

**Structure transformation and remarkable site-distribution modulation of  $\text{Eu}^{3+}$  ions in  $\text{CaMoO}_4:\text{Eu}^{3+}$  nanocrystals  
under high pressure**

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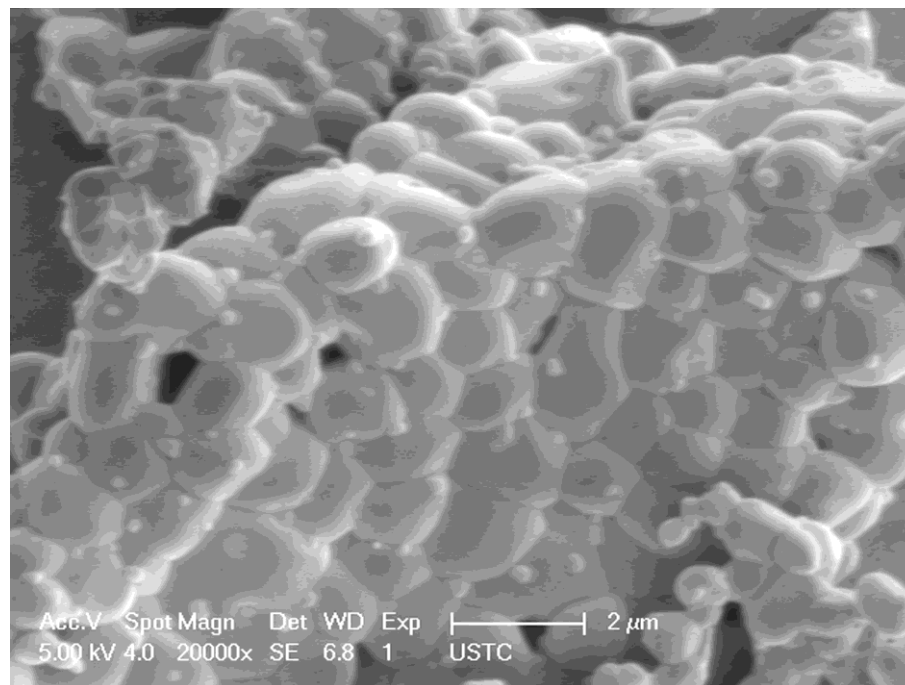
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**Experimental results:**



**Fig. S1** The SEM image of CaMoO<sub>4</sub>:Eu<sup>3+</sup> calcined at 1000 °C for 6 hours.

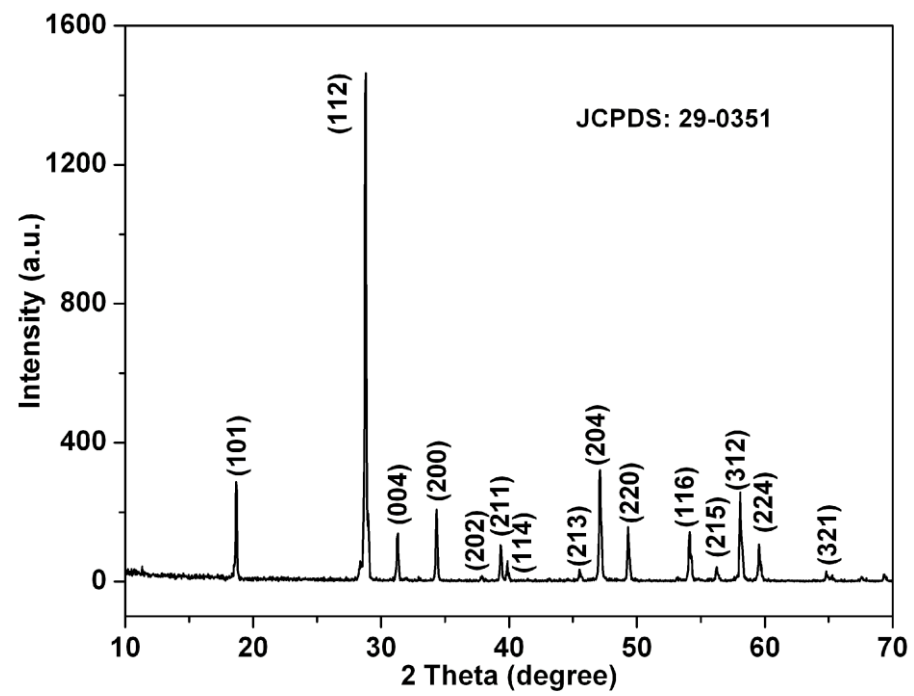
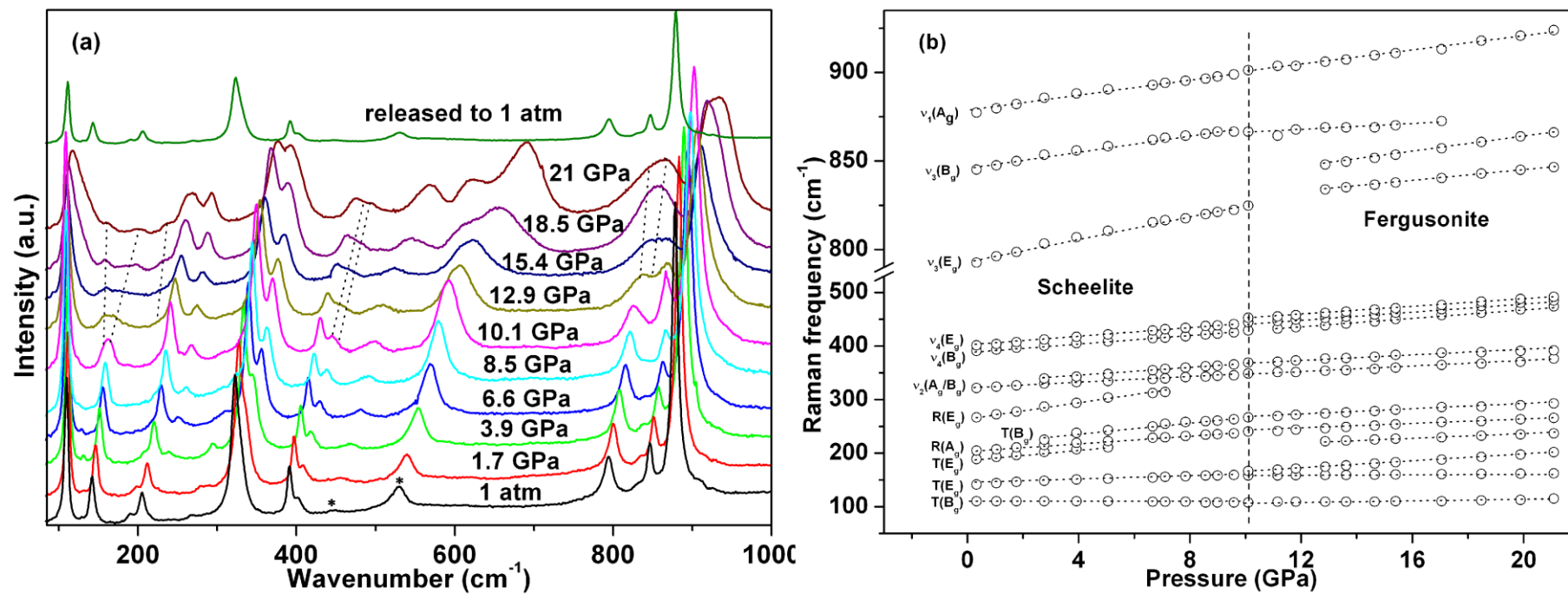
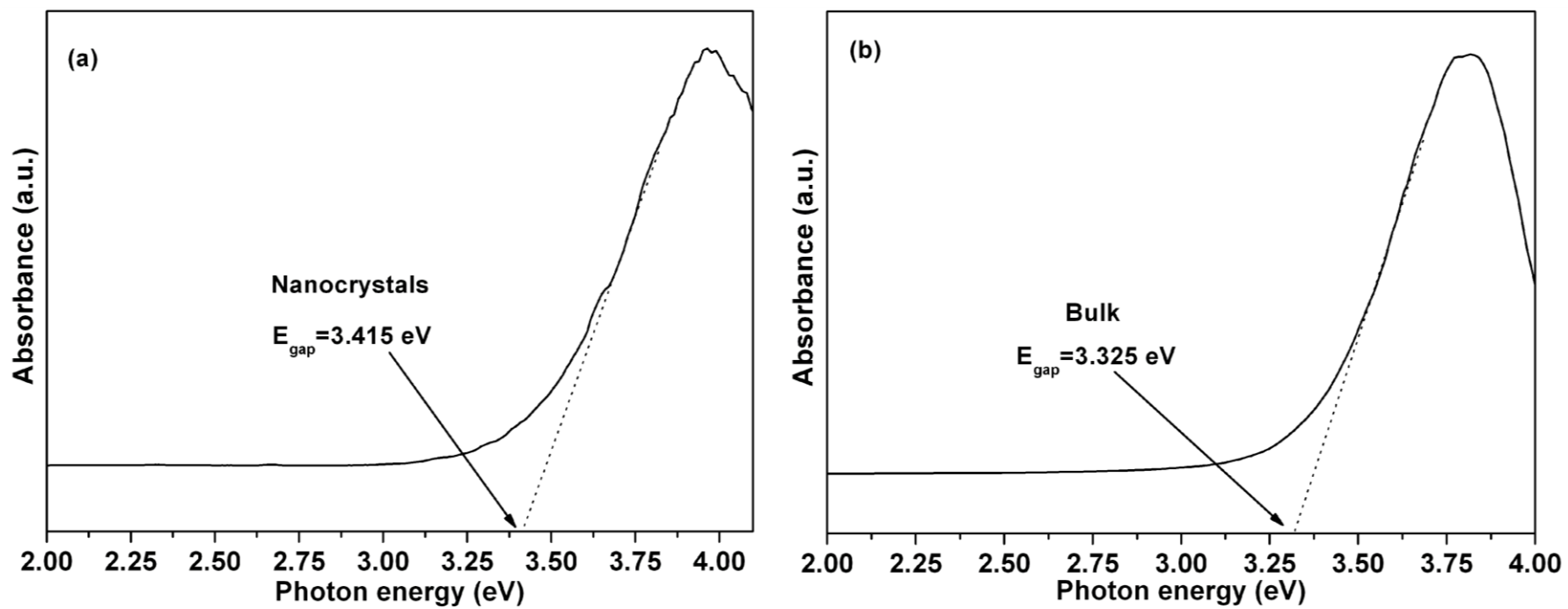


Fig. S2 The XRD patterns of CaMoO<sub>4</sub>:Eu<sup>3+</sup> calcined at 1000 °C for 6 hours.

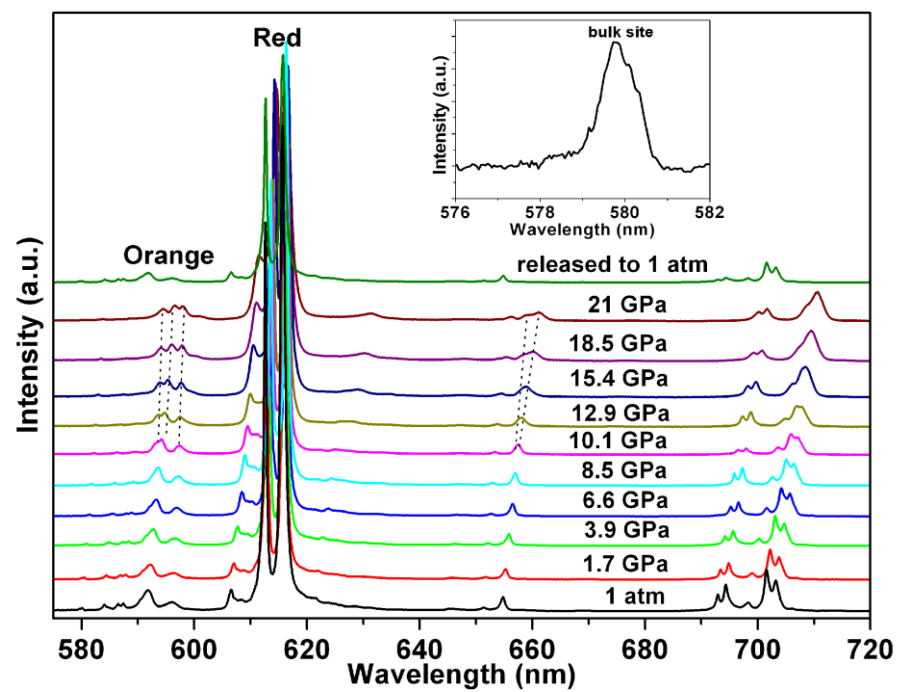


**Fig. S3 (a)** Raman spectra of  $\text{CaMoO}_4:\text{Eu}^{3+}$  bulk at different pressures. Asterisks refer to emissions from the  $^5\text{D}_0 \rightarrow ^7\text{F}_3$  transition of  $\text{Eu}^{3+}$  ions. (b)

Pressure dependence of the shifts of Raman modes of  $\text{CaMoO}_4:\text{Eu}^{3+}$  bulk.



**Fig. S4** UV-vis absorbance spectra of  $\text{CaMoO}_4:\text{Eu}^{3+}$  nanocrystals (a) and bulk (b) at ambient pressure.



**Fig. S5** Photoluminescence spectra of  $\text{CaMoO}_4:\text{Eu}^{3+}$  bulk at different pressures. The inset is the enlarged emission spectra of  ${}^5\text{D}_0 \rightarrow {}^7\text{F}_0$  transition of  $\text{CaMoO}_4:\text{Eu}^{3+}$  bulk at ambient pressure.