Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Supporting Information

Title: Red-light-chargeable near infrared $MgGeO_3:Mn^{2+},Yb^{3+}$ persistent phosphor for bioimaging and optical information storage applications

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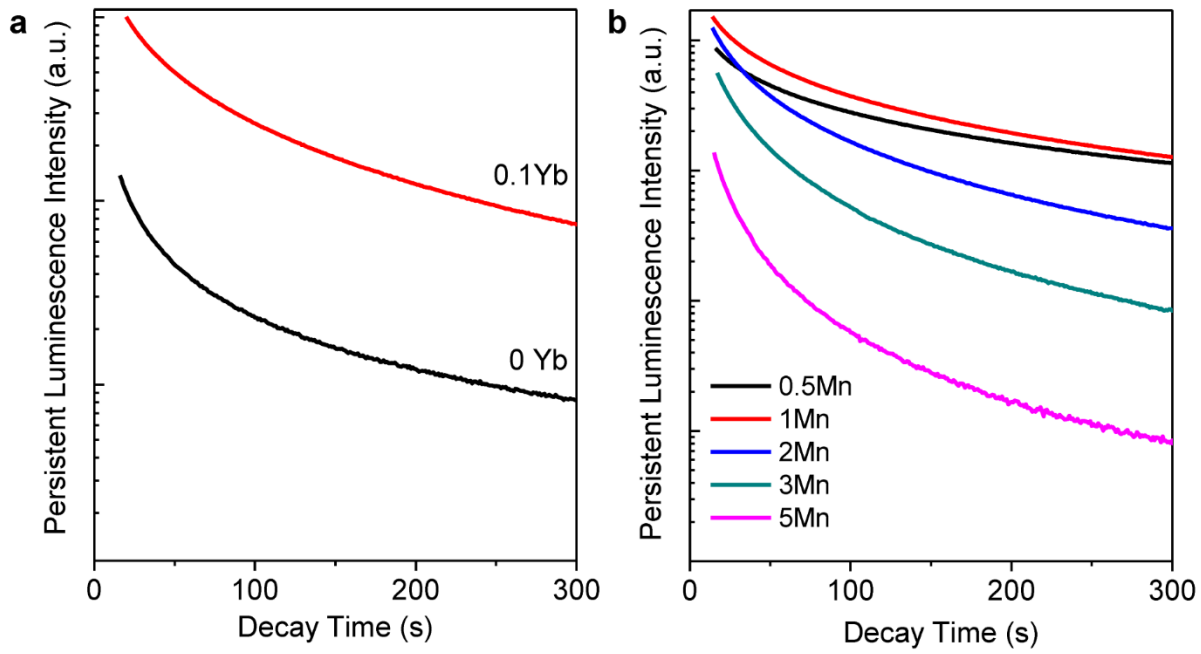

Fig. S1 Effect of Yb^{3+} co-doping (a) and Mn^{2+} concentration (b) on the NIR persistent luminescence properties of MGO:Mn,Yb phosphors.

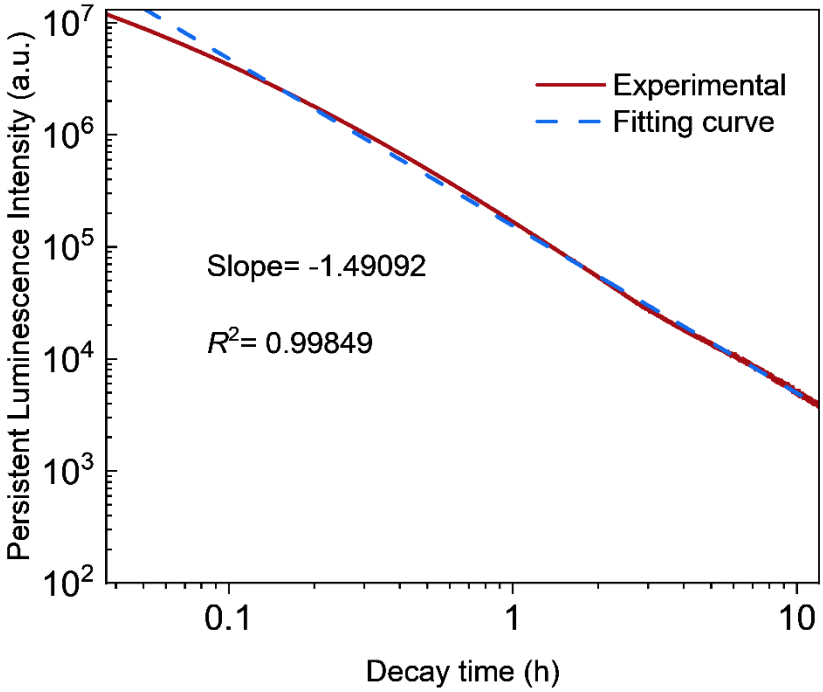

Fig. S2 Persistent luminescence decay curve plotted as a function of the NIR afterglow intensity (I) versus decay time (t) in a double-logarithmic coordinate system.

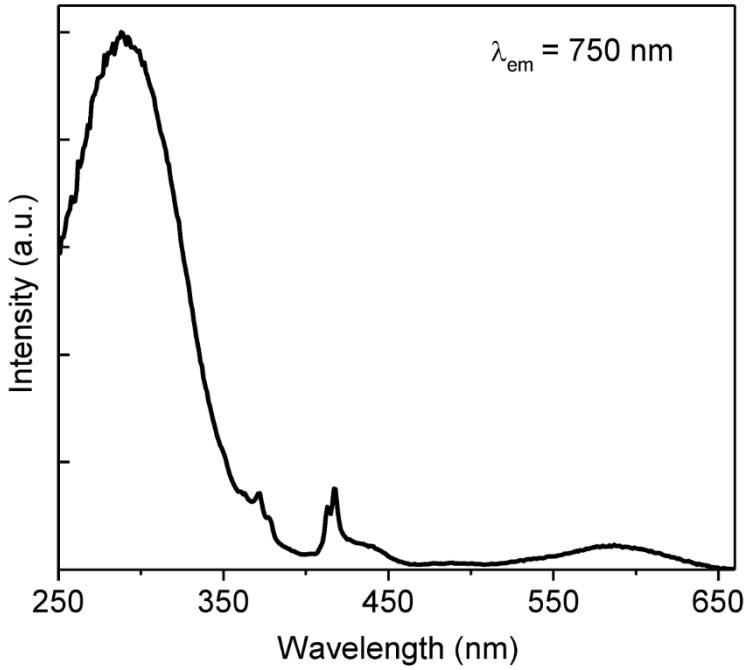

Fig. S3 Excitation spectrum of MGO:Mn,Yb phosphor. The monitoring wavelength is 750 nm. An obvious absorption band peaking at around 600 nm appears in the excitation spectrum, which arises from the $^6A_1 \rightarrow {}^4T_1$ transition of Mn^{2+}.

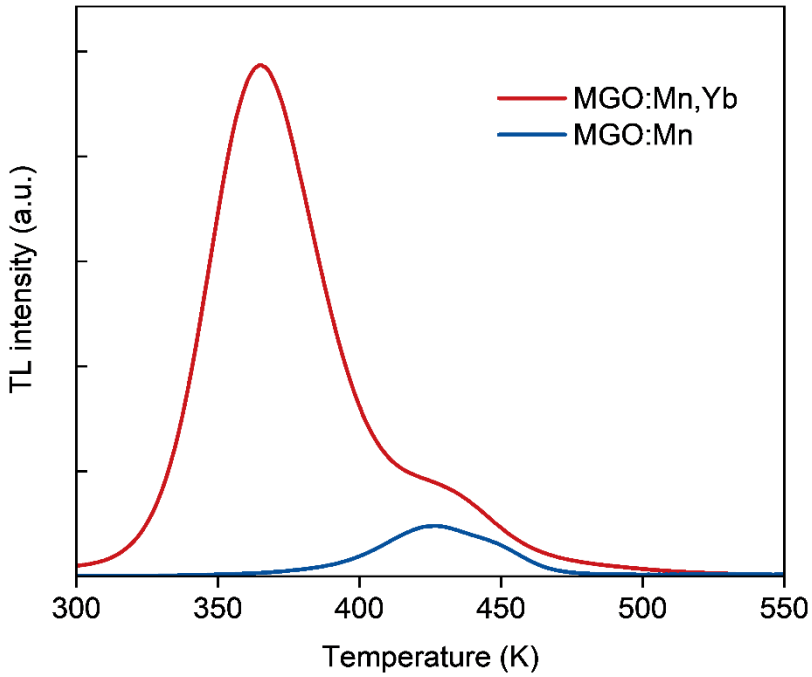

Fig. S4 TL curves of MGO:Mn and MGO:Mn,Yb samples. The curves were obtained after 15 min excitation by 635 nm laser.

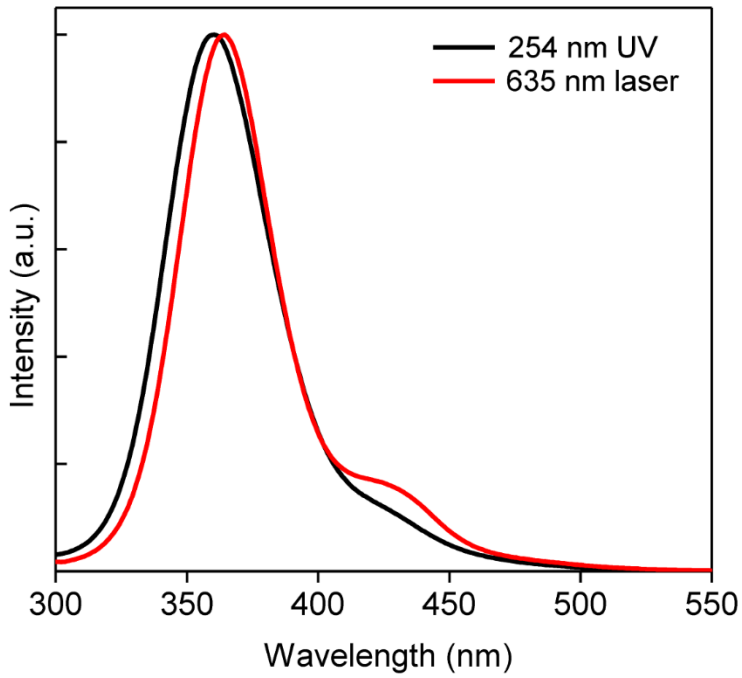

Fig. S5 Normalized thermoluminescence spectra of MGO:Mn,Yb phosphor after irradiation by a 254 nm UV lamp and 635 nm red laser for 15 min, respectively. The thermoluminescence curves were obtained at 60 s decay after ceasing the excitation.

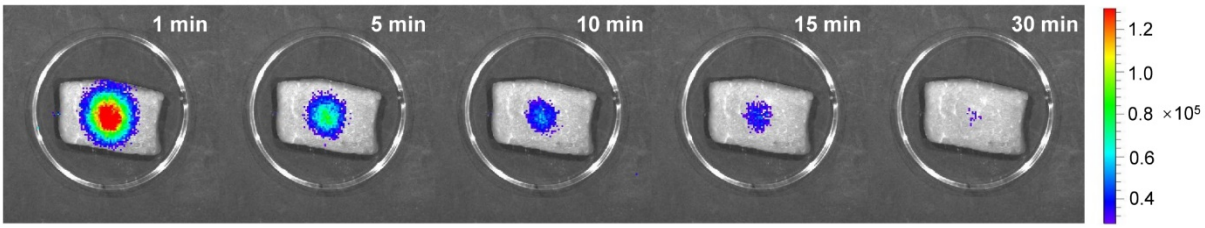

Fig. S6 *In vitro* imaging after *in situ* excitation of MGO:Mn,Yb sample (50 mg) covered by 1 cm pork slice using 635 nm red laser (100 mW, 1 min). The exposure time of imaging system is 20 s.

Table S1 Calculated lattice parameters for MGO:Mn,Yb phosphor and $MgGeO_3$ host.

Parameters	Compounds	
	$MgGeO_3$ (JCPDS No. 76-1387)	$MgGeO_3$
a(Å)	18.8099	18.81087
b(Å)	8.9484	8.95318
c(Å)	5.3451	5.34290
V (Å^3)	899.68	899.84
$\alpha = \beta = \gamma$	90 °	90 °
Z	16	16
R_P	—	6.12 %
R_{WP}	—	8.61 %
χ^2	—	4.915