Supplementary

Table S1: Anisotropic displacement parameters of $Sr_4[LiAl_{11}N_{14}]:Eu^{2+}$ resulting from single-crystal diffraction data.

Atom	U_{11}	U_{22}	U_{33}	U_{12}
Sr1	0.0010(2)	0.0086(2)	0.0045(2)	0.0034(2)
Al1	0.0198(7)	0.0139(9)	0.0011(5)	-0.0092(6)
Li1	0.0198(7)	0.0139(9)	0.0011(5)	-0.0092(6)
Al2	0.0004(4)	0.0059(4)	0.0038(4)	0.0001(3)
Al3	0.0079(5)	0.0068(5)	0.0061(5)	0.0005(3)
N1	0.004(2)	0.006(2)	0.009(2)	0.0027(8)
N2	0.014(2)	0.005(2)	0.004(2)	-0.0021(8)
N3	0.005(2)	0.009(2)	0.0103(9)	-0.0050(9)
N4	0.012(2)	0.008(2)	0.008(2)	0.002(2)

U_{23} and U_{13} equal 0 for all atoms.

Table S2: Crystallographic data of the Rietveld refinement of $Sr_4[LiAl_{11}N_{14}]:Eu^{2+}$.

empirical formula	$Sr_4LiAl_{11}N_{14}$
crystal system	Orthorhombic
space group	*Pnnm* (No. 58)
lattice parameters	
a (Å)	10.4764(2)
b (Å)	10.3938(2)
c (Å)	3.2356(2)
V (Å^3)	352.3(2)
formula units per cell	1
calculated density, (g cm^{-3})	4.02(2)
T (K)	299(2)
diffractometer	STOE Stadi P
radiation	Mo$K\alpha_1$ (λ = 0.7093 Å)
profile range	$1.0 \leq \theta \leq 30.0$
data points	3200
background function	Chebychev polynomial (9 Parameters)
R values	R_p = 0.0068, R_{exp} = 0.0069
goodness of fit	1.40

Table S3: Atomic coordinates and site occupancies of the Rietveld refinement of $Sr_4[LiAl_{11}N_{14}]:Eu^{2+}$.

Atom	**Wyckoff-Position**	***x***	***y***	***z***	**SOF**
Sr1	4*g*	0.3513(3)	0.3672(3)	0	1
Al1	4*g*	0.1129(7)	0.1399(9)	0	0.75
Li1	4*g*	0.1129(7)	0.1399(9)	0	0.25
Al2	4*g*	0.1594(8)	0.5924(7)	0	1
Al3	4*g*	0.5812(7)	0.1617(7)	0	1
N1	4*g*	0.017(2)	0.689(2)	0	1
N2	4*g*	0.681(2)	0.008(2)	0	1
N3	4*g*	0.692(2)	0.306(2)	0	1
N4	2*a*	0	0	0	1

The site occupancy factors of Al1 and Li1 were adopted from single crystal X-ray diffraction data.

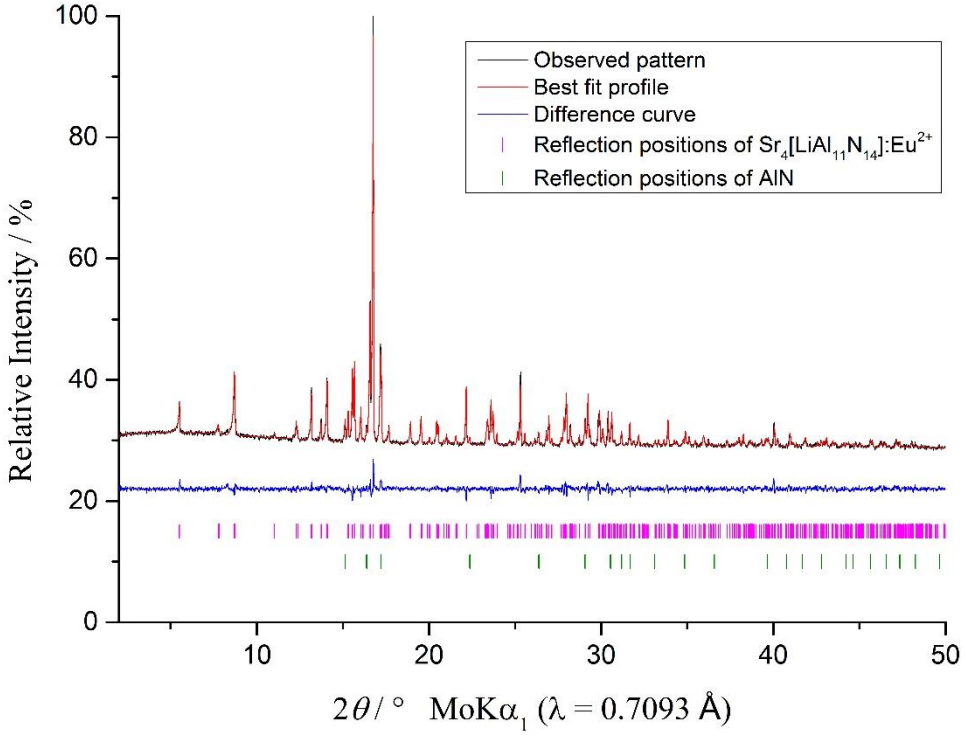

Figure S1. Rietveld plot of $Sr_4[LiAl_{11}N_{14}]:Eu^{2+}$. Experimental powder diffraction pattern is shown in black, calculated pattern in red and difference plot is shown in blue. The reflection positions of $Sr_4[LiAl_{11}N_{14}]:Eu^{2+}$ are shown in pink, those of AlN in green.