450(3)</td>
<td>Pr(1)–O(4)#1</td>
<td>2.843(3)</td>
</tr>
<tr>
<td></td>
<td>Pr(1)–O(7)#2</td>
<td>2.457(3)</td>
<td>Pr(2)–O(2)</td>
<td>2.510(3)</td>
</tr>
<tr>
<td></td>
<td>Pr(2)–O(6)</td>
<td>2.477(3)</td>
<td>Pr(2)–O(11)</td>
<td>2.562(3)</td>
</tr>
<tr>
<td></td>
<td>Pr(2)–O(8)</td>
<td>2.482(3)</td>
<td>Pr(2)–O(12)#3</td>
<td>2.537(3)</td>
</tr>
<tr>
<td></td>
<td>Pr(2)–O(3W)</td>
<td>2.488(3)</td>
<td>Pr(2)–O(13)#3</td>
<td>2.620(3)</td>
</tr>
<tr>
<td></td>
<td>Pr(2)–O(10)</td>
<td>2.727(3)</td>
<td>Pr(2)–O(14)#4</td>
<td>2.378(3)</td>
</tr>
<tr>
<td></td>
<td>O(7)#2–Pr(1)–O(2W)</td>
<td>97.06(11)</td>
<td>O(7)#2–Pr(1)–O(1W)</td>
<td>131.43(11)</td>
</tr>
<tr>
<td></td>
<td>O(1W)–Pr(1)–O(2W)</td>
<td>78.12(12)</td>
<td>O(7)#2–Pr(1)–O(9)#2</td>
<td>65.51(10)</td>
</tr>
<tr>
<td></td>
<td>O(2W)–Pr(1)–O(9)#2</td>
<td>76.97(12)</td>
<td>O(1W)–Pr(1)–O(9)#2</td>
<td>66.35(11)</td>
</tr>
<tr>
<td></td>
<td>O(7)#2–Pr(1)–O(10)</td>
<td>153.21(10)</td>
<td>O(2W)–Pr(1)–O(10)</td>
<td>90.41(11)</td>
</tr>
<tr>
<td></td>
<td>O(10)–Pr(1)–O(1W)</td>
<td>75.26(11)</td>
<td>O(9)#2–Pr(1)–O(10)</td>
<td>141.23(10)</td>
</tr>
<tr>
<td>Bond</td>
<td>Distance</td>
<td>Bond</td>
<td>Distance</td>
<td>Bond</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------</td>
<td>-----------------------------</td>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>O(7)#2–Pr(1)–O(4)#1</td>
<td>74.60(12)</td>
<td>O(2W)–Pr(1)–O(4)#1</td>
<td>69.01(10)</td>
<td>O(7)#2–Pr(1)–O(4)#1</td>
</tr>
<tr>
<td>O(1W)–Pr(1)–O(4)#1</td>
<td>140.96(12)</td>
<td>O(9)#2–Pr(1)–O(4)#1</td>
<td>71.20(11)</td>
<td>O(7)#1–Pr(1)–O(1)</td>
</tr>
<tr>
<td>O(10)–Pr(1)–O(4)#1</td>
<td>84.29(11)</td>
<td>O(7)#1–Pr(1)–O(1)</td>
<td>111.87(10)</td>
<td>O(10)–Pr(1)–O(1)</td>
</tr>
<tr>
<td>O(2W)–Pr(1)–O(1)</td>
<td>85.14(10)</td>
<td>O(7)#2–Pr(1)–O(3)#1</td>
<td>73.78(10)</td>
<td>O(1W)–Pr(1)–O(1)</td>
</tr>
<tr>
<td>O(9)#2–Pr(1)–O(1)</td>
<td>74.62(11)</td>
<td>O(1W)–Pr(1)–O(3)#1</td>
<td>115.28(10)</td>
<td>O(2W)–Pr(1)–O(3)#1</td>
</tr>
<tr>
<td>O(4)#1–Pr(1)–O(1)</td>
<td>128.39(11)</td>
<td>O(7)#2–Pr(1)–O(3)#1</td>
<td>82.13(11)</td>
<td>O(4)#1–Pr(1)–O(3)#1</td>
</tr>
<tr>
<td>O(2W)–Pr(1)–O(3)#1</td>
<td>120.31(11)</td>
<td>O(10)–Pr(1)–O(3)#1</td>
<td>65.85(9)</td>
<td>O(10)–Pr(1)–O(3)#1</td>
</tr>
<tr>
<td>O(9)#2–Pr(1)–O(3)#1</td>
<td>137.71(10)</td>
<td>O(10)–Pr(1)–O(3)#1</td>
<td>104.71(11)</td>
<td>O(10)–Pr(1)–O(3)#1</td>
</tr>
<tr>
<td>O(4)#1–Pr(1)–O(3)#1</td>
<td>51.51(10)</td>
<td>O(10)–Pr(1)–O(3)#1</td>
<td>48.01(10)</td>
<td>O(10)–Pr(1)–O(3)#1</td>
</tr>
<tr>
<td>O(7)#2–Pr(1)–O(2)#3</td>
<td>117.46(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>64.91(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(1W)–Pr(1)–O(2)</td>
<td>69.60(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>155.45(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(4)#1–Pr(1)–O(2)</td>
<td>130.01(9)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(3)#1–Pr(1)–O(2)</td>
<td>83.75(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(14)#4–Pr(2)–O(8)</td>
<td>91.79(11)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(14)#4–Pr(2)–O(3W)</td>
<td>80.35(12)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(8)–Pr(2)–O(3W)</td>
<td>134.80(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(6)–Pr(2)–O(2)</td>
<td>138.64(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(3W)–Pr(2)–O(6)</td>
<td>69.75(11)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(6)–Pr(2)–O(12)#3</td>
<td>130.43(11)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(3W)–Pr(2)–O(12)#3</td>
<td>147.12(12)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(14)#4–Pr(2)–O(11)</td>
<td>144.23(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(8)–Pr(2)–O(11)</td>
<td>70.57(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(2)–Pr(2)–O(11)</td>
<td>115.28(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(14)#4–Pr(2)–O(13)#3</td>
<td>131.03(11)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(8)–Pr(2)–O(13)#3</td>
<td>74.71(9)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(2)–Pr(2)–O(13)#3</td>
<td>83.64(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(11)–Pr(2)–O(13)#3</td>
<td>75.37(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(6)–Pr(2)–O(10)</td>
<td>102.18(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(3W)–Pr(2)–O(10)</td>
<td>69.64(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>80.51(10)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(12)#3–Pr(2)–O(10)</td>
<td>119.97(9)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>49.05(9)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
<tr>
<td>O(13)#3–Pr(2)–O(10)</td>
<td>73.72(9)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
<td>75.68(11)</td>
<td>O(2W)–Pr(1)–O(2)#3</td>
</tr>
</tbody>
</table>

**Compound 4**
<table>
<thead>
<tr>
<th>Bond</th>
<th>Distance (Å)</th>
<th>Bond</th>
<th>Distance (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nd(1)–O(1)</td>
<td>2.725(3)</td>
<td>Nd(2)–O(7)#3</td>
<td>2.438(3)</td>
</tr>
<tr>
<td>Nd(1)–O(2)</td>
<td>2.539(3)</td>
<td>Nd(2)–O(3W)</td>
<td>2.439(3)</td>
</tr>
<tr>
<td>Nd(1)–O(1W)</td>
<td>2.473(3)</td>
<td>Nd(2)–O(13)#4</td>
<td>2.463(3)</td>
</tr>
<tr>
<td>Nd(1)–O(10)</td>
<td>2.494(3)</td>
<td>Nd(2)–O(9)#3</td>
<td>2.469(3)</td>
</tr>
<tr>
<td>Nd(1)–O(5)#1</td>
<td>2.372(3)</td>
<td>Nd(2)–O(2W)</td>
<td>2.426(3)</td>
</tr>
<tr>
<td>Nd(1)–O(6)</td>
<td>2.473(3)</td>
<td>Nd(2)–O(1)</td>
<td>2.470(3)</td>
</tr>
<tr>
<td>Nd(1)–O(8)</td>
<td>2.465(3)</td>
<td>Nd(2)–O(11)</td>
<td>2.514(3)</td>
</tr>
<tr>
<td>Nd(1)–O(4)#2</td>
<td>2.514(3)</td>
<td>Nd(2)–O(12)#4</td>
<td>2.577(3)</td>
</tr>
<tr>
<td>Nd(1)–O(3)#2</td>
<td>2.600(2)</td>
<td>Nd(2)–O(10)</td>
<td>2.863(3)</td>
</tr>
<tr>
<td>O(5)#1–Nd(1)–O(8)</td>
<td>91.64(11)</td>
<td>O(5)#1–Nd(1)–O(6)</td>
<td>75.59(10)</td>
</tr>
<tr>
<td>O(8)–Nd(1)–O(6)</td>
<td>66.26(9)</td>
<td>O(5)#1–Nd(1)–O(1W)</td>
<td>80.47(11)</td>
</tr>
<tr>
<td>O(8)–Nd(1)–O(1W)</td>
<td>135.13(9)</td>
<td>O(6)–Nd(1)–O(1W)</td>
<td>69.00(10)</td>
</tr>
<tr>
<td>O(5)#1–Nd(1)–O(10)</td>
<td>93.76(11)</td>
<td>O(8)–Nd(1)–O(10)</td>
<td>154.90(9)</td>
</tr>
<tr>
<td>O(6)–Nd(1)–O(10)</td>
<td>138.76(9)</td>
<td>O(1W)–Nd(1)–O(10)</td>
<td>69.97(10)</td>
</tr>
<tr>
<td>O(5)#1–Nd(1)–O(4)#2</td>
<td>80.18(10)</td>
<td>O(8)–Nd(1)–O(4)#2</td>
<td>72.18(10)</td>
</tr>
<tr>
<td>O(6)–Nd(1)–O(4)#2</td>
<td>130.57(11)</td>
<td>O(1W)–Nd(1)–O(4)#2</td>
<td>146.75(10)</td>
</tr>
<tr>
<td>O(10)–Nd(1)–O(4)#2</td>
<td>84.62(11)</td>
<td>O(5)#1–Nd(1)–O(2)</td>
<td>144.45(10)</td>
</tr>
<tr>
<td>O(8)–Nd(1)–O(2)</td>
<td>70.92(10)</td>
<td>O(6)–Nd(1)–O(2)</td>
<td>69.08(9)</td>
</tr>
<tr>
<td>O(1W)–Nd(1)–O(2)</td>
<td>90.36(10)</td>
<td>O(10)–Nd(1)–O(2)</td>
<td>115.32(10)</td>
</tr>
<tr>
<td>O(4)#2–Nd(1)–O(2)</td>
<td>120.53(9)</td>
<td>O(5)#1–Nd(1)–O(3)#2</td>
<td>131.07(10)</td>
</tr>
<tr>
<td>O(8)–Nd(1)–O(3)#2</td>
<td>74.73(9)</td>
<td>O(6)–Nd(1)–O(3)#2</td>
<td>133.56(9)</td>
</tr>
<tr>
<td>O(1W)–Nd(1)–O(3)#2</td>
<td>140.65(10)</td>
<td>O(10)–Nd(1)–O(3)#2</td>
<td>83.31(9)</td>
</tr>
<tr>
<td>O(4)#2–Nd(1)–O(3)#2</td>
<td>50.89(9)</td>
<td>O(2)–Nd(1)–O(3)#2</td>
<td>75.22(9)</td>
</tr>
<tr>
<td>O(5)#1–Nd(1)–O(1)</td>
<td>148.21(10)</td>
<td>O(8)–Nd(1)–O(1)</td>
<td>117.08(9)</td>
</tr>
<tr>
<td>O(6)–Nd(1)–O(1)</td>
<td>102.55(10)</td>
<td>O(1W)–Nd(1)–O(1)</td>
<td>69.66(10)</td>
</tr>
<tr>
<td>O(10)–Nd(1)–O(1)</td>
<td>66.35(10)</td>
<td>O(1)–Nd(1)–O(2)</td>
<td>49.18(9)</td>
</tr>
<tr>
<td>O(4)#2–Nd(1)–O(1)</td>
<td>119.85(9)</td>
<td>O(3)#2–Nd(1)–O(1)</td>
<td>73.40(9)</td>
</tr>
<tr>
<td>O(2W)–Nd(2)–O(7)#3</td>
<td>97.42(11)</td>
<td>O(9)#3–Nd(2)–O(11)</td>
<td>75.24(10)</td>
</tr>
<tr>
<td>O(2W)–Nd(2)–O(3W)</td>
<td>78.48(11)</td>
<td>O(1)–Nd(2)–O(11)</td>
<td>111.17(10)</td>
</tr>
<tr>
<td>O(7)#3–Nd(2)–O(3W)</td>
<td>132.03(10)</td>
<td>O(2W)–Nd(2)–O(12)#4</td>
<td>120.13(10)</td>
</tr>
<tr>
<td>O(2W)–Nd(2)–O(13)#4</td>
<td>68.58(10)</td>
<td>O(7)#3–Nd(2)–O(12)#4</td>
<td>73.55(9)</td>
</tr>
<tr>
<td>O(7)#3–Nd(2)–O(13)#4</td>
<td>74.76(11)</td>
<td>O(3W)–Nd(2)–O(12)#4</td>
<td>148.99(10)</td>
</tr>
<tr>
<td>Compound 5&lt;sup&gt;e&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>Sm(1)–O(5)#1</td>
<td>2.341(4)</td>
<td>Sm(2)–O(2W)</td>
<td>2.390(4)</td>
</tr>
<tr>
<td>Sm(1)–O(11)</td>
<td>2.428(4)</td>
<td>Sm(2)–O(7)#3</td>
<td>2.409(4)</td>
</tr>
<tr>
<td>Sm(1)–O(8)</td>
<td>2.433(4)</td>
<td>Sm(2)–O(1W)</td>
<td>2.410(4)</td>
</tr>
<tr>
<td>Sm(1)–O(3W)</td>
<td>2.439(4)</td>
<td>Sm(2)–O(2)</td>
<td>2.426(4)</td>
</tr>
<tr>
<td>Sm(1)–O(6)</td>
<td>2.454(4)</td>
<td>Sm(2)–O(9)#3</td>
<td>2.436(4)</td>
</tr>
<tr>
<td>Sm(1)–O(4)#2</td>
<td>2.492(4)</td>
<td>Sm(2)–O(13)#4</td>
<td>2.443(4)</td>
</tr>
<tr>
<td>Sm(1)–O(1)</td>
<td>2.495(4)</td>
<td>Sm(2)–O(10)</td>
<td>2.467(4)</td>
</tr>
<tr>
<td>Sm(1)–O(3)#2</td>
<td>2.575(4)</td>
<td>Sm(2)–O(12)#4</td>
<td>2.552(4)</td>
</tr>
<tr>
<td>Sm(1)–O(2)</td>
<td>2.784(4)</td>
<td>O(6)–Sm(1)–O(1)</td>
<td>69.43(13)</td>
</tr>
<tr>
<td>O(5)#1–Sm(1)–O(11)</td>
<td>92.75(15)</td>
<td>O(4)#2–Sm(1)–O(1)</td>
<td>120.59(13)</td>
</tr>
<tr>
<td>O(5)#1–Sm(1)–O(8)</td>
<td>91.25(16)</td>
<td>O(5)#1–Sm(1)–O(3)#2</td>
<td>131.95(14)</td>
</tr>
<tr>
<td>O(11)–Sm(1)–O(8)</td>
<td>153.97(13)</td>
<td>O(11)–Sm(1)–O(3)#2</td>
<td>82.36(12)</td>
</tr>
<tr>
<td>O(5)#1–Sm(1)–O(3W)</td>
<td>81.17(15)</td>
<td>O(8)–Sm(1)–O(3)#2</td>
<td>75.92(13)</td>
</tr>
<tr>
<td>O(11)–Sm(1)–O(3W)</td>
<td>70.72(13)</td>
<td>O(3W)–Sm(1)–O(3)#2</td>
<td>138.83(14)</td>
</tr>
<tr>
<td>O(8)–Sm(1)–O(3W)</td>
<td>135.29(13)</td>
<td>O(6)–Sm(1)–O(3)#2</td>
<td>134.41(12)</td>
</tr>
<tr>
<td>O(5)#1–Sm(1)–O(6)</td>
<td>75.25(14)</td>
<td>O(4)#2–Sm(1)–O(3)#2</td>
<td>51.64(12)</td>
</tr>
<tr>
<td>O(11)–Sm(1)–O(6)</td>
<td>139.13(13)</td>
<td>O(1)–Sm(1)–O(3)#2</td>
<td>74.80(13)</td>
</tr>
<tr>
<td>O(8)–Sm(1)–O(6)</td>
<td>66.57(13)</td>
<td>O(5)#1–Sm(1)–O(2)</td>
<td>148.00(15)</td>
</tr>
</tbody>
</table>
O(3W)–Sm(1)–O(6)  68.90(13)  O(11)–Sm(1)–O(2)  68.09(12)
O(5)#1–Sm(1)–O(4)#2  80.31(14)  O(8)–Sm(1)–O(2)  117.40(13)
O(11)–Sm(1)–O(4)#2  82.97(14)  O(3W)–Sm(1)–O(2)  68.59(12)
O(8)–Sm(1)–O(4)#2  72.39(14)  O(6)–Sm(1)–O(2)  102.10(13)
O(3W)–Sm(1)–O(4)#2  146.85(13)  O(4)#2–Sm(1)–O(2)  120.14(13)
O(6)–Sm(1)–O(4)#2  131.07(15)  O(1)–Sm(1)–O(2)  48.91(13)
O(3)#2–Sm(1)–O(2)  72.74(12)  O(9)#3–Sm(2)–O(13)#4  123.93(16)
O(2W)–Sm(2)–O(7)#3  98.82(16)  O(2W)–Sm(2)–O(10)  154.12(16)
O(2W)–Sm(2)–O(1W)  79.09(15)  O(7)#3–Sm(2)–O(10)  73.70(15)
O(7)#3–Sm(2)–O(1W)  132.80(14)  O(1W)–Sm(2)–O(10)  88.00(15)
O(2W)–Sm(2)–O(2)  90.75(15)  O(2)–Sm(2)–O(10)  107.26(15)
O(7)#3–Sm(2)–O(2)  152.68(14)  O(9)#3–Sm(2)–O(10)  76.50(15)
O(1W)–Sm(2)–O(2)  74.04(14)  O(13)#4–Sm(2)–O(10)  129.84(15)
O(2W)–Sm(2)–O(9)#3  77.80(15)  O(2W)–Sm(2)–O(12)#4  120.78(14)
O(7)#3–Sm(2)–O(9)#3  66.75(14)  O(7)#3–Sm(2)–O(12)#4  73.96(14)
O(1W)–Sm(2)–O(9)#3  66.79(15)  O(1W)–Sm(2)–O(12)#4  146.87(15)
O(2)–Sm(2)–O(9)#3  140.55(14)  O(2)–Sm(2)–O(12)#4  79.15(14)
O(2W)–Sm(2)–O(13)#4  68.88(14)  O(9)#3–Sm(2)–O(12)#4  138.93(13)
O(7)#3–Sm(2)–O(13)#4  75.23(15)  O(13)#4–Sm(2)–O(12)#4  52.24(13)
O(1W)–Sm(2)–O(13)#4  141.12(14)  O(10)–Sm(2)–O(12)#4  81.65(14)
O(2)–Sm(2)–O(13)#4  84.66(15)

<table>
<thead>
<tr>
<th>Compound</th>
<th>Eu(1)–O(5)#1</th>
<th>Eu(1)–O(10)</th>
<th>Eu(1)–O(8)</th>
<th>Eu(1)–O(1W)</th>
<th>Eu(1)–O(6)</th>
<th>Eu(2)–O(2W)</th>
<th>Eu(2)–O(7)#3</th>
<th>Eu(2)–O(1)</th>
<th>Eu(2)–O(3W)</th>
<th>O(5)#1–Eu(1)–O(10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.313(3)</td>
<td>2.379(3)</td>
<td>2.422(3)</td>
<td>2.429(3)</td>
<td>2.448(3)</td>
<td>2.369(3)</td>
<td>2.399(3)</td>
<td>2.403(3)</td>
<td>2.410(3)</td>
<td>91.83(13)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.459(3)</td>
<td>2.487(3)</td>
<td>2.555(3)</td>
<td>2.852(3)</td>
<td>2.408(4)</td>
<td>2.428(3)</td>
<td>2.539(3)</td>
<td>2.539(3)</td>
<td>146.97(11)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>131.84(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
O(5)#1–Eu(1)–O(8) 90.91(12)  O(2)–Eu(1)–O(4)#2  120.89(10)
O(10)–Eu(1)–O(8) 152.66(12)  O(5)#1–Eu(1)–O(3)#2  132.23(12)
O(5)#1–Eu(1)–O(1W) 82.21(12)  O(10)–Eu(1)–O(3)#2  81.65(11)
O(10)–Eu(1)–O(1W) 71.40(12)  O(8)–Eu(1)–O(3)#2  76.45(10)
O(8)–Eu(1)–O(1W) 135.88(11)  O(1W)–Eu(1)–O(3)#2  137.28(11)
O(5)#1–Eu(1)–O(6) 75.15(11)  O(6)–Eu(1)–O(3)#2  135.08(10)
O(10)–Eu(1)–O(6) 139.52(11)  O(2)–Eu(1)–O(3)#2  75.00(11)
O(8)–Eu(1)–O(6) 82.21(12)  O(4)#2–Eu(1)–O(3)#2  51.71(10)
O(1W)–Eu(1)–O(6) 68.96(11)  O(5)#1–Eu(1)–O(1)  148.13(11)
O(5)#1–Eu(1)–O(2) 144.35(11)  O(10)–Eu(1)–O(1)  70.06(12)
O(10)–Eu(1)–O(2) 117.88(12)  O(8)–Eu(1)–O(1)  117.38(10)
O(8)–Eu(1)–O(2) 71.93(11)  O(1W)–Eu(1)–O(1)  67.43(10)
O(1W)–Eu(1)–O(2) 88.83(11)  O(6)–Eu(1)–O(1)  101.36(10)
O(6)–Eu(1)–O(2) 69.44(10)  O(2)–Eu(1)–O(1)  48.21(9)
O(5)#1–Eu(1)–O(4)#2 80.52(11)  O(4)#2–Eu(1)–O(1)  120.21(9)
O(10)–Eu(1)–O(4)#2 81.21(12)  O(3)#2–Eu(1)–O(1)  72.54(10)
O(8)–Eu(1)–O(4)#2 72.43(11)  O(11)–Eu(2)–O(3)#4  130.81(11)
O(2W)–Eu(2)–O(7)#3 100.73(11)  O(2W)–Eu(2) O(9)#3  78.50(11)
O(2W)–Eu(2)–O(1) 90.74(10)  O(7)#3–Eu(2)–O(9)#3  67.03(10)
O(7)#3–Eu(2)–O(1) 152.53(11)  O(1)–Eu(2)–O(9)#3  140.25(11)
O(2W)–Eu(2)–O(3W) 79.34(11)  O(3W)–Eu(2)–O(9)#3  67.23(11)
O(7)#3–Eu(2)–O(3W) 133.21(11)  O(11)–Eu(2)–O(9)#3  77.77(12)
O(1)–Eu(2)–O(3W) 73.23(11)  O(13)#4–Eu(2)–O(9)#3  124.70(12)
O(2W)–Eu(2)–O(11) 155.42(12)  O(2W)–Eu(2)–O(12)#4  121.18(11)
O(7)#3–Eu(2)–O(11) 75.63(12)  O(7)#3–Eu(2)–O(12)#4  74.30(10)
O(1)–Eu(2)–O(11) 103.53(11)  O(1)–Eu(2)–O(12)#4  78.39(11)
O(3W)–Eu(2)–O(11) 85.69(12)  O(3W)–Eu(2)–O(12)#4  145.20(10)
O(2W)–Eu(2)–O(13)#4 69.51(11)  O(11)–Eu(2)–O(12)#4  81.75(12)
O(7)#3–Eu(2)–O(13)#4 75.97(12)  O(13)#4–Eu(2)–O(12)#4  52.18(10)
O(1)–Eu(2)–O(13)#4 85.04(12)  O(9)#3–Eu(2)–O(12)#4  139.56(11)
O(3W)–Eu(2)–O(13)#4 141.62(12)

**Compound 7**
<table>
<thead>
<tr>
<th>Bond</th>
<th>Distance (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gd(1)–O(5)#1</td>
<td>2.319(4)</td>
</tr>
<tr>
<td>Gd(1)–O(10)</td>
<td>2.365(4)</td>
</tr>
<tr>
<td>Gd(1)–O(8)</td>
<td>2.405(4)</td>
</tr>
<tr>
<td>Gd(1)–O(1W)</td>
<td>2.407(4)</td>
</tr>
<tr>
<td>Gd(1)–O(6)</td>
<td>2.433(4)</td>
</tr>
<tr>
<td>Gd(2)–O(2W)</td>
<td>2.345(4)</td>
</tr>
<tr>
<td>Gd(2)–O(1)</td>
<td>2.384(4)</td>
</tr>
<tr>
<td>Gd(2)–O(7)#3</td>
<td>2.389(4)</td>
</tr>
<tr>
<td>O(10)–Gd(1)–O(3)#2</td>
<td>80.90(13)</td>
</tr>
<tr>
<td>O(8)–Gd(1)–O(3)#2</td>
<td>77.38(12)</td>
</tr>
<tr>
<td>O(5)#1–Gd(1)–O(8)</td>
<td>90.62(14)</td>
</tr>
<tr>
<td>O(10)–Gd(1)–O(8)</td>
<td>152.42(14)</td>
</tr>
<tr>
<td>O(5)#1–Gd(1)–O(1W)</td>
<td>83.04(14)</td>
</tr>
<tr>
<td>O(10)–Gd(1)–O(1W)</td>
<td>71.78(14)</td>
</tr>
<tr>
<td>O(8)–Gd(1)–O(1W)</td>
<td>135.76(14)</td>
</tr>
<tr>
<td>O(5)#1–Gd(1)–O(6)</td>
<td>74.57(14)</td>
</tr>
<tr>
<td>O(10)–Gd(1)–O(6)</td>
<td>139.56(13)</td>
</tr>
<tr>
<td>O(8)–Gd(1)–O(2)</td>
<td>72.56(13)</td>
</tr>
<tr>
<td>O(1W)–Gd(1)–O(2)</td>
<td>87.72(13)</td>
</tr>
<tr>
<td>O(6)–Gd(1)–O(2)</td>
<td>70.09(13)</td>
</tr>
<tr>
<td>O(5)#1–Gd(1)–O(4)#2</td>
<td>80.84(13)</td>
</tr>
<tr>
<td>O(10)–Gd(1)–O(4)#2</td>
<td>80.47(14)</td>
</tr>
<tr>
<td>O(5)#1–Gd(1)–O(3)#2</td>
<td>133.13(13)</td>
</tr>
<tr>
<td>O(2W)–Gd(2)–O(1)</td>
<td>91.67(14)</td>
</tr>
<tr>
<td>O(2W)–Gd(2)–O(7)#3</td>
<td>100.61(14)</td>
</tr>
<tr>
<td>O(1)–Gd(2)–O(7)#3</td>
<td>152.57(13)</td>
</tr>
<tr>
<td>O(2W)–Gd(2)–O(11)</td>
<td>155.85(16)</td>
</tr>
<tr>
<td>O(1)–Gd(2)–O(11)</td>
<td>100.68(14)</td>
</tr>
<tr>
<td>O(7)#3–Gd(2)–O(11)</td>
<td>77.63(14)</td>
</tr>
<tr>
<td>O(2W)–Gd(2)–O(3W)</td>
<td>80.27(13)</td>
</tr>
<tr>
<td>O(1)–Gd(2)–O(3W)</td>
<td>72.84(14)</td>
</tr>
<tr>
<td>O(7)#3–Gd(2)–O(3W)</td>
<td>133.16(14)</td>
</tr>
<tr>
<td>Compound 8*</td>
<td>O(11)–Gd(2)–O(3W)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td>83.65(14)</td>
</tr>
<tr>
<td></td>
<td>O(3W)–Gd(2)–O(12)#4</td>
</tr>
<tr>
<td></td>
<td>143.78(13)</td>
</tr>
</tbody>
</table>

| Tb(1)–O(2W)                  | 2.328(3)            | Tb(1)–O(1W)         | 2.388(3)            |
| Tb(1)–O(11)#1               | 2.353(3)            | Tb(1)–O(8)          | 2.394(3)            |
| Tb(1)–O(6)                  | 2.366(3)            | Tb(1)–O(1)          | 2.408(4)            |
| Tb(1)–O(4)#2               | 2.369(3)            | Tb(1)–O(2)          | 2.513(3)            |
| Tb(2)–O(14)#3              | 2.304(3)            | Tb(2)–O(10)         | 2.412(3)            |
| Tb(2)–O(3)#3               | 2.343(3)            | Tb(2)–O(7)          | 2.423(3)            |
| Tb(2)–O(3W)                | 2.387(3)            | Tb(2)–O(13)#4       | 2.443(3)            |
| Tb(2)–O(9)                 | 2.388(3)            | Tb(2)–O(12)#4       | 2.518(3)            |
| O(2W)–Tb(1)–O(6)           | 102.30(12)          | O(2W)–Tb(1)–O(1)    | 69.46(11)           |
| O(11)#1–Tb(1)–O(6)         | 151.79(11)          | O(11)#1–Tb(1)–O(1)  | 84.84(12)           |
| O(2W)–Tb(1)–O(4)#2        | 156.49(12)          | O(6)–Tb(1)–O(1)     | 76.80(12)           |
| O(11)#1–Tb(1)–O(4)#2      | 98.90(12)           | O(4)#2–Tb(1)–O(1)   | 132.44(11)          |
| O(6)–Tb(1)–O(4)#2         | 78.85(12)           | O(1W)–Tb(1)–O(1)    | 141.98(11)          |
| O(2W)–Tb(1)–O(1W)         | 80.15(12)           | O(8)–Tb(1)–O(1)     | 125.02(13)          |
| O(11)#1–Tb(1)–O(1W)       | 73.00(11)           | O(2W)–Tb(1)–O(2)    | 122.20(11)          |
| O(6)–Tb(1)–O(1W)          | 133.45(10)          | O(11)#1–Tb(1)–O(2)  | 77.28(11)           |
| O(4)#2–Tb(1)–O(1W)        | 82.31(12)           | O(6)–Tb(1)–O(2)     | 74.58(10)           |
| O(2W)–Tb(1)–O(8)          | 78.62(12)           | O(4)#2–Tb(1)–O(2)   | 80.99(11)           |
| O(11)#1–Tb(1)–O(8)        | 140.20(12)          | O(1W)–Tb(1)–O(2)    | 142.99(11)          |
| O(6)–Tb(1)–O(8)           | 67.63(10)           | O(8)–Tb(1)–O(2)     | 140.30(10)          |
| O(4)#2–Tb(1)–O(8)         | 80.26(12)           | O(1)–Tb(1)–O(2)     | 53.40(11)           |
| O(1W)–Tb(1)–O(8)          | 67.44(11)           | O(2W)–Tb(1)–O(1)    | 69.46(11)           |
| O(14)#3–Tb(2)–O(3)#3      | 91.62(12)           | O(10)–Tb(2)–O(7)    | 70.67(11)           |
| O(14)#3–Tb(2)–O(3W)       | 84.05(13)           | O(14)#3–Tb(2)–O(13)#4 | 80.79(12)          |
| O(3)#3–Tb(2)–O(3W)        | 72.37(11)           | O(3)#3–Tb(2)–O(13)#4 | 79.39(12)          |
| O(14)#3–Tb(2)–O(9)        | 90.56(12)           | O(3W)–Tb(2)–O(13)#4 | 147.42(11)          |
| O(3)#3–Tb(2)–O(9)         | 151.56(12)          | O(9)–Tb(2)–O(13)#4  | 72.98(11)           |
### Compound 9

<table>
<thead>
<tr>
<th>Bond</th>
<th>Distance (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dy(1)−O(2W)</td>
<td>2.319(4)</td>
</tr>
<tr>
<td>Dy(1)−O(12)#1</td>
<td>2.324(4)</td>
</tr>
<tr>
<td>Dy(1)−O(1)</td>
<td>2.348(4)</td>
</tr>
<tr>
<td>Dy(1)−O(6)</td>
<td>2.362(3)</td>
</tr>
<tr>
<td>Dy(2)−O(14)#3</td>
<td>2.292(4)</td>
</tr>
<tr>
<td>Dy(2)−O(2)#4</td>
<td>2.324(4)</td>
</tr>
<tr>
<td>Dy(2)−O(3W)</td>
<td>2.381(4)</td>
</tr>
<tr>
<td>Dy(2)−O(9)</td>
<td>2.378(3)</td>
</tr>
<tr>
<td>O(2W)−Dy(1)−O(12)#1</td>
<td>90.91(14)</td>
</tr>
<tr>
<td>O(2W)−Dy(1)−O(1)</td>
<td>156.82(15)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(1)</td>
<td>97.87(14)</td>
</tr>
<tr>
<td>O(2W)−Dy(1)−O(6)</td>
<td>102.36(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(6)</td>
<td>151.74(13)</td>
</tr>
<tr>
<td>O(1)−Dy(1)−O(6)</td>
<td>79.62(13)</td>
</tr>
<tr>
<td>O(1)−Dy(1)−O(8)</td>
<td>81.03(13)</td>
</tr>
<tr>
<td>O(1)−Dy(1)−O(1)</td>
<td>80.32(13)</td>
</tr>
<tr>
<td>O(1)−Dy(1)−O(4)#2</td>
<td>67.51(13)</td>
</tr>
<tr>
<td>O(1)−Dy(1)−O(4)#2</td>
<td>69.55(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(4)#2</td>
<td>85.09(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(4)#2</td>
<td>122.35(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(3)#2</td>
<td>77.19(12)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(2)#4</td>
<td>91.79(15)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(2)#4</td>
<td>84.78(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(3W)</td>
<td>84.78(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(3W)</td>
<td>72.01(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(9)</td>
<td>90.61(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(9)</td>
<td>151.70(14)</td>
</tr>
<tr>
<td>O(12)#1−Dy(1)−O(9)</td>
<td>136.27(13)</td>
</tr>
</tbody>
</table>
### Compound 10

<table>
<thead>
<tr>
<th>Bond</th>
<th>Distance (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O(14)#3--Dy(2)--O(13)#5</td>
<td>145.50(14)</td>
</tr>
<tr>
<td>O(2)#4--Dy(2)--O(13)#5</td>
<td>116.40(13)</td>
</tr>
<tr>
<td>O(3W)--Dy(2)--O(13)#5</td>
<td>85.62(13)</td>
</tr>
<tr>
<td>O(9)--Dy(2)--O(13)#5</td>
<td>74.06(12)</td>
</tr>
<tr>
<td>O(14)#3--Dy(2)--O(7)</td>
<td>74.68(14)</td>
</tr>
<tr>
<td>O(13)#5--Dy(2)--O(10)</td>
<td>74.17(12)</td>
</tr>
<tr>
<td>O(7)--Dy(2)--O(10)</td>
<td>136.30(11)</td>
</tr>
<tr>
<td>O(11)--Dy(2)--O(10)</td>
<td>52.59(12)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond</th>
<th>Distance (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Er(1)--O(11)#1</td>
<td>2.292(6)</td>
</tr>
<tr>
<td>Er(1)--O(1W)</td>
<td>2.294(6)</td>
</tr>
<tr>
<td>Er(1)--O(1)</td>
<td>2.330(6)</td>
</tr>
<tr>
<td>Er(1)--O(6)</td>
<td>2.334(6)</td>
</tr>
<tr>
<td>Er(2)--O(14)#3</td>
<td>2.268(6)</td>
</tr>
<tr>
<td>Er(2)--O(2)#4</td>
<td>2.302(6)</td>
</tr>
<tr>
<td>Er(2)--O(9)</td>
<td>2.346(5)</td>
</tr>
<tr>
<td>Er(2)--O(3W)</td>
<td>2.354(5)</td>
</tr>
<tr>
<td>O(11)#1--Er(1)--O(1W)</td>
<td>90.9(2)</td>
</tr>
<tr>
<td>O(11)#1--Er(1)--O(1)</td>
<td>96.8(2)</td>
</tr>
<tr>
<td>O(1W)--Er(1)--O(1)</td>
<td>156.5(2)</td>
</tr>
<tr>
<td>O(11)#1--Er(1)--O(6)</td>
<td>151.28(18)</td>
</tr>
<tr>
<td>O(1W)--Er(1)--O(6)</td>
<td>102.7(2)</td>
</tr>
<tr>
<td>O(1)--Er(1)--O(6)</td>
<td>80.7(2)</td>
</tr>
<tr>
<td>O(11)#1--Er(1)--O(8)</td>
<td>140.13(19)</td>
</tr>
<tr>
<td>O(1W)--Er(1)--O(8)</td>
<td>78.4(2)</td>
</tr>
<tr>
<td>O(1)--Er(1)--O(8)</td>
<td>81.5(2)</td>
</tr>
<tr>
<td>O(6)--Er(1)--O(8)</td>
<td>68.18(18)</td>
</tr>
<tr>
<td>O(11)#1--Er(1)--O(4)#2</td>
<td>84.8(2)</td>
</tr>
<tr>
<td>O(1W)--Er(1)--O(4)#2</td>
<td>69.88(18)</td>
</tr>
<tr>
<td>O(6) --Er(1) --O(3)#2</td>
<td>74.34(18)</td>
</tr>
<tr>
<td>O(8) Er(1)--O(3)#2</td>
<td>140.59(19)</td>
</tr>
<tr>
<td>O(14)#3--Er(2)--O(2)#4</td>
<td>92.0(2)</td>
</tr>
</tbody>
</table>

**Note:** All bond distances are given with their standard deviations in parentheses.
<p>| Compound 11&lt;sup&gt;a&lt;/sup&gt; |<br />
|----------------------|----------------------|----------------------|
| Yb(1)–O(1W)         | 2.258(3)             | Yb(1)–O(2W)         | 2.337(3)             |
| Yb(1)–O(1)           | 2.262(3)             | Yb(1)–O(13)#1       | 2.357(4)             |
| Yb(1)–O(10)          | 2.294(3)             | Yb(1)–O(8)          | 2.359(3)             |
| Yb(1)–O(6)           | 2.318(3)             | Yb(1)–O(12)#1       | 2.475(3)             |
| Yb(2)–O(5)#2         | 2.238(3)             | Yb(2)–O(9)#3        | 2.331(3)             |
| Yb(2)–O(11)          | 2.290(3)             | Yb(2)–O(7)#3        | 2.379(3)             |
| Yb(2)–O(3W)          | 2.322(3)             | Yb(2)–O(4)#4        | 2.399(3)             |
| Yb(2)–O(2)           | 2.328(3)             | Yb(2)–O(3)#4        | 2.468(3)             |
| O(1W)–Yb(1)–O(1)     | 90.33(12)            | O(2W)–Yb(1)–O(13)#1| 142.06(11)           |
| O(1W)–Yb(1)–O(10)    | 156.69(12)           | O(1W)–Yb(1)–O(8)    | 78.46(13)            |
| O(1)–Yb(1)–O(10)     | 96.48(12)            | O(1)–Yb(1)–O(8)     | 140.13(11)           |
| O(1W)–Yb(1)–O(6)     | 102.91(12)           | O(10)–Yb(1)–O(8)    | 82.10(12)            |
| O(1)–Yb(1)–O(6)      | 150.92(11)           | O(6)–Yb(1)–O(8)     | 68.65(11)            |
| O(10)–Yb(1)–O(6)     | 81.57(12)            | O(2W)–Yb(1)–O(8)    | 67.48(11)            |
| O(1W)–Yb(1)–O(2W)    | 79.96(12)            | O(13)#1–Yb(1)–O(8)  | 125.44(12)           |
| O(1)–Yb(1)–O(2W)     | 72.94(11)            | O(1W)–Yb(1)–O(12)#1| 123.09(12)           |
| O(10)–Yb(1)–O(2W)    | 80.79(12)            | O(1)–Yb(1)–O(12)#1  | 76.78(11)            |
| O(6)–Yb(1)–O(2W)     | 134.40(11)           | O(10)–Yb(1)–O(12)#1 | 80.21(12)            |</p>
<table>
<thead>
<tr>
<th>Bond Lengths (Å)</th>
<th>Symmetry Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>O(1W)–Yb(1)–O(13)#1</td>
<td>70.04(12)</td>
</tr>
<tr>
<td>O(1)–Yb(1)–O(13)#1</td>
<td>84.29(12)</td>
</tr>
<tr>
<td>O(10)–Yb(1)–O(13)#1</td>
<td>132.72(11)</td>
</tr>
<tr>
<td>O(6)–Yb(1)–O(13)#1</td>
<td>76.36(12)</td>
</tr>
<tr>
<td>O(5)#2–Yb(2)–O(11)</td>
<td>92.23(13)</td>
</tr>
<tr>
<td>O(5)#2–Yb(2)–O(3W)</td>
<td>85.56(13)</td>
</tr>
<tr>
<td>O(11)–Yb(2)–O(2)</td>
<td>113.55(12)</td>
</tr>
<tr>
<td>O(3W)–Yb(2)–O(2)</td>
<td>83.66(12)</td>
</tr>
<tr>
<td>O(5)#2–Yb(2)–O(9)#3</td>
<td>91.29(13)</td>
</tr>
<tr>
<td>O(11)–Yb(2)–O(9)#3</td>
<td>151.62(12)</td>
</tr>
<tr>
<td>O(3W)–Yb(2)–O(9)#3</td>
<td>136.13(11)</td>
</tr>
<tr>
<td>O(2)–Yb(2)–O(9)#3</td>
<td>75.73(12)</td>
</tr>
<tr>
<td>O(5)#2–Yb(2)–O(7)#3</td>
<td>75.21(12)</td>
</tr>
<tr>
<td>O(11)–Yb(2)–O(7)#3</td>
<td>139.34(11)</td>
</tr>
<tr>
<td>O(3W)–Yb(2)–O(7)#3</td>
<td>68.40(11)</td>
</tr>
<tr>
<td>O(2)–Yb(2)–O(7)#3</td>
<td>72.03(11)</td>
</tr>
</tbody>
</table>

Symmetry codes: 
- #1 \(-x, -y, 1-z\)
- #2 \(x, y, 1+z\)
- #3 \(1-x, -y, 1-z\)
- #4 \(1-x, 1-y, 1-z\)
- #5 \(2-x, 1-y, -z\)
- #6 \(3-x, 1-y, 1-z\)
- #7 \(1-x, 2-y, 1-z\)
- #8 \(2-x, 2-y, 1-z\)
- #9 \(1-x, 1-y, 1-z\)
- #10 \(2-x, 1-y, -z\)
- #11 \(3-x, 1-y, 1-z\)
- #12 \(-1+x, y, z\)
- #13 \(-1+y, 1+z\)
- #14 \(-1+z, 1+y, z\)
- #15 \(-1+x, -y, 1-z\)
- #16 \(-1+y, 1-z\)
- #17 \(-1+z, 1-y, z\)
- #18 \(-1+y, 1-z\)
- #19 \(-1+z, 1-y, z\)
Table S2: Geometrical parameters of hydrogen bonds in compound 1 (in Å and deg).

<table>
<thead>
<tr>
<th>D–H···A</th>
<th>d(D–H)</th>
<th>d(H···A)</th>
<th>d(D···A)</th>
<th>&lt;DHA</th>
<th>Symmetry operation for A</th>
</tr>
</thead>
<tbody>
<tr>
<td>O(1W)–H(1WA)···O(4)</td>
<td>0.720</td>
<td>2.084</td>
<td>2.722</td>
<td>148.11</td>
<td>1 – x, – y, 1 – z</td>
</tr>
<tr>
<td>O(1W)–H(1WB)···O(4W)</td>
<td>0.781</td>
<td>1.942</td>
<td>2.704</td>
<td>165.10</td>
<td>x, 1 – y, z</td>
</tr>
<tr>
<td>O(2W)–H(2WA)···O(3W)</td>
<td>0.850</td>
<td>2.061</td>
<td>2.856</td>
<td>154.72</td>
<td>– x, 1 – y, 1 – z</td>
</tr>
<tr>
<td>O(2W)–H(2WB)···O(7)</td>
<td>0.850</td>
<td>1.910</td>
<td>2.740</td>
<td>122.19</td>
<td>1 + x, y, z</td>
</tr>
<tr>
<td>O(3W)–H(3WA)···O(5)</td>
<td>0.851</td>
<td>2.204</td>
<td>3.055</td>
<td>179.48</td>
<td>1 – x, 1 – y, – z</td>
</tr>
<tr>
<td>O(3W)–H(3WB)···O(4)</td>
<td>0.720</td>
<td>2.102</td>
<td>2.784</td>
<td>158.49</td>
<td>x, 1 + y, z</td>
</tr>
<tr>
<td>O(4W)–H(4WA)···O(5W)</td>
<td>0.905</td>
<td>2.404</td>
<td>3.309</td>
<td>178.54</td>
<td>1 – x, 1 – y, 1 – z</td>
</tr>
<tr>
<td>O(4W)–H(4WB)···O(3W)</td>
<td>0.784</td>
<td>2.193</td>
<td>2.756</td>
<td>129.16</td>
<td>x, 1 + z</td>
</tr>
<tr>
<td>O(5W)–H(5WB)···O(2W)</td>
<td>0.850</td>
<td>2.092</td>
<td>2.941</td>
<td>176.30</td>
<td>1 – x, 1 – y, 1 – z</td>
</tr>
</tbody>
</table>

Fig. S1 Hydrogen-bonding tape in 1 with two 16-membered water rings arranged alternately which was self-assembled from L$^{2-}$, water, and OX$^{2-}$. Symmetry codes: #3 1 – x, – y, 1 – z; #4 1 – x, 1 – y, 1 – z; #5 1 – x, 1 – y, – z; #6 1 – x, – y, – z; #7 x, – 1 + y, z; #8 x, 1 + y, 1 + z; #9 x, y, – 1 + z; #10 1 + x, y, z; #11 2 – x, 1 – y, 1 – z; #12 2 – x, 1 – y, – z.
Fig. S2 Views of hydrogen-bond interactions in 3.

Fig. S3 Local coordination environment of 6 with 30% thermal ellipsoids.

Fig. S4 Local coordination environment of 8 with 30% thermal ellipsoids.
Fig. S5 Thermogravimetric curve of the compounds 1, 3, 6, and 8.

Fig. S6 Thermogravimetric curve of the compounds 2, 4, 5, 7 and 9–11.

Fig. S7 The simulated and experimental XRPD patterns for 1–2.
Fig. S8 The simulated and experimental XRPD patterns for 3–11.