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Supporting Information

Long-lasting ultraviolet-A persistent luminescence and photostimulated persistent luminescence in Bi³⁺-doped LiScGeO₄ phosphor

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Supplementary Figures S1–S7



Fig. S1. Emission spectra of $LiScGeO_4:x\%Bi^{3+}$ (x=0.5, 1, 2, 3 and 5) phosphors. The emission spectra are acquired under 280 nm light excitation



Fig. S2. Effect of Bi^{3+} doping concentration on the persistent luminescence performance of LiScGeO₄: Bi^{3+} phosphors. The persistent luminescence decay curves were monitored at 365 nm after irradiation by a 254 nm UV lamp for 10 min.



Fig. S3. Effect of excitation duration on the charging capability and the persistent luminescence performance of $\text{LiScGeO}_4:\text{Bi}^{3+}$ phosphor. The persistent luminescence decay curves were monitored at 365 nm after irradiation by a 254 nm UV lamp for various time from 1 min to 15 min.



Fig. S4. Persistent luminescence emission spectra of LiBiGeO_4 :Bi³⁺ phosphor at 24–120 h after the stoppage of the irradiation. The sample was irradiated by a 254 nm UV lamp for 10 min.



Fig. S5. Room temperature persistent luminescence decay curves of $LiScGeO_4:Bi^{3+}$ phosphor irradiated by monochromatic light between 250–360 nm for 5 min. The monitoring wavelength is 365 nm. The effectiveness of excitation decreases when the excitation wavelength is increased from 250 nm to 360 nm. The persistent luminescence intensity at time of 30 s after the stoppage of the irradiation (I_{30s}) was used to plot the persistent luminescence intensity as a function of excitation wavelength shown in Fig. 4b. No persistent luminescence emission was observed when the excitation wavelength was longer than 350 nm.



Fig. S6. UV-irradiation-induced coloration in LiScGeO_4 host. The right side of the disc was irradiated by a 254 nm UV lamp for 10 min, while the left side was covered by a piece of black paper.



Fig. S7. Thermoluminescence curve of the undoped LiScGeO_4 over 25–300 °C. The curve was measured at 1 min after irradiation by a 254 nm UV lamp for 10 min.