Supporting Information

**NIR Persistent Luminescence of Phosphor Zn$_{1.3}$Ga$_{1.4}$Sn$_{0.3}$O$_4$: Yb$^{3+}$, Er$^{3+}$, Cr$^{3+}$ with Excitation of 980 nm Laser**

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**Figure S1.** (a) the integrated intensity of green/NIR emission band of ZGSO: Yb, Er, x%Cr ($x=0$-3.0); (b) decay curves of Cr$^{3+}$: $^2E$ ($\lambda_{em} = 694$ nm) state in ZGSO: Yb, Er, x%Cr ($x=0$-3.0) samples under the 980 nm laser excitation.
Figure S2. *PersL* intensity decay curves of 694 nm transition in ZGSO: Cr phosphor at 10s after ceasing irradiation for 10 min with 320, 550 and 980 nm light. The inset provides the corresponding *PersL* spectrum of sample at 30 s after 10 minutes of irradiation.

Figure S3. The three-dimensional and corresponding contour mapping TL spectra of ZGSO: Cr phosphor after irradiated by 254 nm UV light for 10 min;
Figure S4. Diffuse absorption spectrum and (inset) the corresponding $(hfF(R_{\infty}))^{2}$-$hv$ plot of Zn$_{1.3}$Ga$_{1.4}$Sn$_{0.3}$O$_{4}$: Cr, Yb, Er phosphor. The optical band-gap ($E_{g}$) of Zn$_{1.3}$Ga$_{1.4}$Sn$_{0.3}$O$_{4}$: Cr, Yb, Er can be estimated by the Kubelka-Munk formula: $a = -Lg(R)$ and $F(R_{\infty}) = S \times (1 - R)^{2} / (2 \times R)$ as well as $(hv \times F(R_{\infty}))^{2} = A \times (hv - E_{g})$, where $a$, $R$ and $S$ are the absorption, reflection and diffusion coefficients, respectively, $A$ denotes proportional constant. According to the intercepts of the blue dashed straight line, the value of $E_{g}$ is calculated to be 4.71 eV.