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Structure, Photoluminescence and Abnormal Thermal Quenching Behavior of Eu^{2+}-doped $Na_3Sc_2(PO_4)_3$: a Novel Blue-emitting Phosphor for n-UV LEDs

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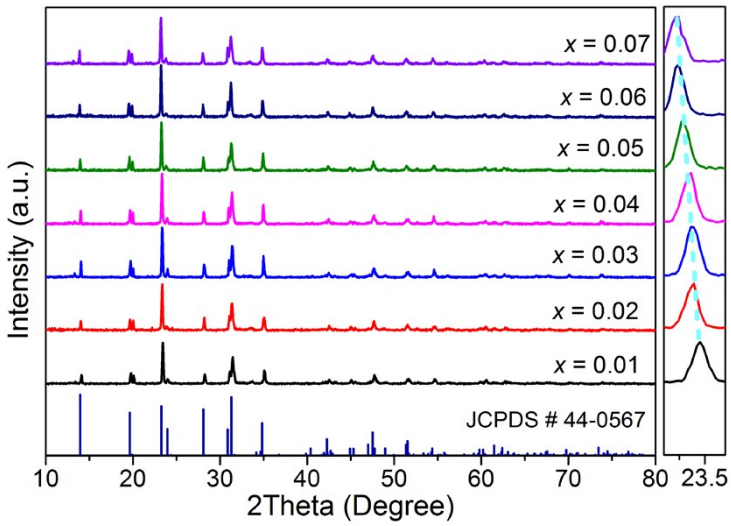

Figure S1. The XRD patterns of NSP:xEu^{2+} samples ($0.01 \leq x \leq 0.07$).

Table S1. Atomic coordinates and isotropic displacement parameters for NSP

Atom	Wyckoff	S.O.F	*x*	*y*	*z*	Uiso
Na	18e	0.6667	0.6092(26)	0	1/4	0.11(1)
Sc	12c	0.3333	0	0	0.3455(3)	0.021(5)
P	18e	1	0	0.3123(4)	1/4	0.025(7)
O1	36f	1	0.1824(13)	0.2014(12)	0.4087(5)	0.056(4)
O2	36f	1	0.0372(14)	0.2543(13)	0.1934(7)	0.008(8)

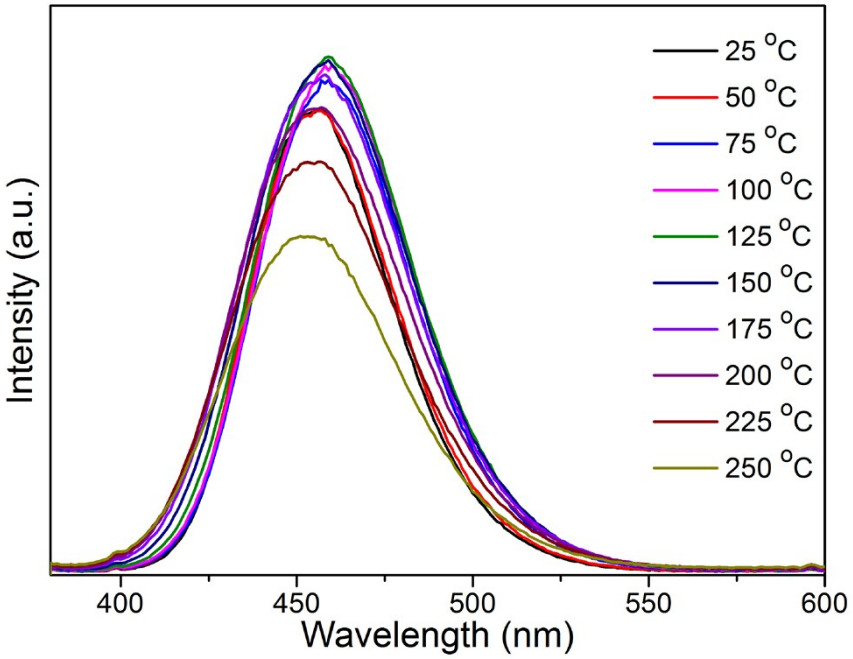

Figure S2. The temperature dependence of PL spectra of NSP:0.03Eu^{2+} phosphor.

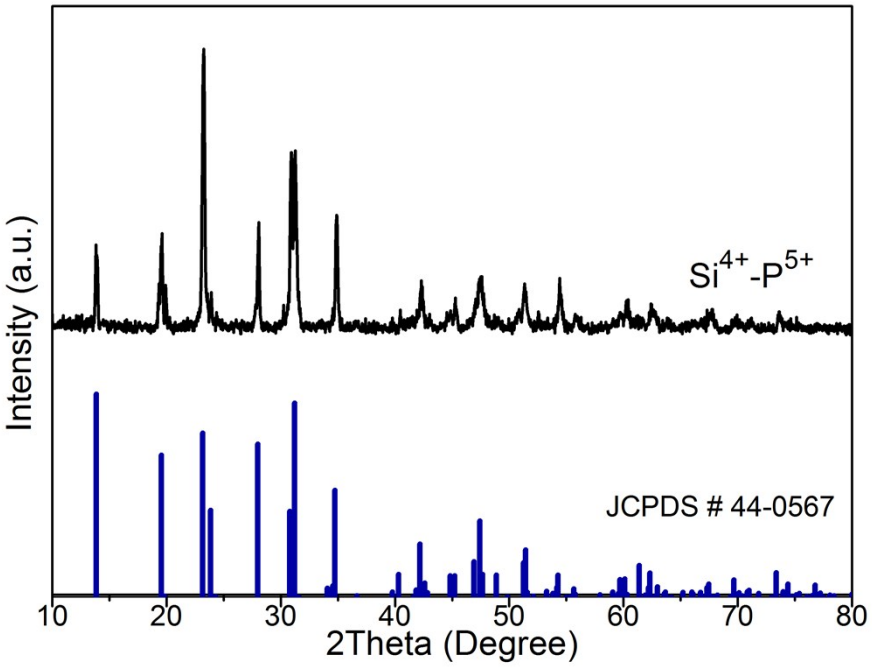

Figure S3. The XRD patterns of Si^{4+}-P^{5+} charge compensated NSP:Eu^{2+}.

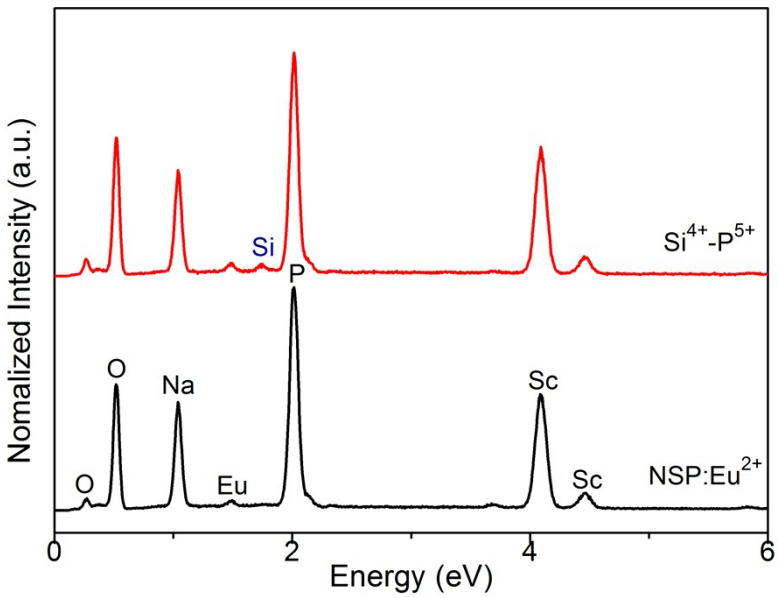

Figure S4. The EDS spectra of Si^{4+}-P^{5+} charge compensated NSP:Eu^{2+} compared with the NSP:0.03Eu^{2+}.

Table S2. The element compositions of Si^{4+}-P^{5+} charge compensated NSP:Eu^{2+} compared with the NSP:0.03Eu^{2+}.

Atom%	Na	Sc	P	Si	O	Eu
NSP:Eu^{2+}	15.07	10.86	12.78	0.01	61	0.18
Si^{4+}-P^{5+}	14.82	10.11	13.1	0.27	61.56	0.15