

## Supporting Information

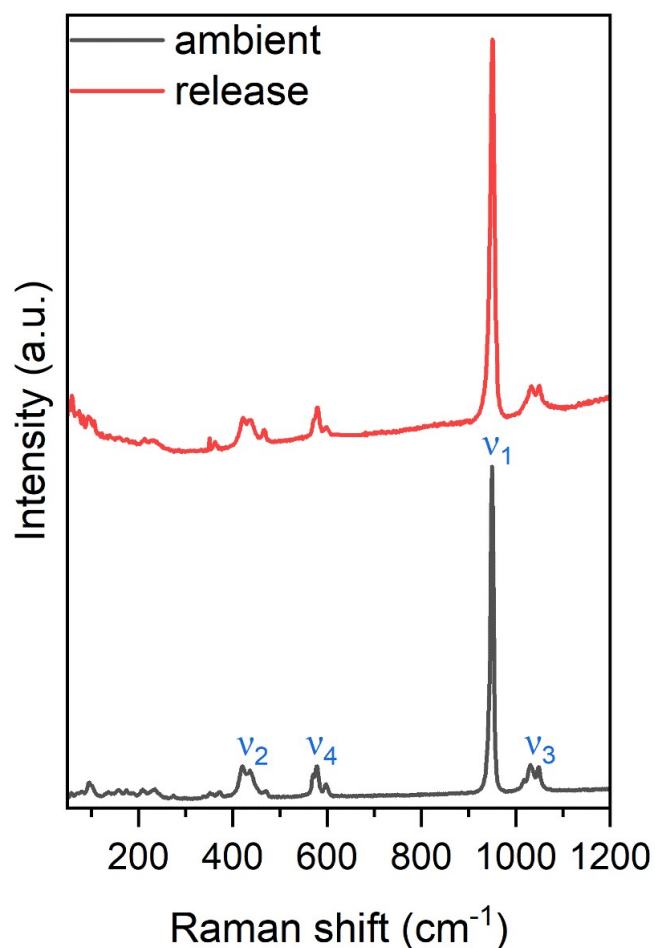
### Regulating the photoluminescence and energy transfer process of $\text{Sr}_5(\text{PO}_4)_3\text{Cl}:\text{Eu}^{2+}, \text{Mn}^{2+}$ via pressure-induced phase transition

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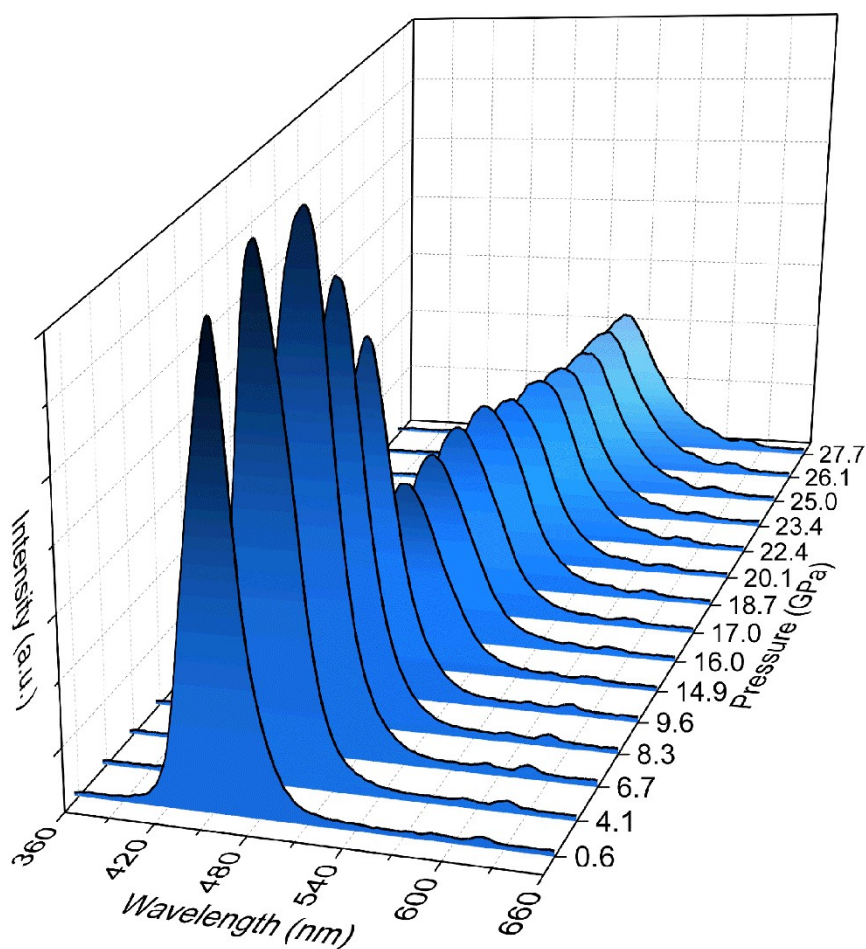
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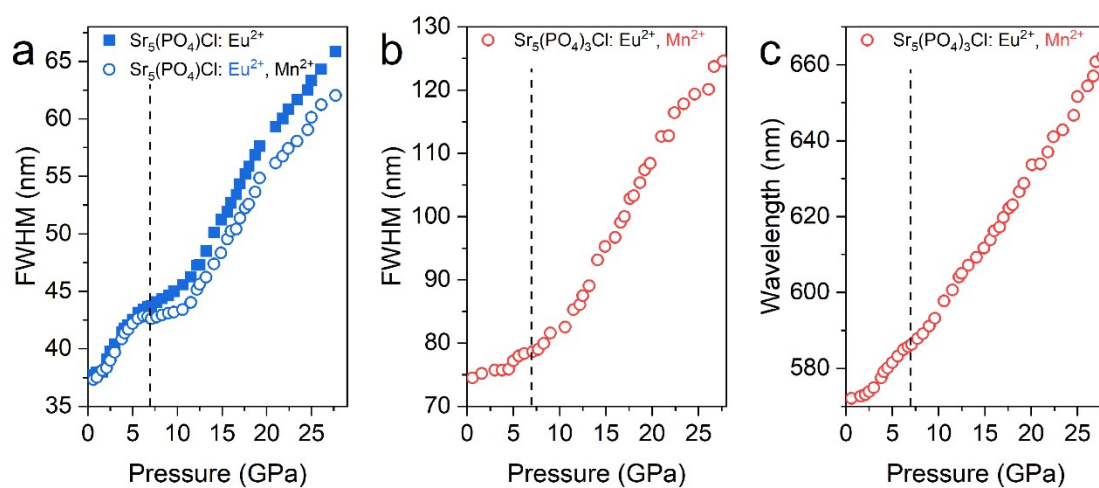
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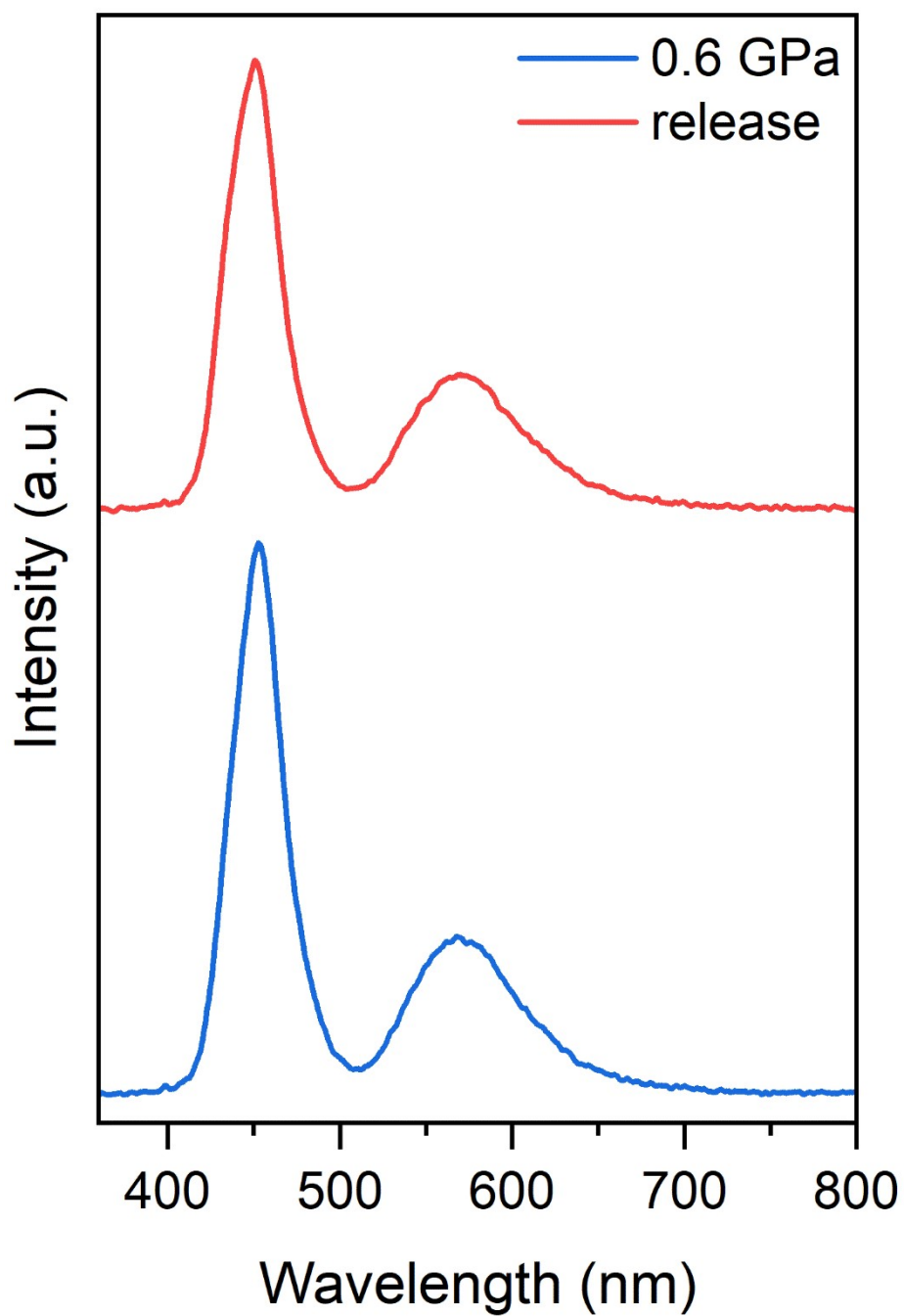
**Figure S1.** Raman spectra of  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}$  at ambient condition and after releasing pressure.



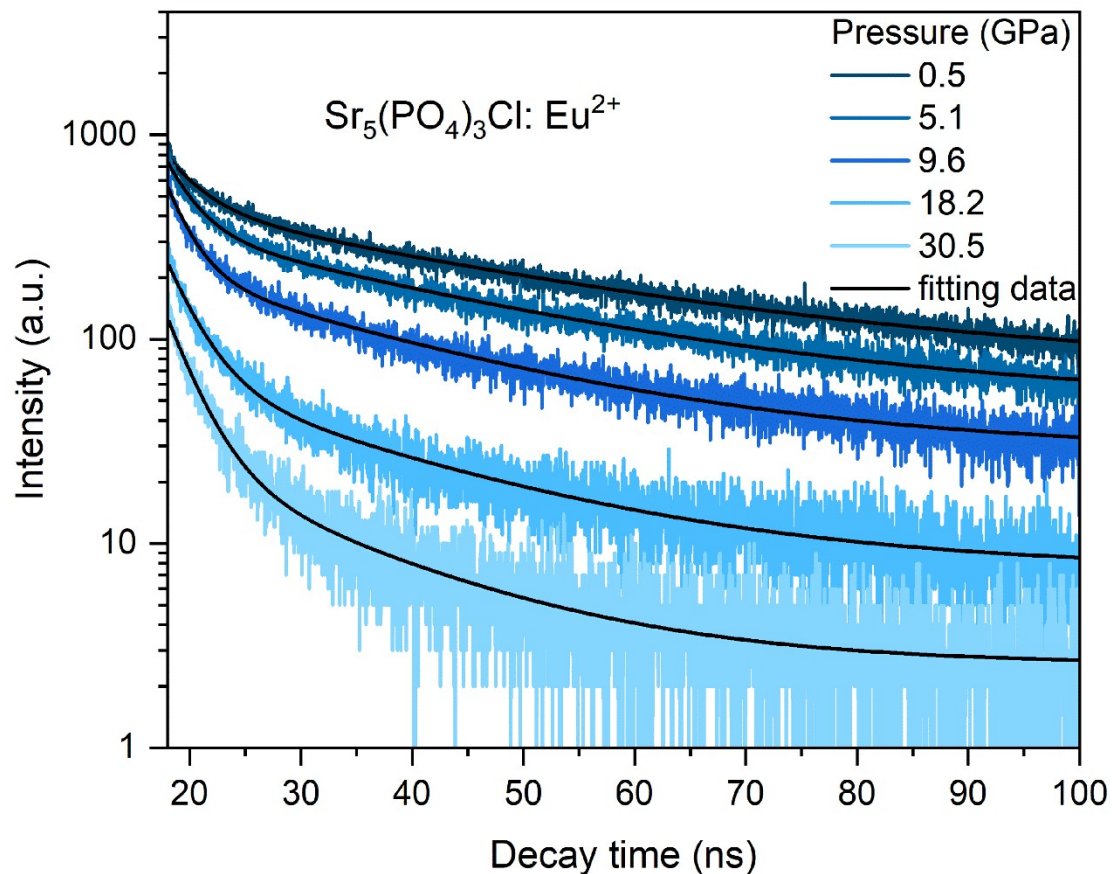
**Figure S2.** *in-situ* HP PL of  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}: 0.02\text{Eu}^{2+}$ .



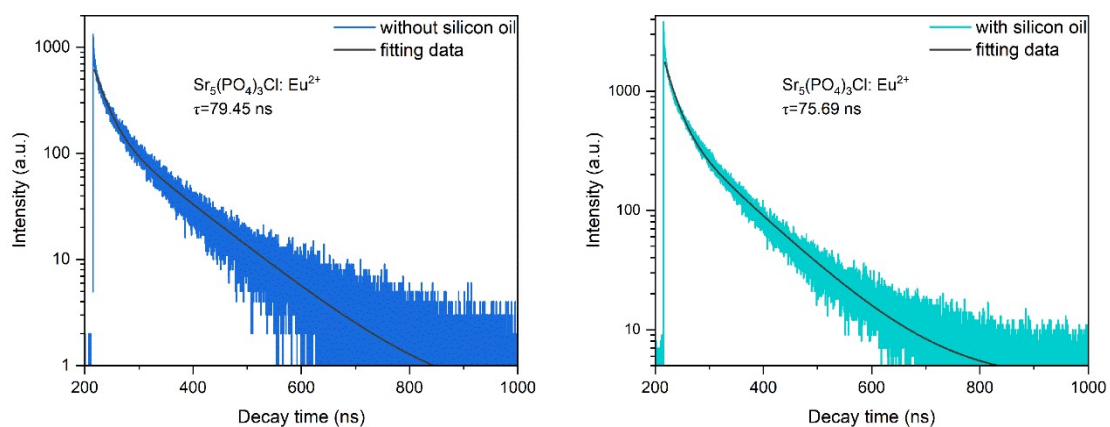
**Figure S3.** (a) The FWHM changes of  $\text{Eu}^{2+}$  for  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}: 0.02\text{Eu}^{2+}, x\text{Mn}^{2+}$  ( $x=0$  and  $0.04$ ) under different hydrostatic pressures. The emission wavelength (b) and FWHM (c) changes of  $\text{Mn}^{2+}$  for  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}: 0.02\text{Eu}^{2+}, 0.04\text{Mn}^{2+}$ .



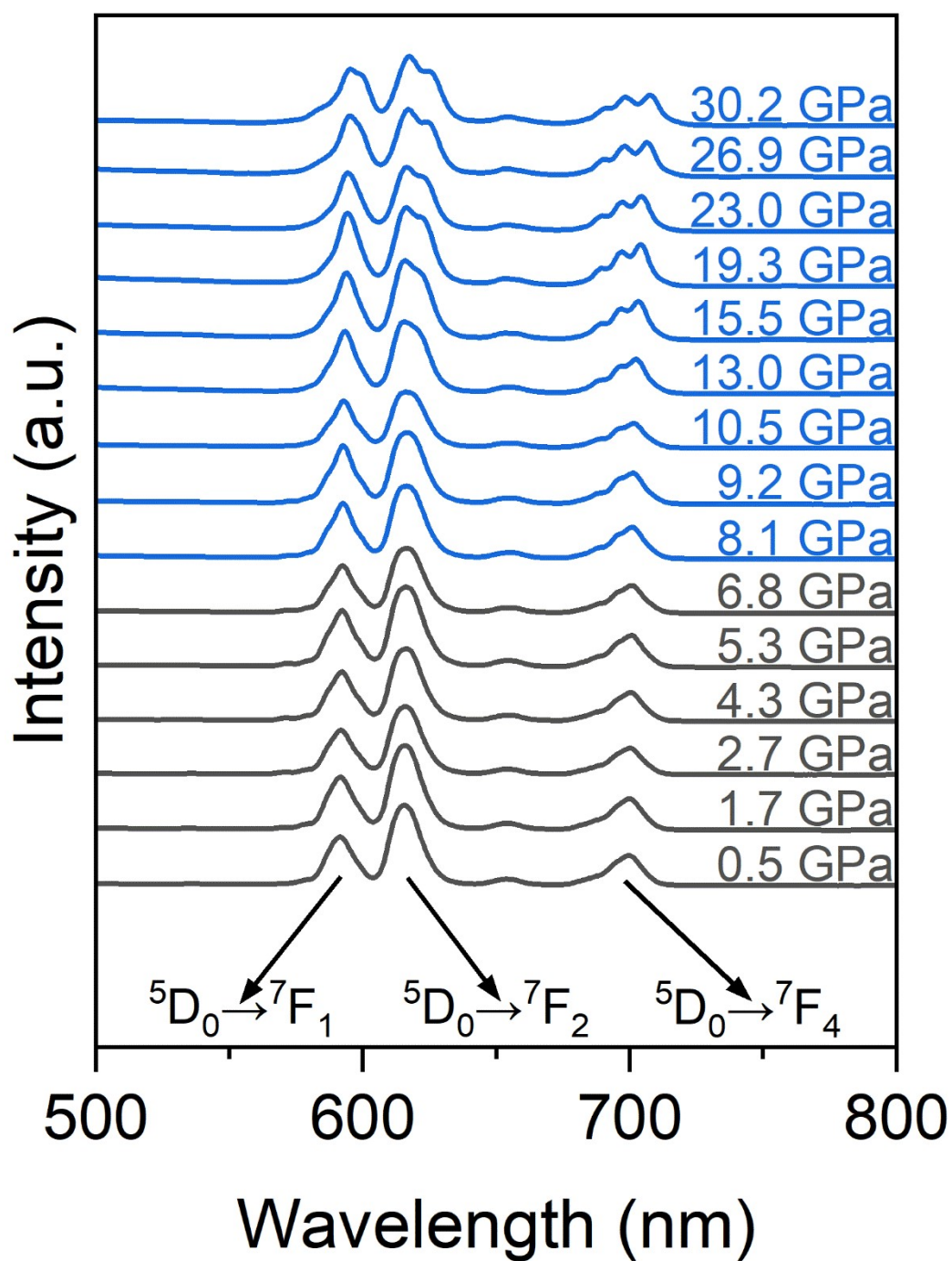
**Figure S4.** PL spectra of  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}:0.02\text{Eu}^{2+}, 0.04\text{Mn}^{2+}$  at 0.6 GPa and after releasing pressure.



**Figure S5.** Decay time of  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}: 0.02\text{Eu}^{2+}$  under different pressure.



**Figure S6.** Decay time of  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}: 0.02\text{Eu}^{2+}$  with and without silicon oil at ambient condition.



**Figure S7.** The emission spectra of  $\text{Sr}_5(\text{PO}_4)_3\text{Cl}: 0.005\text{Eu}^{3+}$  used as *in-situ* HP  $\text{Eu}^{3+}$  probe experiments.