Supplementary Information

A Single-Phase Full-Visible-Spectra Phosphor for White Light-Emitting Diodes with Ultra-High Color Rendering

Xiangting Zhang,[1] Dan Zhang,[1] Zhibo Zheng,[1] Baofeng Zheng,[1] Yanhua Song,[1]* Keyan Zheng,[1] Ye Sheng,[1] Zhan Shi,[2] and Haifeng Zou[1]*

[1] College of Chemistry, Jilin University, Qianjin Street 2699, Changchun 130012, China.
[2] State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, College of Chemistry, Jilin University, Qianjin Street 2699, Changchun 130012, China.

Corresponding Author
*E-mail: yhsong@jlu.edu.cn (Y. Song).
*E-mail: zouhf@jlu.edu.cn (H. Zou).

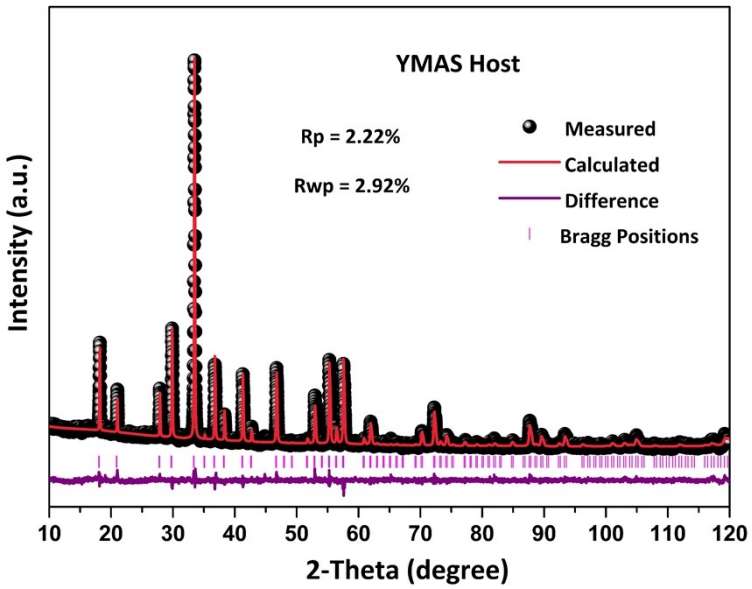

Figure S1. Rietveld refinement results of YMAS host.

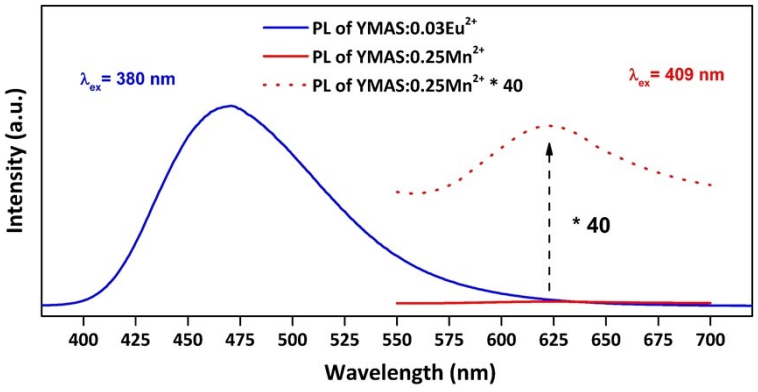

Figure S2. The luminescence intensity comparison of YMAS:0.03Eu^{2+} and YMAS:0.25Mn^{2+}

under the optimal excitation condition measured at room temperature.

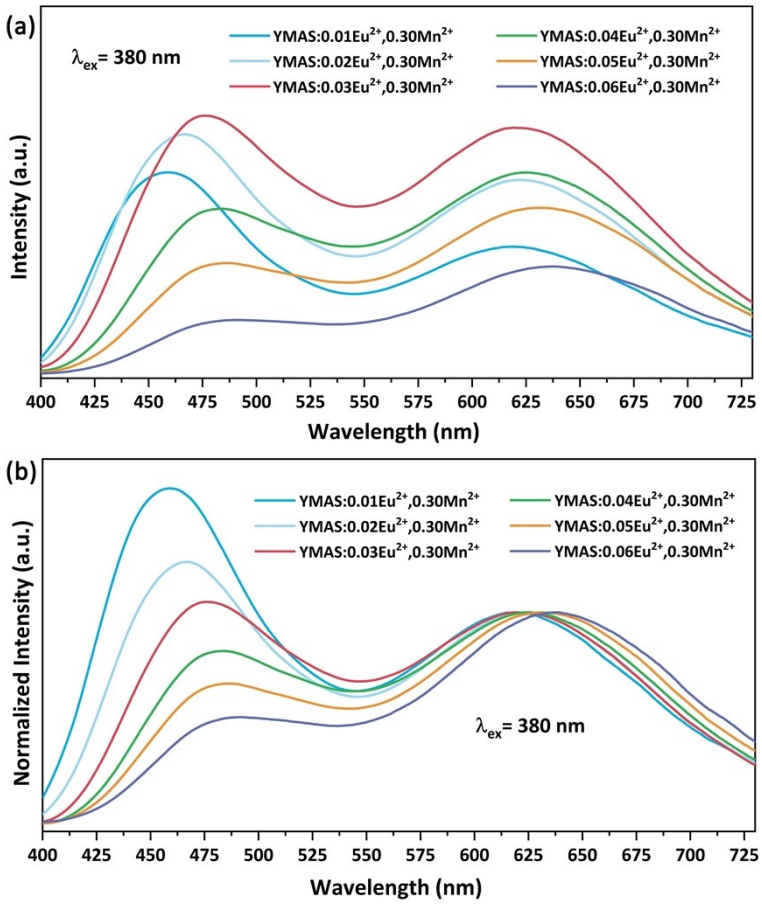

Figure S3. PL spectra (a) and normalized PL spectra (b) of YMAS:xEu^{2+},0.30Mn^{2+} (x = 0.01 – 0.06) excited at 380 nm.

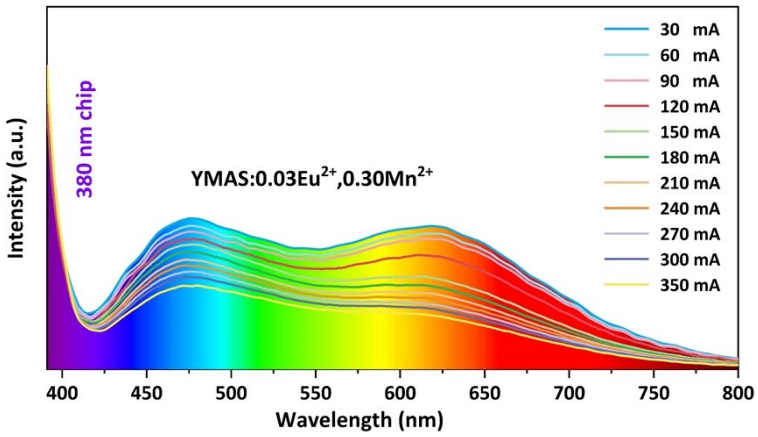

Figure S4. EL spectra of the YMAS:0.03Eu^{2+},0.30Mn^{2+} phosphor-converted LED under various drive currents.

[#] Note: This LED device is not the one shown in Figure 9 in the manuscript.

Table S1. Photoelectric parameters of the YMAS:0.03Eu^{2+},0.30Mn^{2+} phosphor-converted LED under various drive currents.

Current(mA)	CIE	*CCT*	*Ra*
30	(0.3427, 0.3443)	5070	92.2
60	(0.3344, 0.3408)	5410	92.3
90	(0.3283, 0.3388)	5687	92.6
120	(0.3220, 0.3362)	5989	92.8
150	(0.3185, 0.3353)	6164	93.0
180	(0.3153, 0.3339)	6334	93.4
210	(0.3129, 0.3332)	6464	93.6
240	(0.3108, 0.3323)	6581	93.9
270	(0.3092, 0.3322)	6669	94.2
300	(0.3077, 0.3316)	6755	94.4
350	(0.3059, 0.3312)	6859	94.7

[#] Note: This LED device is not the one shown in Figure 9 in the manuscript.