Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

$(Ba,Sr)LaZnTaO_6:Mn^{4+}$ far red emission phosphors for plant growth LEDs: structure and photoluminescence properties

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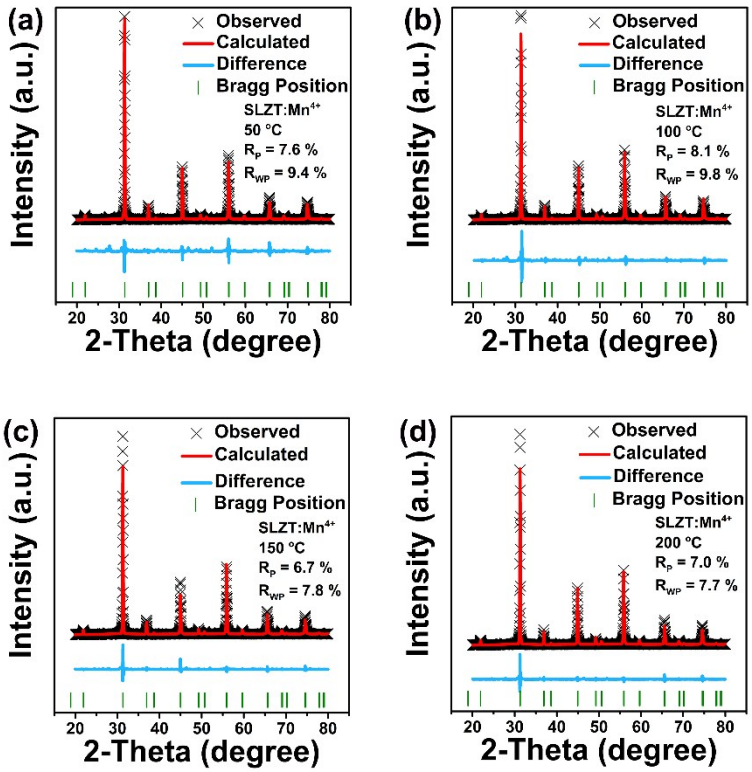

Fig. S1 Rietveld refinement of the representative SLZT: 0.008Mn^{4+}sample in different temperature (50-200 °C). The observed XRD data, the corresponding Rietveld refine results, the Bragg reflections and the profile difference between experimental and calculated values.

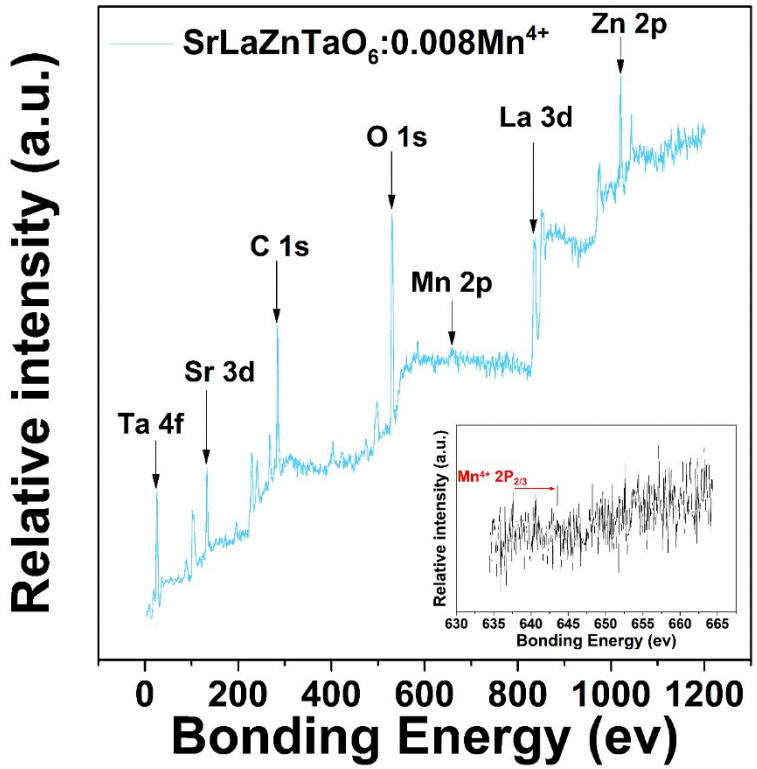

Fig. S2 The high-resolution XPS spectra of sample SLZT:0.008Mn^{4+}, the inset is Mn 2p XPS spectrum of SLZT:0.008Mn^{4+} sample.

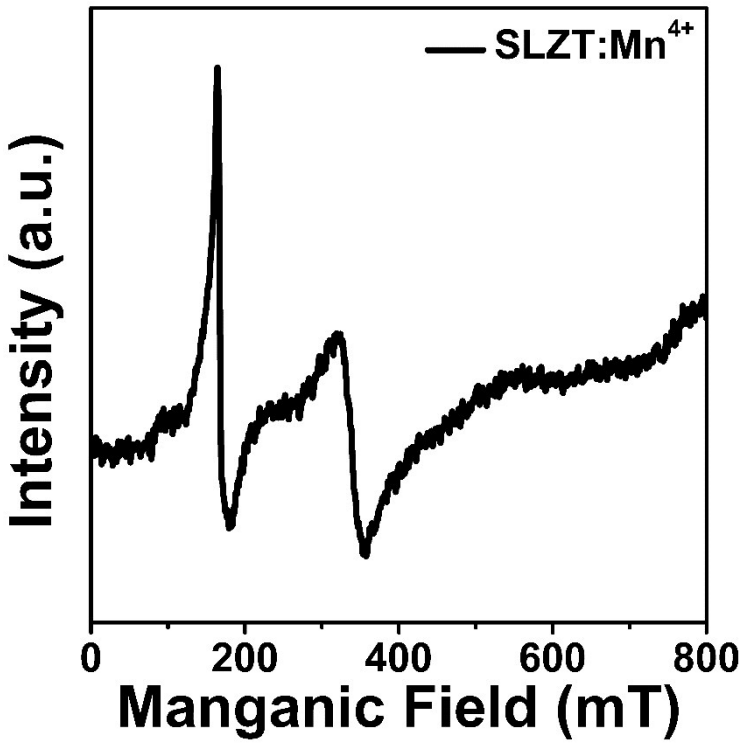

Fig. S3 The EPR spectrum of SLZT:0.008Mn^{4+}.

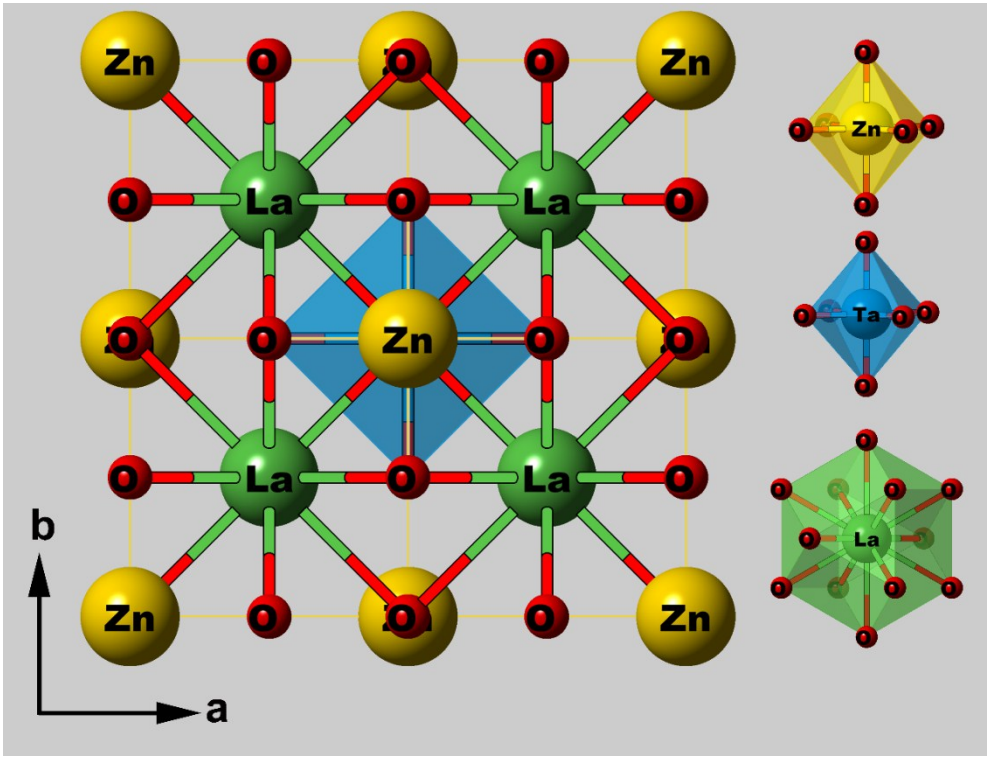

Fig. S4 The crystal structure of BLZTO observed along the c-direction, where blue, yellow, green and red spheres stand for tantalum, zinc, lanthanum and oxygen ions, respectively.

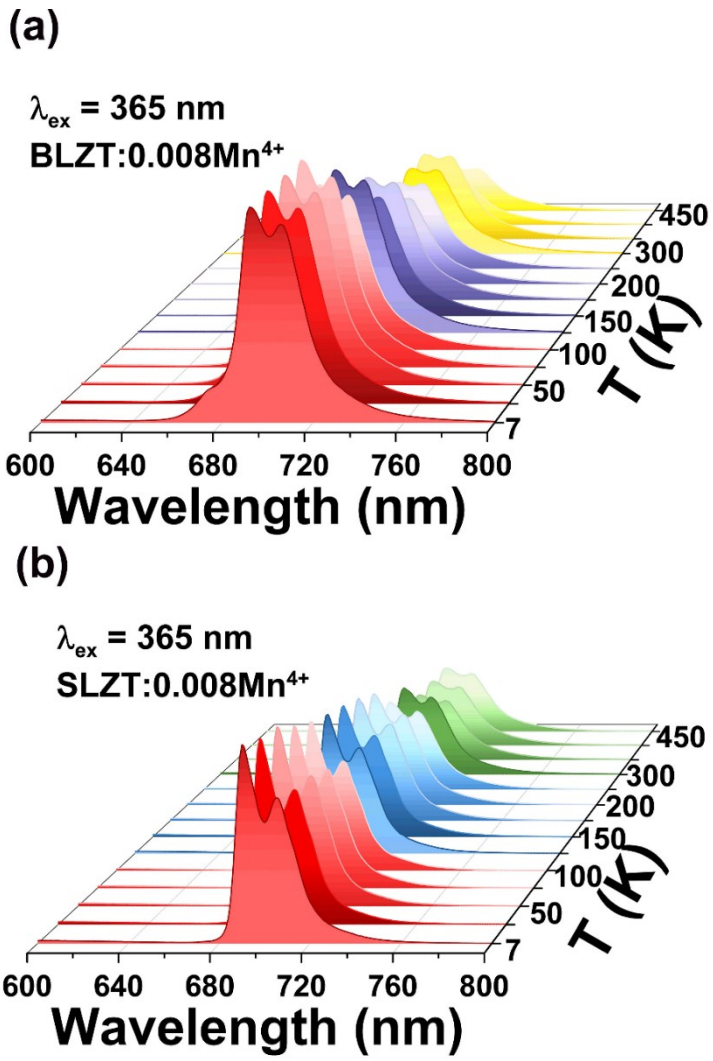

Fig. S5 Temperature-dependent PL spectra excited at 365 nm of the (a) BLZT:0.008Mn^{4+} (b) SLZT:0.008Mn^{4+} phosphor.