Supplementary materials

Correlation between persistent-luminescence and mechanoluminescence of Sm³⁺ doped YPO₄

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Figure S1. Diffuse reflection absorption (purple), PL (excitation: 407 nm, orange) and PLE (emission: 606 nm, blue) spectra of YPO₄:1%Sm³⁺.



Figure S2. PL spectra of YPO₄ doped with different concentration of Sm^{3+} (excitation: 407 nm).



Figure S3. PLE spectra of YPO₄ doped with different concentration of Sm^{3+} (emission: 606 nm).



Figure S4. PLE intensity of YPO₄:Sm³⁺ as a function of Sm³⁺ content (emission: 606 nm). It was obtained relying on supplementary Figure S3.



Figure S5. Emission quantum yield (QY) result of YPO₄:1%Sm³⁺.



Figure S6. Emission decay curves of YPO₄ with different concentration of Sm^{3+} (emission: 606 nm): (a) 0.5%, (b) 1%, (c) 2%, (d) 3% and (e) 4%. (f) Comparison of lifetime of YPO₄: Sm^{3+} (emission: 606 nm) with different concentration of Sm^{3+} .