Electronic Supplementary Information (ESI)

Behaviour of electric and magnetic dipole transitions of Eu^{3+}, $^5D_0 \rightarrow {}^7F_0$ and Eu-O charge transfer band in Li^+ co-doped YPO_4:Eu^{3+}

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This paper is dedicated to Professor N. S. Gajbhiye on the occasion of his 60th birthday

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Table S1 Parameters obtained after mono-exponential equation fitting to decay data.

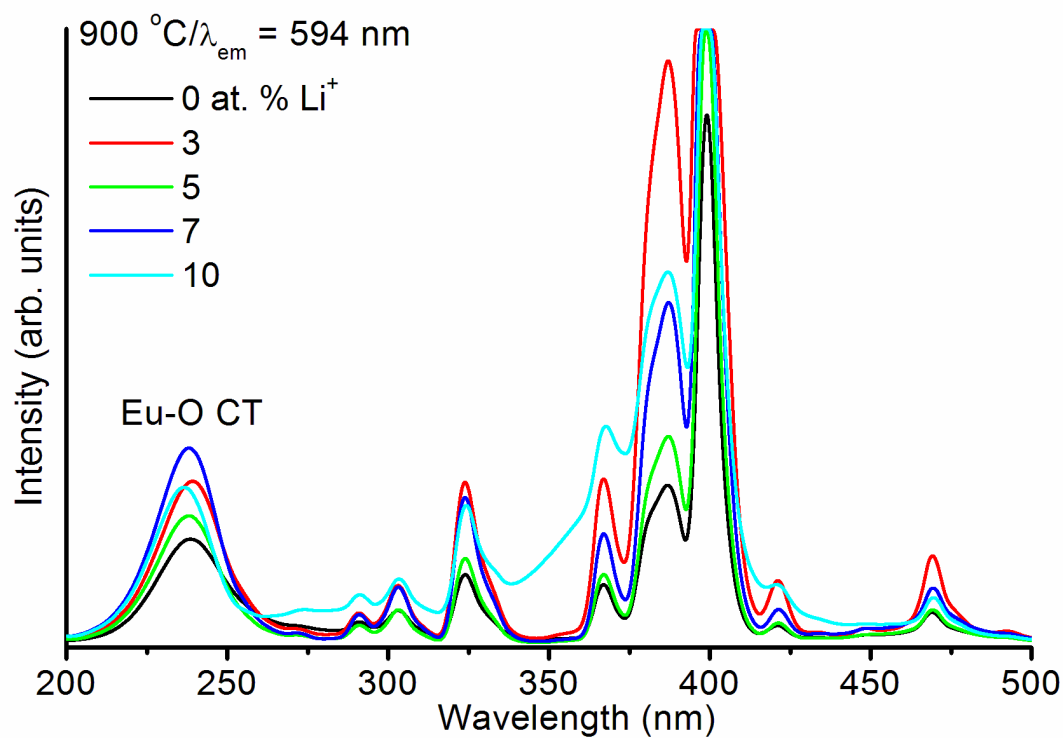| Sample	Li^+ (at.%)	I_1	τ_1 (ms)	χ^2
900 °C	0	461	2.723	4.067
	3	453	3.107	3.401
	10	387	2.450	3.072

Figure S1 Excitation spectrum (monitoring emission at 594 nm) of Li^+ co-doped YPO_4:5Eu (Li^+ = 0, 3, 5, 7 and 10 at. %).
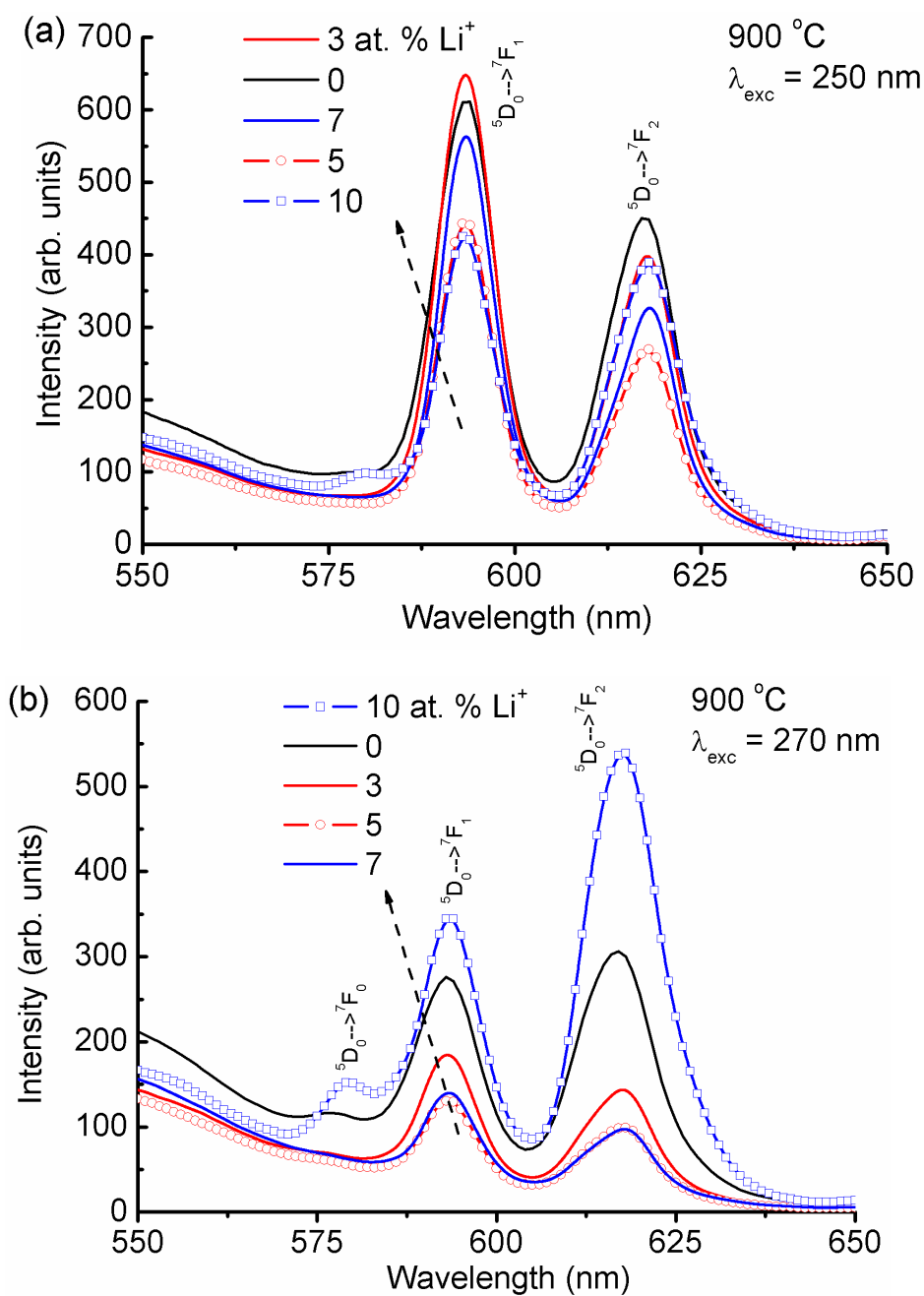
Figure S2 (a and b) Emission spectra of Li$^+$ co-doped YPO$_4$:5Eu samples (Li$^+$ = 0, 3, 5, 7 and 10 at. %) under 250 and 270 nm excitation, respectively.
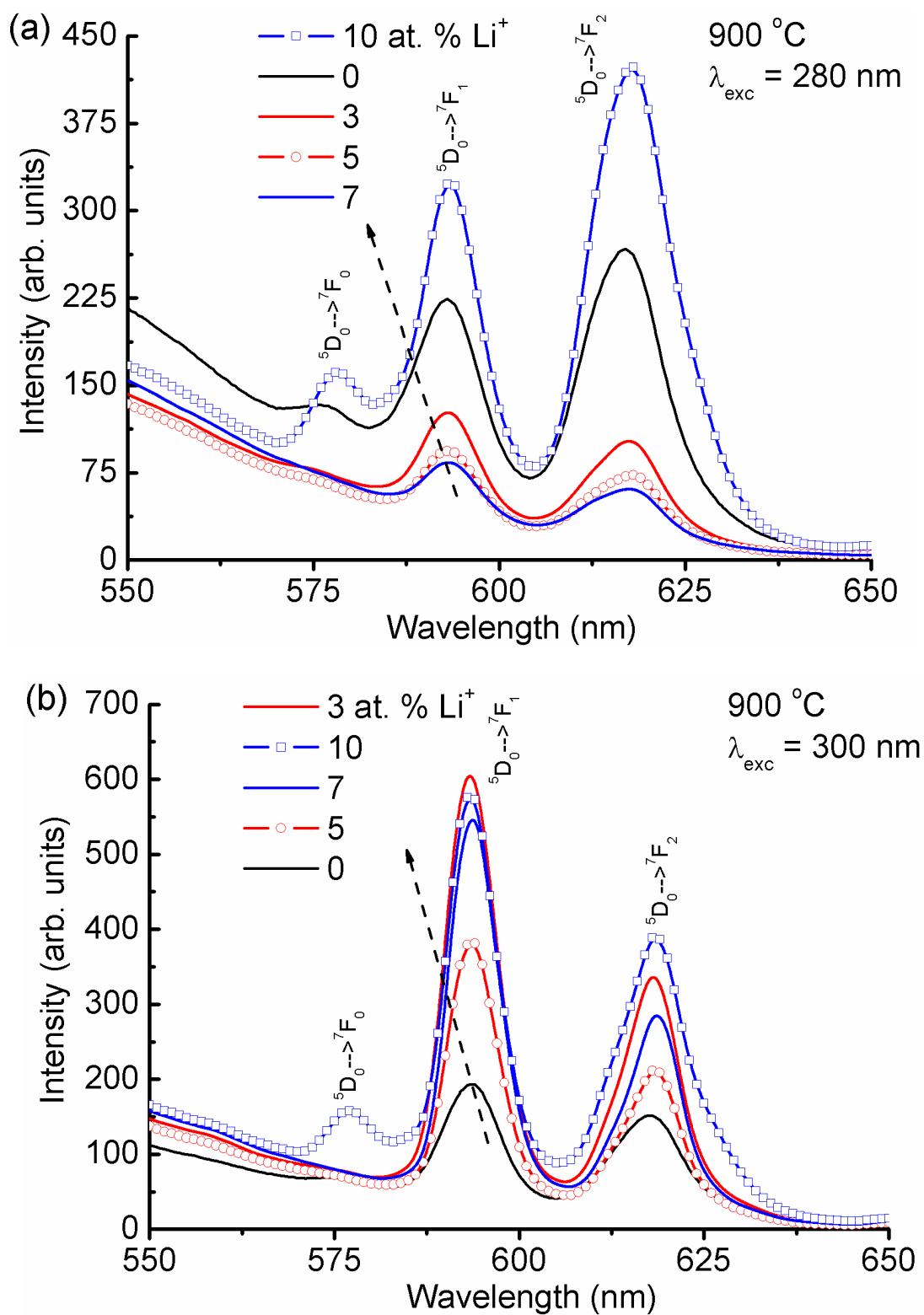
Figure S3 (a and b) Emission spectra of Li^{+} co-doped YPO$_4$:5Eu samples (Li^{+} = 0, 3, 5, 7 and 10 at.%) under 280 and 300 nm excitation, respectively.
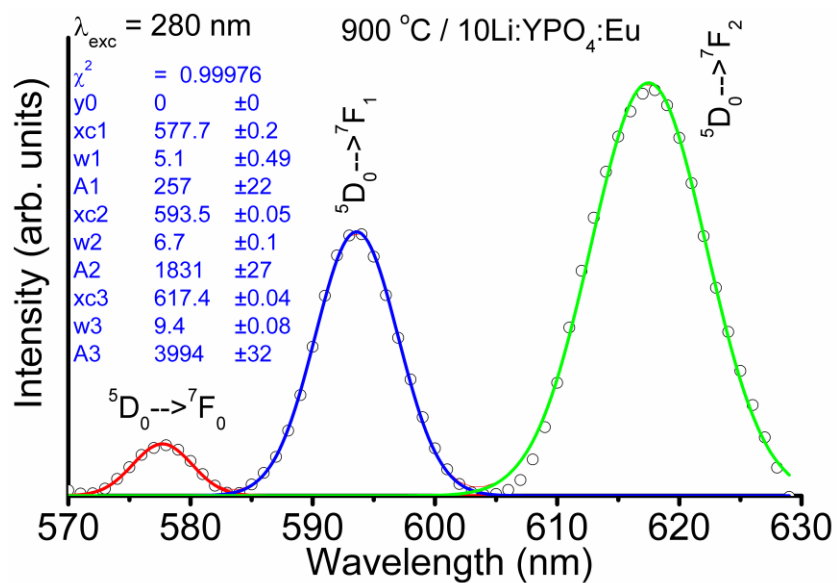
Figure S4 Gaussian distribution fitting to $^5D_0 \rightarrow ^7F_0$ (570-583 nm), $^5D_0 \rightarrow ^7F_1$ (583–603 nm) and $^5D_0 \rightarrow ^7F_2$ (603–630 nm) transitions data of 10 at.% Li$^+$ co-doped YPO$_4$:Eu after baseline correction. Excitation wavelength is at 280 nm. The fitting parameters have given in figure itself.
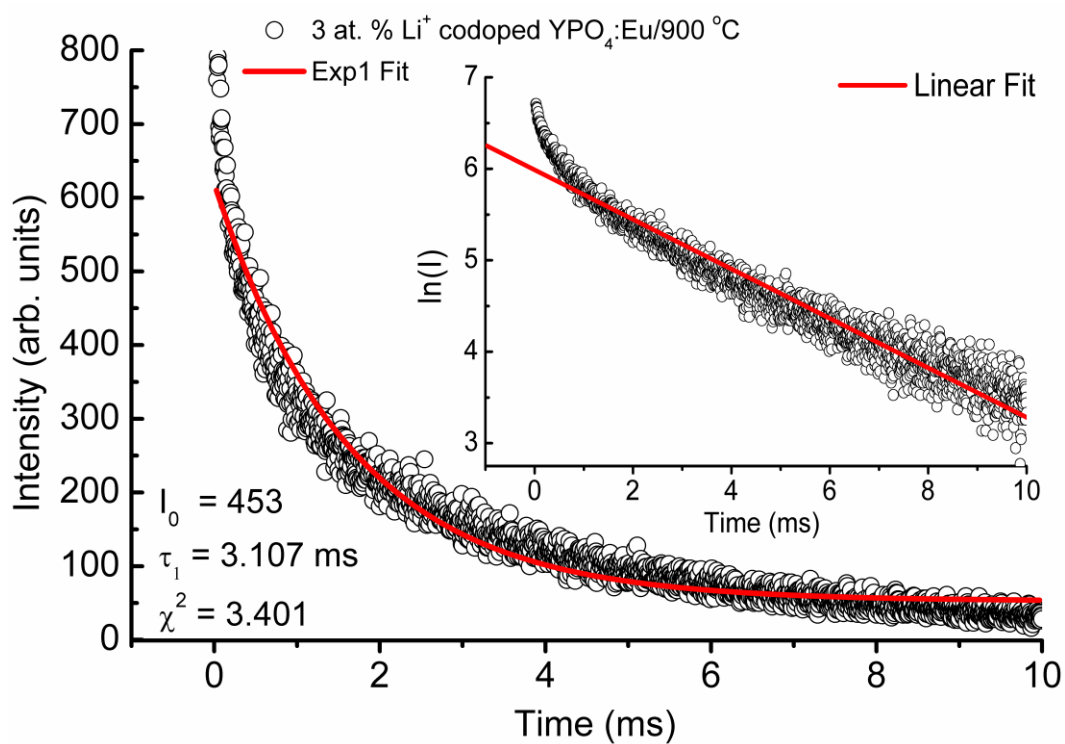
Figure S5 Mono-exponential fittings to luminescence decay data of 3 at. % Li^+ co-doped YPO_4:Eu. Fitting parameters are shown in their figures. Inset shows the $ln(I)$ vs. t plot for same data.