Supporting Information

Temperature dependent persistent luminescence: Evaluating the optimum working temperature

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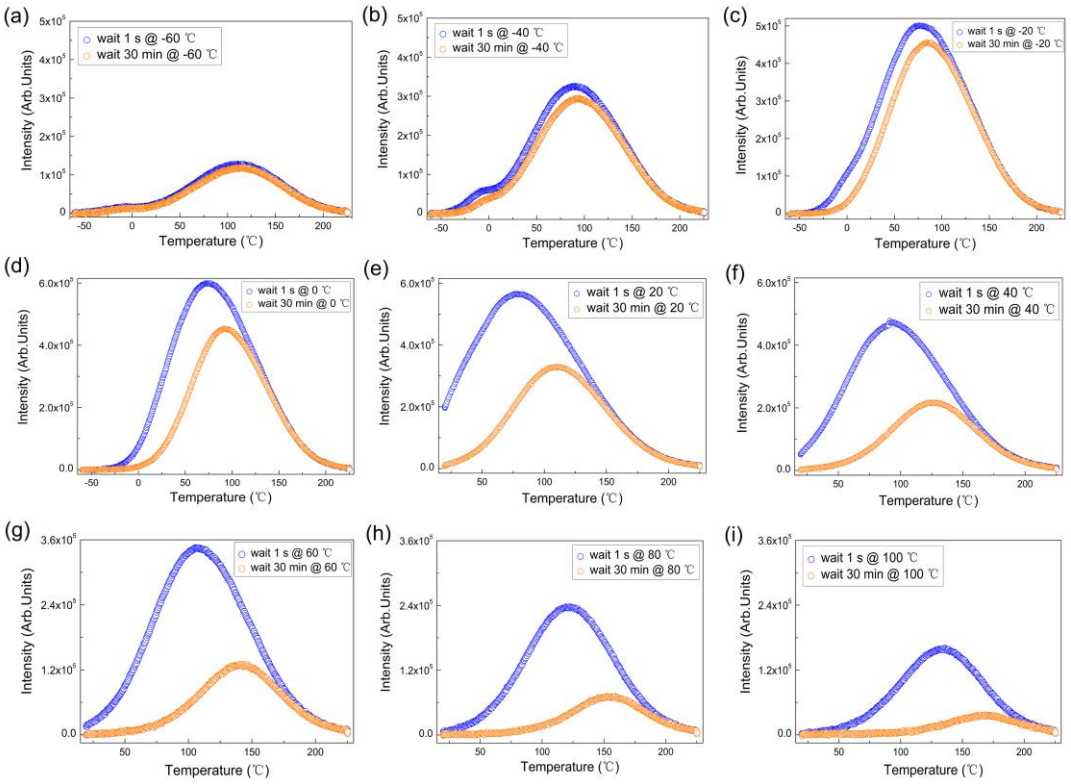

Figure S1. TL glow curves of $SrAl_2O_4:Eu^{2+}$, Dy^{3+} (SAO) at various charging temperatures for different fading times (after irradiation for 10 min at charging temperature from -60 ℃ to 100 ℃, fading time was chosen as 1 s or 30 min, and TL curves were collected with a constant heating rate of 30 ℃ min^{-1}).

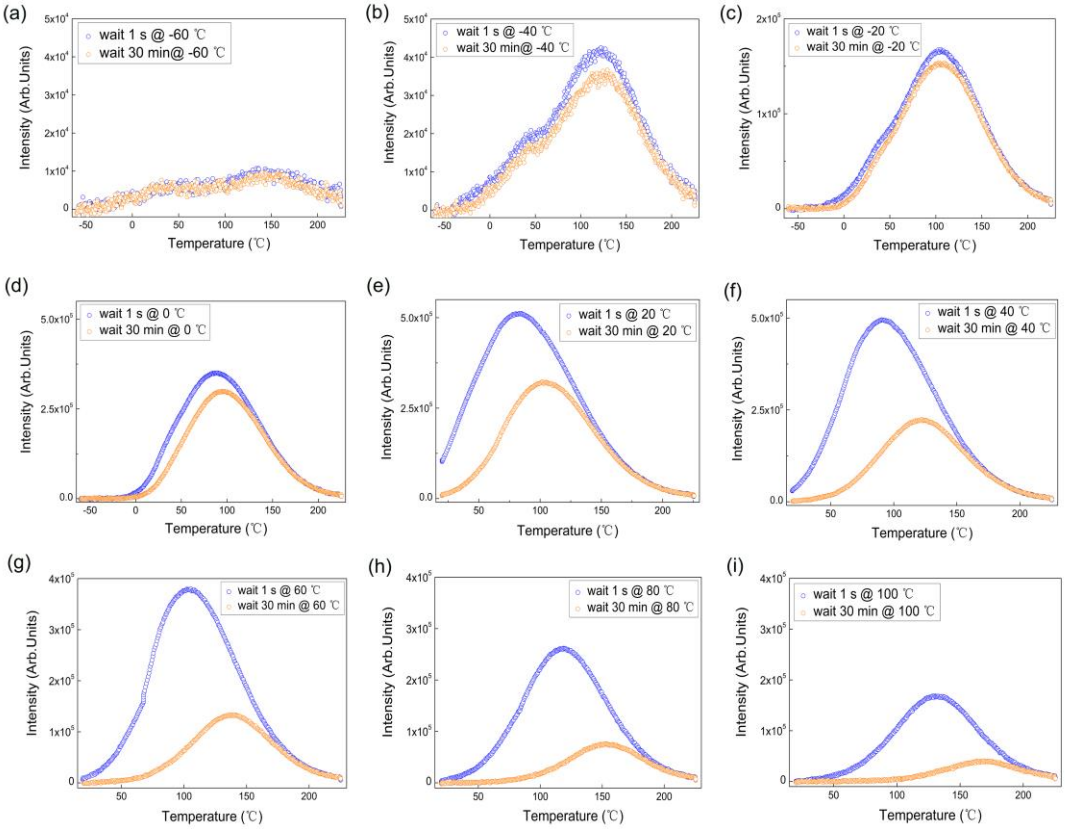

Figure S2. TL glow curves of $Sr_4Al_{14}O_{25}:Eu^{2+}$, Dy^{3+} (SAO25) at various charging temperatures for different fading times (after irradiation for 10 min at charging temperature from -60 ℃ to 100 ℃, fading time was chosen as 1 s or 30 min, and TL curves were collected with a constant heating rate of 30 ℃ min^{-1}).

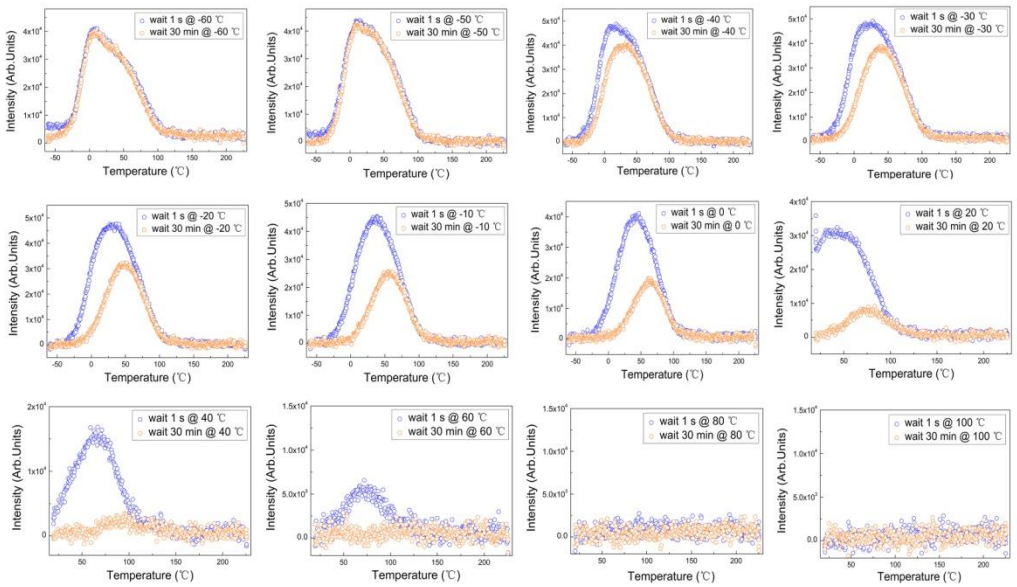

Figure S3. TL glow curves of $Y_2O_2S:Eu^{3+}$, Mg^{2+}, Ti^{4+} (YOS) at various charging temperatures for different fading times (after irradiation for 10 min at charging temperature from -60 ℃ to 100 ℃, fading time was chosen as 1 s or 30 min, and TL curves were collected with a constant heating rate of 30 ℃ min^{-1}).

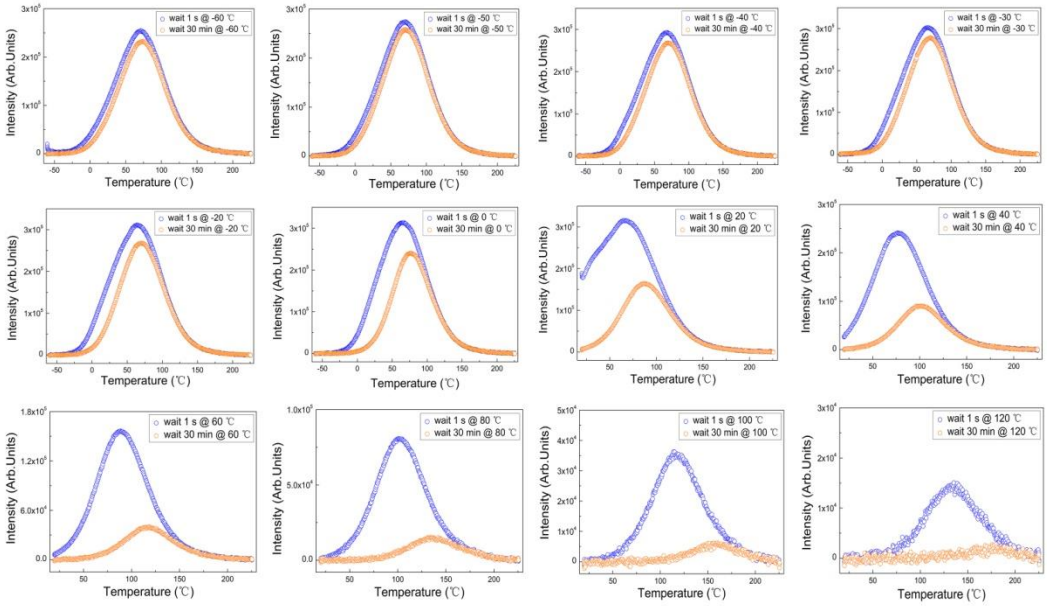

Figure S4. TL glow curves of $CaAl_2O_4:Eu^{2+}$, Nd^{3+} (CAO) at various charging temperatures for different fading times (after irradiation for 10 min at charging temperature from -60 ℃ to 120 ℃, fading time was chosen as 1 s or 30 min, and TL curves were collected with a constant heating rate of 30 ℃ min^{-1}).

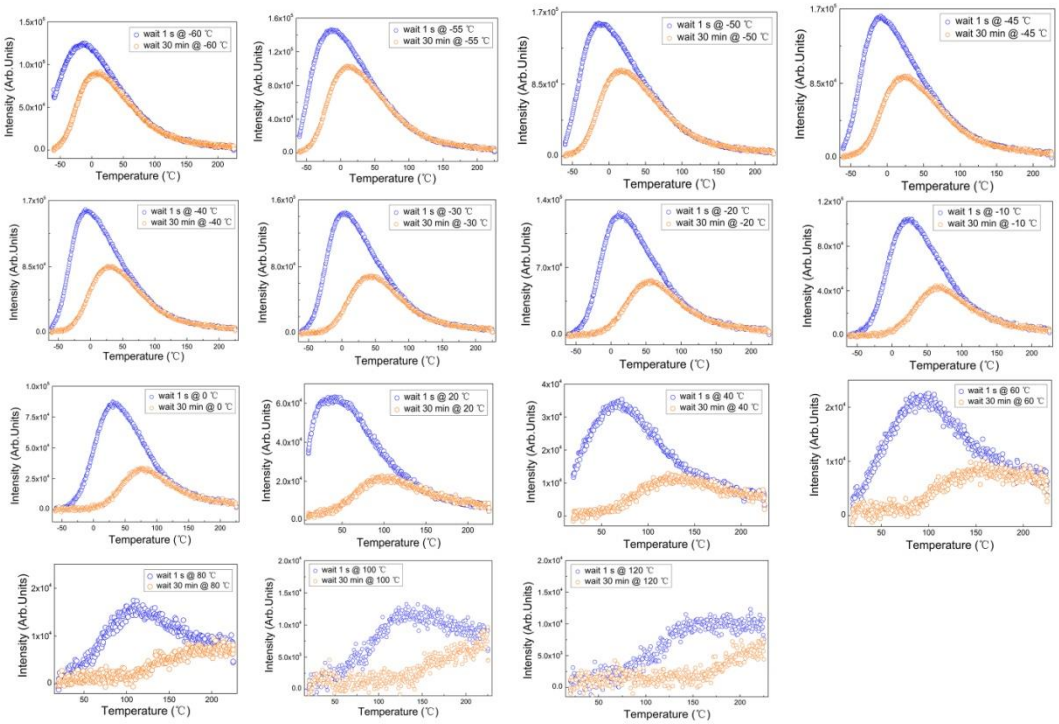

Figure S5. TL glow curves of CaS:Eu^{2+}, Dy^{3+} (CaS) at various charging temperatures for different fading times (after irradiation for 10 min at charging temperature from -60 ℃ to 120 ℃, fading time was chosen as 1 s or 30 min, and TL curves were collected with a constant heating rate of 30 ℃ min^{-1}).

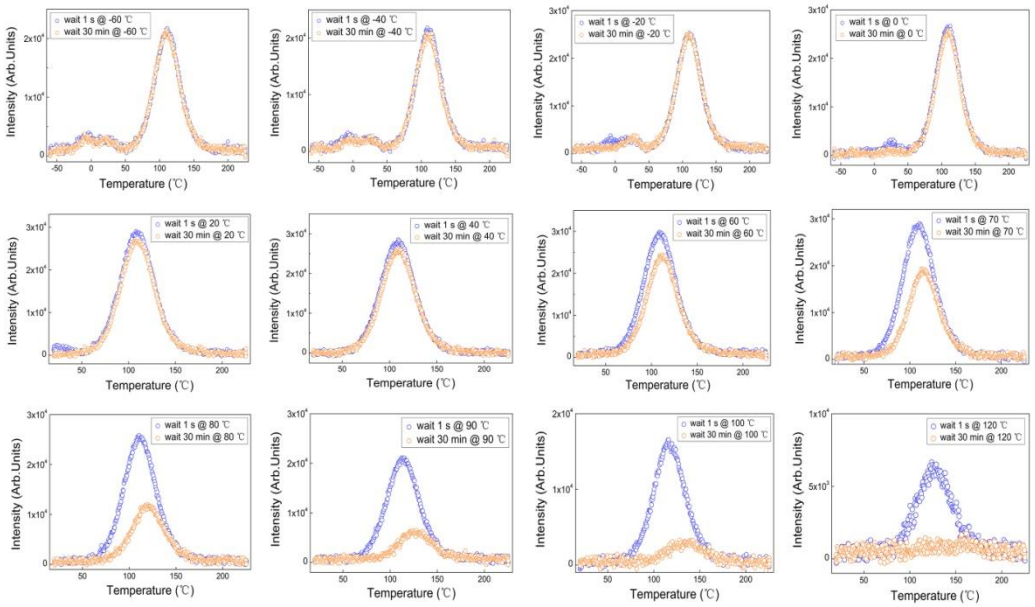

Figure S6. TL glow curves of $LaAlO_3$:Mn^{4+}, Na^+ (LAO) at various charging temperatures for different fading times (after irradiation for 10 min at charging

temperature from -60 ℃ to 120 ℃, fading time was chosen as 1 s or 30 min, and TL curves were collected with a constant heating rate of 30 ℃ min^{-1}).

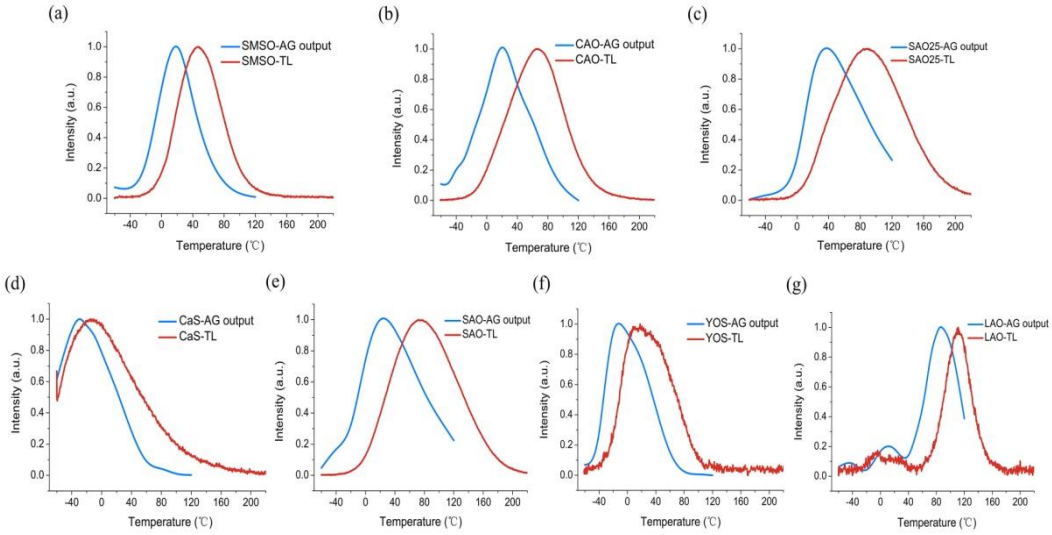

Figure S7: Comparison of the afterglow output and its TL glow curve of each LPP in (a) SMSO; (b) CAO; (c) SAO25; (d) CaS; (e) SAO; (f) YOS; (g) LAO.

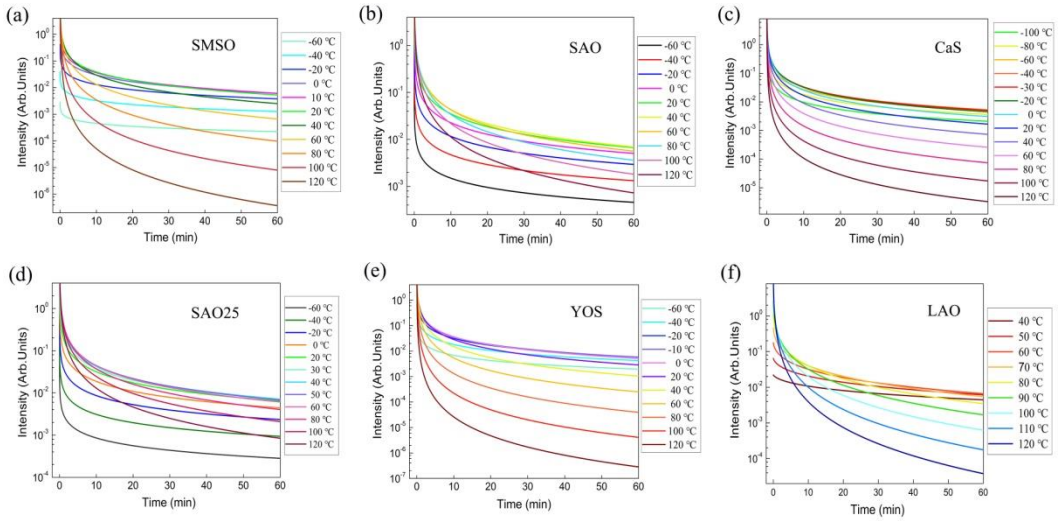

Figure S8. Prediction of afterglow profiles of the persistent phosphors (a) SMSO (b) SAO (c) CaS (d) SAO25 (e) YOS (f) LAO at different temperatures.