Supporting Information

Defect-induced new persistent cyan emitting rare-earth free phosphors for dynamic anti-counterfeiting and plant growth LED applications

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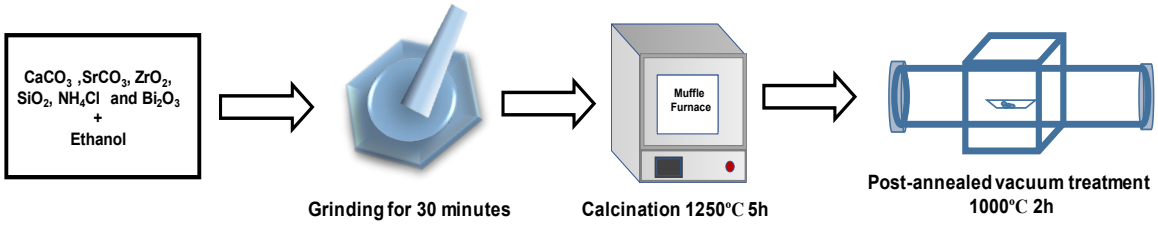

Fig. S1 Schematic representation of the synthesis procedure of persistent phosphors.

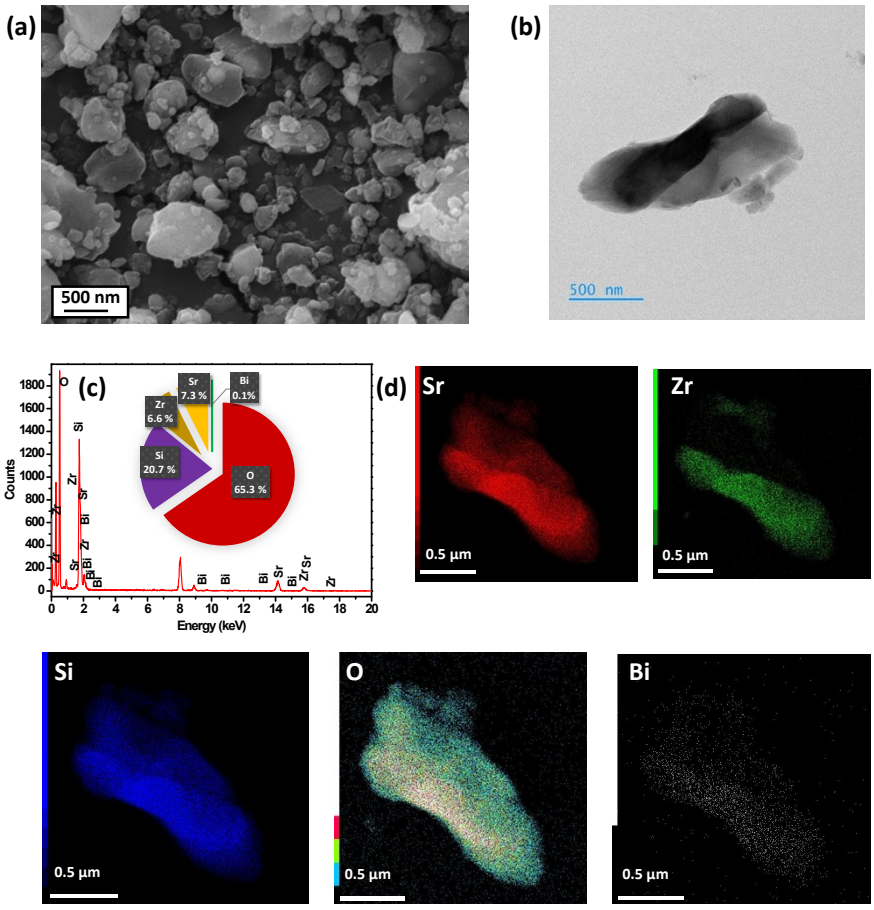

Fig. S2. (a) SEM image and **(b)** TEM image of SZSO6: 12wt% NH_4Cl, $0.02Bi^{3+}$ sample. **(c)** The EDAX spectrum and atomic percentage of elements in SZSO6: 12 wt% NH_4Cl, $0.02Bi^{3+}$. **(d)** EDAX elemental mapping of Sr, Zr, Si, O and Bi for SZSO6: 12 wt% NH_4Cl, $0.02Bi^{3+}$ phosphor.

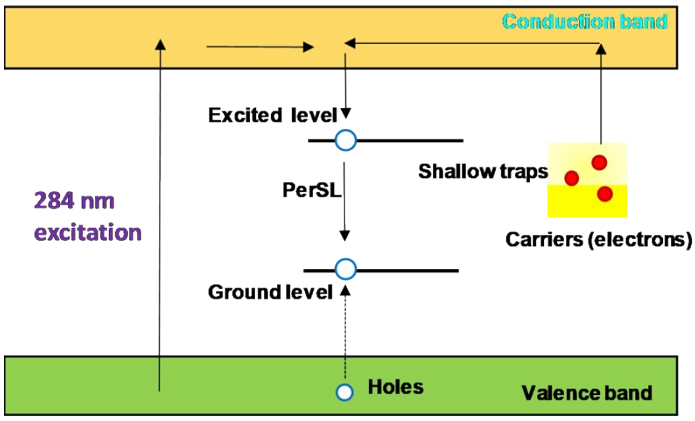

Fig. S3. Persistent luminescence mechanism of SZSO6: 12wt%NH_4Cl, 0.02 Bi^{3+}.

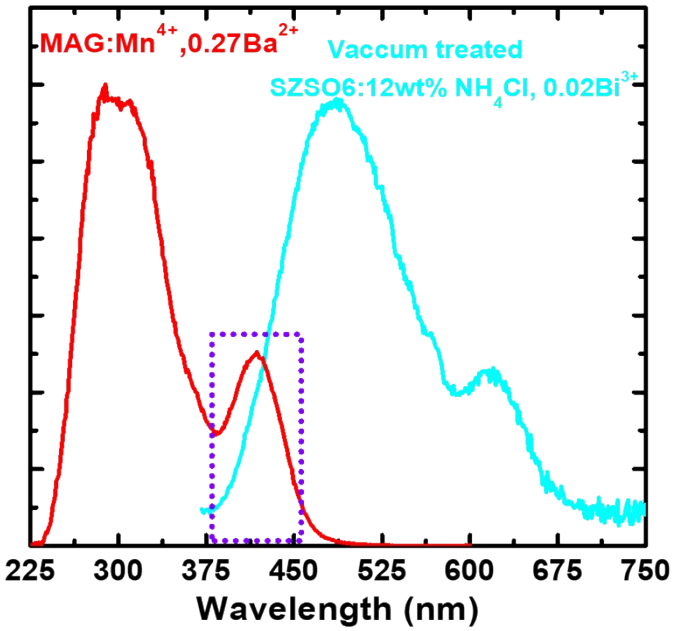

Fig. S4 PLE spectrum of MAG: Mn^{4+}, 0.27Ba^{2+} (λ_{em}: 659 nm) and PL emission (λ_{ex}: 284 nm) spectrum of SZSO6: 12wt% NH_4Cl.