Electronic Supplementary Information

Microwave-assisted ionothermal synthesis of a water-stable Eu-coordination polymer: Ba$^{2+}$ ion detector and fluorescence thermometer

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<table>
<thead>
<tr>
<th>D-H···A</th>
<th>d(D-H) (Å)</th>
<th>d(H···A) (Å)</th>
<th>d(D···A) (Å)</th>
<th>&lt;(DHA) (°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O(5)-H(5A)···O(1)</td>
<td>0.82</td>
<td>1.86</td>
<td>2.569(15)</td>
<td>144.3</td>
</tr>
<tr>
<td>O(6)-H(6A)···O(4)</td>
<td>0.82</td>
<td>1.96</td>
<td>2.623(14)</td>
<td>137.6</td>
</tr>
<tr>
<td>O(5B)-H(5B)···O(1)</td>
<td>0.82</td>
<td>1.85</td>
<td>2.56(2)</td>
<td>144.7</td>
</tr>
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<td>O(6B)-H(6B)···O(4)</td>
<td>0.82</td>
<td>1.87</td>
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<td>O(12A)-H(12B)···O(10)</td>
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<td>1.89</td>
<td>2.586(8)</td>
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<td>O(12B)-H(12C)···O(11)</td>
<td>0.82</td>
<td>1.84</td>
<td>2.553(8)</td>
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<td>O(9)-H(9A)···O(3)#1</td>
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<td>1.70</td>
<td>2.514(5)</td>
<td>172.2</td>
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</tbody>
</table>

Symmetry transformations used to generate equivalent atoms: 
#1 x-1/2, y-1/2, z+1/2.

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<td>O(5)-H(5)···O(2)#10</td>
<td>0.818(10)</td>
<td>2.37(3)</td>
<td>2.769(3)</td>
<td>111(3)</td>
</tr>
<tr>
<td>O(5)-H(5)···O(4)</td>
<td>0.818(10)</td>
<td>1.816(19)</td>
<td>2.559(3)</td>
<td>150(3)</td>
</tr>
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<td>O(6)-H(6)···O(2)</td>
<td>0.817(10)</td>
<td>2.05(2)</td>
<td>2.756(3)</td>
<td>145(3)</td>
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<td>O(6)-H(6)···O(4)#11</td>
<td>0.817(10)</td>
<td>2.21(3)</td>
<td>2.687(3)</td>
<td>117(3)</td>
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<tr>
<td>C(3)-H(3A)···O(3)#1</td>
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<td>2.39</td>
<td>3.247(4)</td>
<td>149.3</td>
</tr>
<tr>
<td>C(6)-H(6A)···O(1)#9</td>
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<td>2.31</td>
<td>3.242(4)</td>
<td>166.5</td>
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Symmetry transformations used to generate equivalent atoms:
#1 x, y-1, z; #2 -x+1, -y+1, -z; #3 x-1, y, z; #4 -x, -y+1, -z+1; #5 -x+1, -y, -z;
#6 -x, -y, -z+1; #7 -x, -y, -z; #8 x+1, y, z; #9 x, y+1, z; #10 x-1, y, z+1; #11 x+1, y, z+1.
Fig. S1 TGA curves of compounds 1 and 2.

Fig. S2 Solid state excitation spectrum of Eu-CP (1) ($\lambda_{em} = 615$ nm).

Fig. S3 Photos of M$^{n+}$@Eu-CP samples after immersing in metal ion solutions.
Fig. S4 The EDS spectrum of solid state sample of $\text{Ba}^{2+}\text{Eu-CP}$ prepared from 0.01 mol/L $\text{Ba}^{2+}$ aqueous solution.

Fig. S5 Solid state fluorescent emission spectra of $\text{Ba-CP}$ (2), $\text{Ba}^{2+}\text{Eu-CP}$ (from 0.10 mol/L $\text{Ba}^{2+}$ solution) and $\text{H}_2\text{DHBDC}$ ligand ($\lambda_{\text{ex}} = 365$ nm) at room temperature.