

Supporting Information

**Structure and temperature sensitive photoluminescence in a  
novel phosphate phosphor  $\text{RbZnPO}_4:\text{Eu}^{3+}$**

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Table S1 The refinement results of the selective interatomic distances of Rb-O and Zn-O in

RbZnPO <sub>4</sub>					
Center	Ligand	distance	Center	Ligand	distance
Rb1	O5	2.7583	Zn1	O7	1.8473
	O4	2.8143		O4	1.9130
	O3	2.8298		O5	1.9851
	O2	2.9499		O10	2.1676
	O8	3.1394		O10	2.9634
	O8	3.3336	mean	Zn1-O	2.89834
mean	Rb1-O	2.9708	Zn2	O8	1.9240
Rb2	O6	2.4493		O4	1.9270
	O1	2.7433		O1	1.9315
	O6	2.7688		O3	1.9520
	O7	3.1415		mean	Zn2-O
	O1	3.1900			
	O7	3.1901			
	O4	3.2747			
	O3	3.3393			
mean	Rb2-O	3.0121			

Table S2 The effective ionic radii of Rb<sup>+</sup>, Zn<sup>2+</sup> and Eu<sup>3+</sup> ions with different coordination numbers.

	Rb <sup>+</sup> (Å)	Zn <sup>2+</sup> (Å)	Eu <sup>3+</sup> (Å)
6 coordination	1.52	-	0.947
8 coordination	1.61	-	1.066
4 coordination	-	0.6	<0.947
5 coordination	-	0.68	<0.947

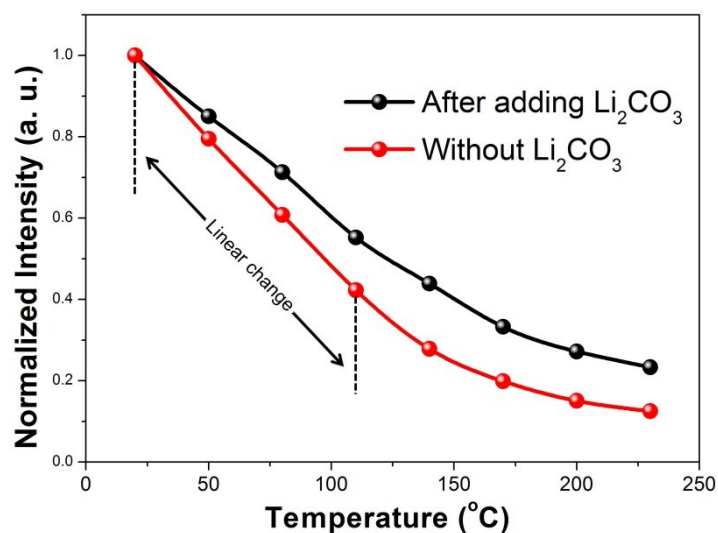


Figure S1 The relationship between the sample temperature and the normalized emission intensity of RbZnPO<sub>4</sub>:0.05Eu<sup>3+</sup> and RbZnPO<sub>4</sub>:0.05Eu<sup>3+</sup>, 0.05Li<sup>+</sup>.