

Supporting Information

The enhanced photoluminescence and temperature sensing performance in rare earth doped SrMoO_4 phosphors by aliovalent doping: from material design to device application

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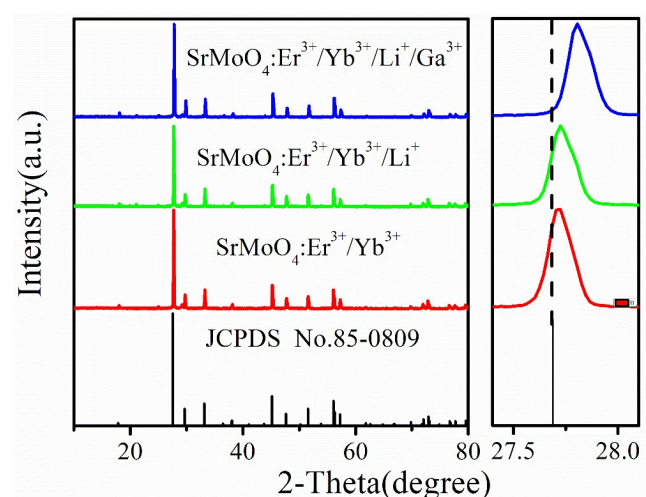


Figure S1. XRD patterns of $\text{Er}^{3+}/\text{Yb}^{3+}$ doped SrMoO_4 phosphors.

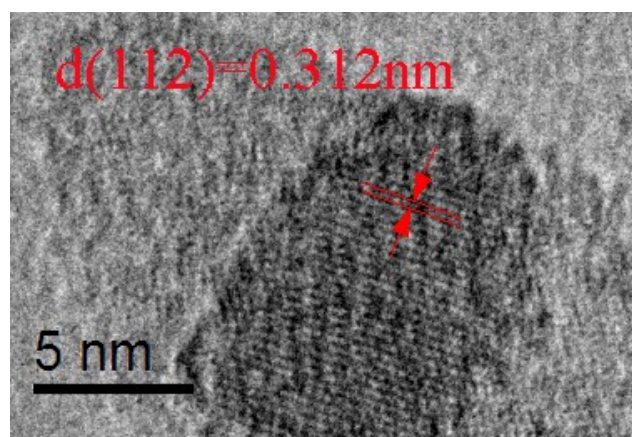


Figure S2. HRTEM image of $\text{SrMoO}_4:\text{Eu}^{3+}$ codoped with Li^+ and Ga^{3+} ions

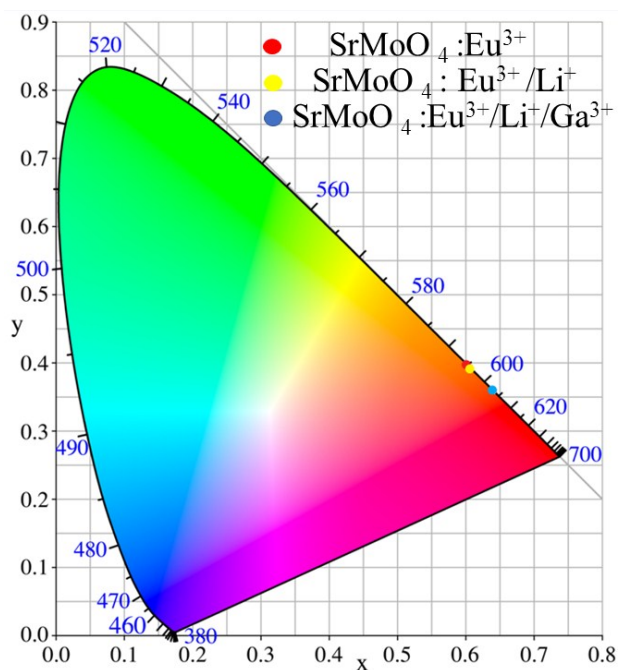


Figure S3. CIE coordinates of Eu^{3+} doped SrMoO_4 phosphors.

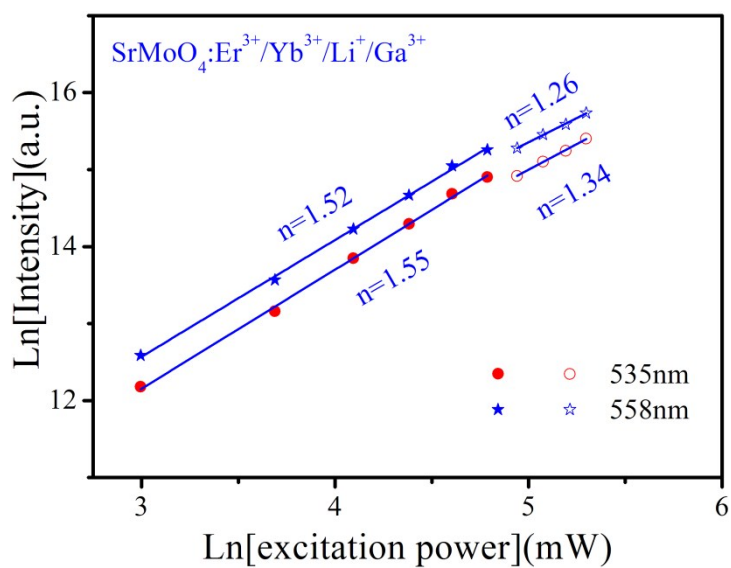


Figure S4. The double logarithmic curves of up-conversion intensities versus the excitation power in the $\text{SrMoO}_4:\text{Er}^{3+}/\text{Yb}^{3+}$ codoped with Li^{+} and Ga^{3+} ions.

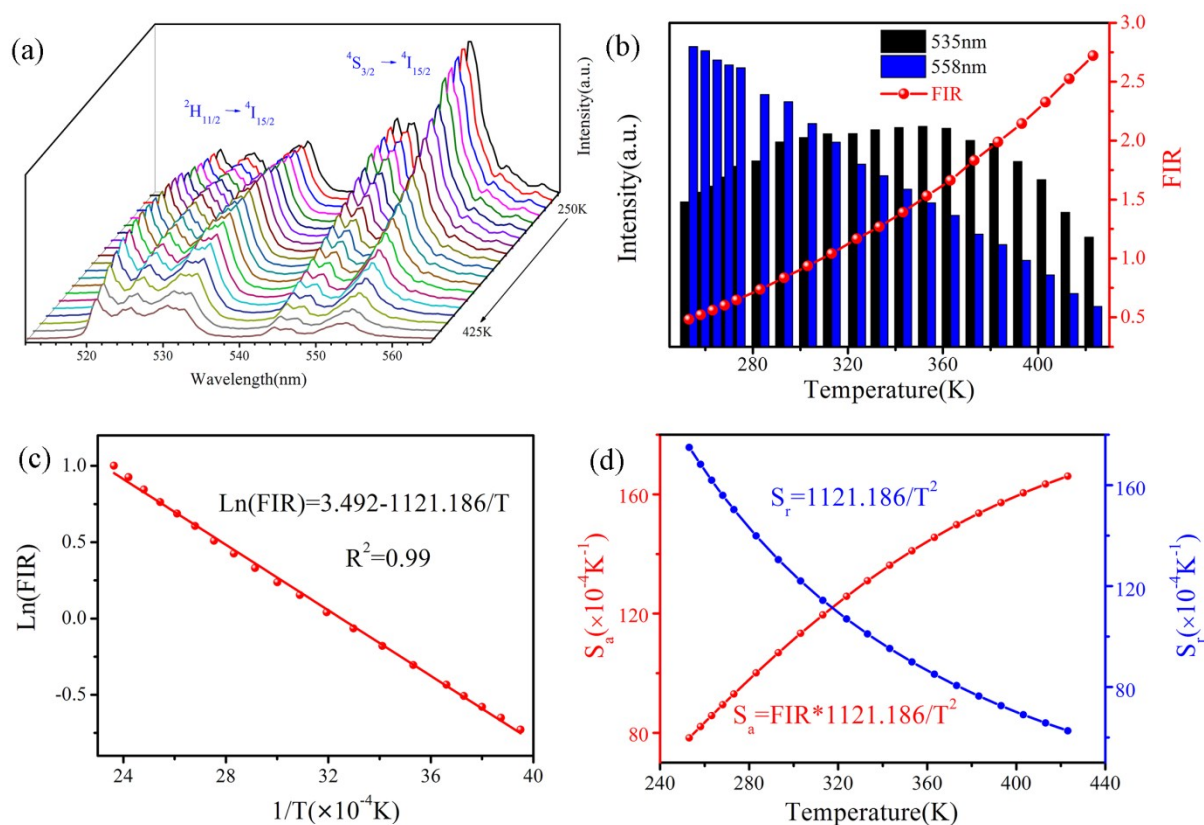


Figure S5. (a) The green up-conversion emission spectra at the temperature range of 258~423K. (b) The integrated up-conversion intensities at 535 nm and 558nm and FIR versus temperature. (c) $\ln(\text{FIR})$ as a function of inverse absolute temperature. (d) Temperature sensitivity versus temperature.

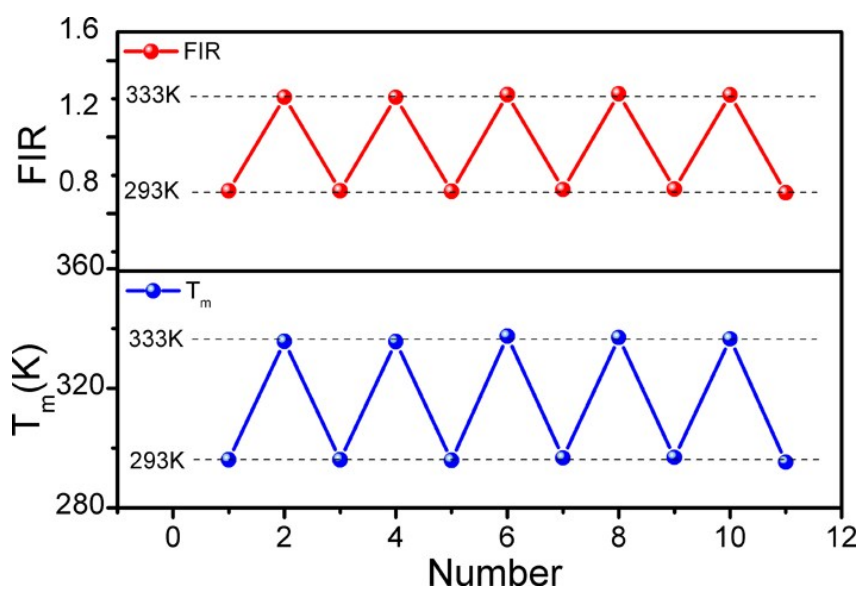


Figure S6. FIR and T_m values recorded by 5 cycles between 293K and 333K.

Table S1. Compositions of rare earth doped SrMoO₄ phosphors.

Samples	Eu ³⁺	Er ³⁺	Yb ³⁺	Li ⁺	Ga ³⁺
SrMoO ₄ :Eu ³⁺	0.01	/	/	0	0
SrMoO ₄ :Eu ³⁺ /Li ⁺	0.01	/	/	0.05	0
SrMoO ₄ :Eu ³⁺ /Li ⁺ /Ga ³⁺	0.01	/	/	0.05	0.02
SrMoO ₄ :Er ³⁺ / Yb ³⁺	/	0.01	0.02	0	0
SrMoO ₄ :Er ³⁺ / Yb ³⁺ /Li ⁺	/	0.01	0.02	0.05	0
SrMoO ₄ :Er ³⁺ / Yb ³⁺ /Li ⁺ /Ga ³⁺	/	0.01	0.02	0.05	0.02