

# Electronic Supplementary Information (ESI)

## Structure and luminescence behaviour of a novel red-emitting fluoroperovskite for backlight display

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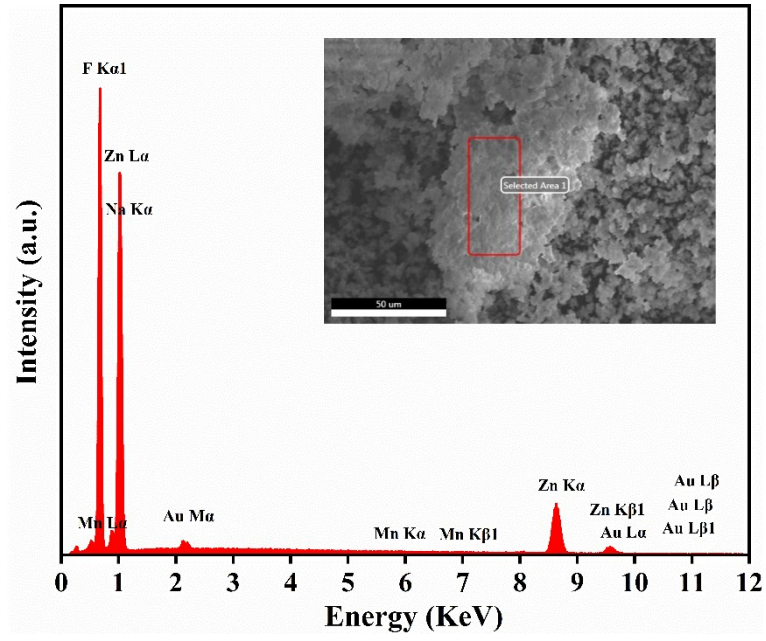
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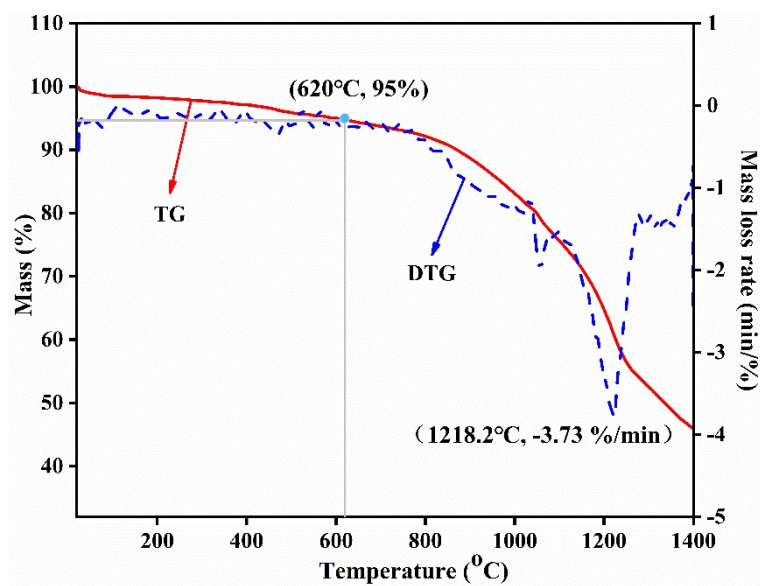
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**Figure S1.** EDS spectrum of the  $\text{NaZnF}_3:0.94\%\text{Mn}^{4+}$  fluoroperovskite sample.



**Figure S2.** TG curve of the as-obtained NaZnF<sub>3</sub>:0.94%Mn<sup>4+</sup> fluoride perovskite product.

**Table S1.** Surface elemental composition result of the NaZnF<sub>3</sub>:0.94%Mn<sup>4+</sup> fluoride perovskite product.

Element	Weight%	Atomic%
F K	26.31	44.12
Na K	22.62	31.35
Au M	1.21	0.2
Mn K	0.4	0.23
Zn K	49.47	24.11

**Table S2.** Crystallographic data of NaZnF<sub>3</sub> fluoride perovskite before and after dopant occupation.

Formula	NaZnF <sub>3</sub> host	NaZnF <sub>3</sub> :Mn <sup>4+</sup> product
Crystal system	orthorhombic	orthorhombic
Space group	Pnma(62)	Pnma(62)
<i>a</i> , Å	5.5928(17)	5.5830(5)
<i>b</i> , Å	7.7747(19)	7.7715(5)
<i>c</i> , Å	5.4186(14)	5.4150(4)
<i>V</i> , Å <sup>3</sup>	235.6134(32)	234.9499(31)
<i>Z</i>	4	4
<i>R</i> <sub>WP</sub>		3.55
<i>R</i> <sub>P</sub>		2.63
<i>x</i> <sup>2</sup>		1.98