

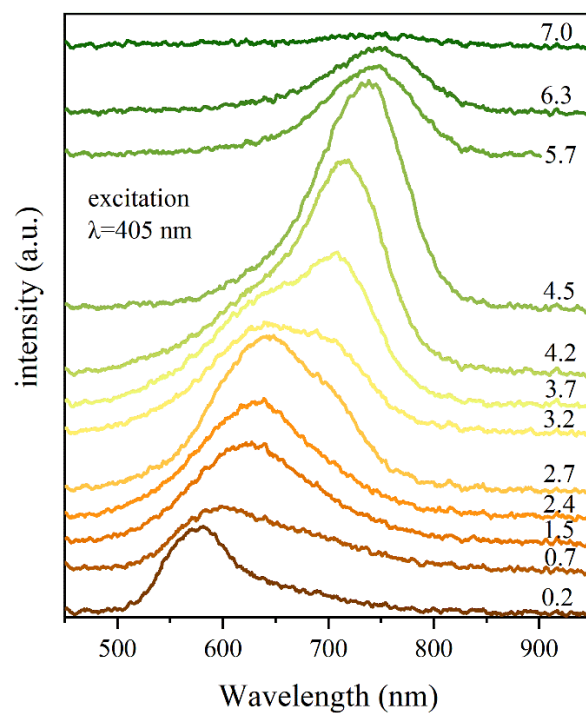
## Supporting Information

# Broadband Emission Enhancement Induced by Self-Trapped Excited States in One-Dimension $\text{EAPbI}_3$ Perovskite Under Pressure

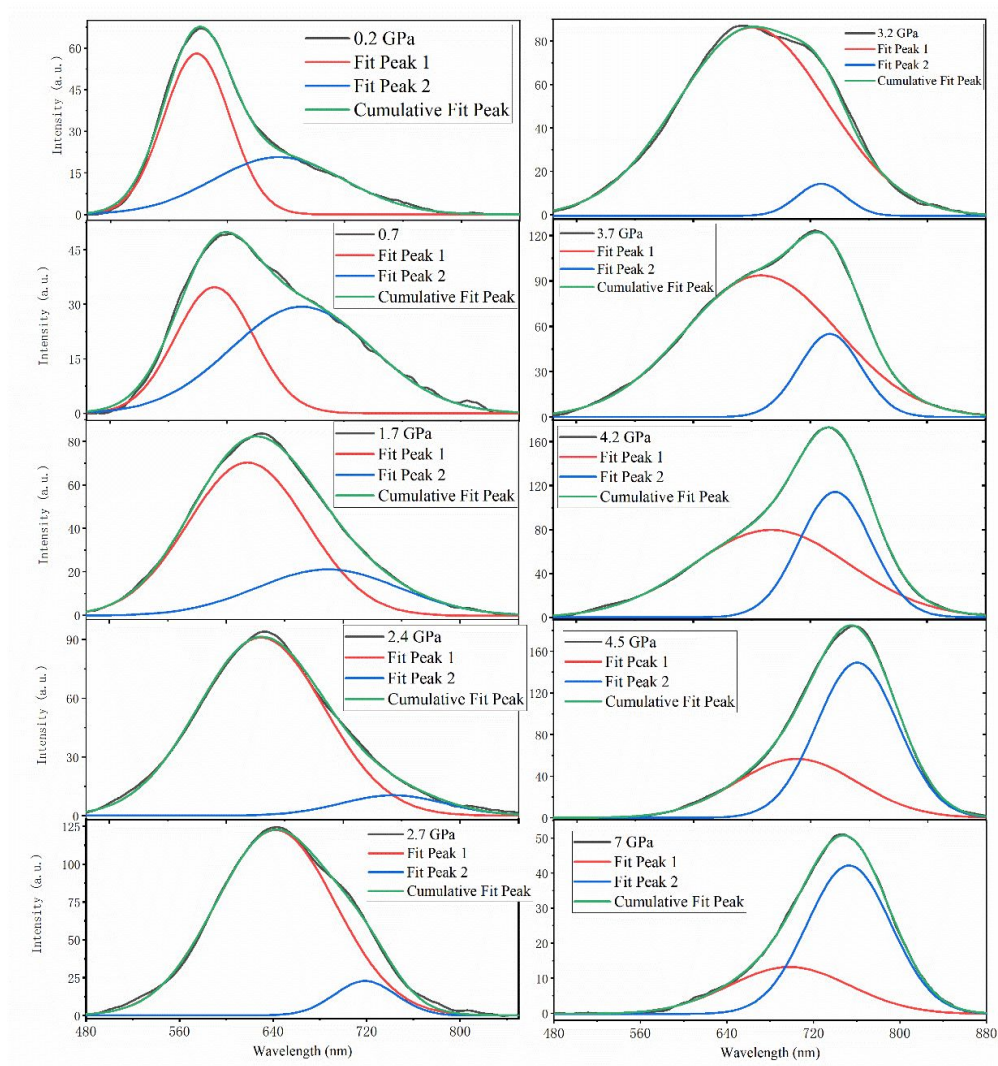
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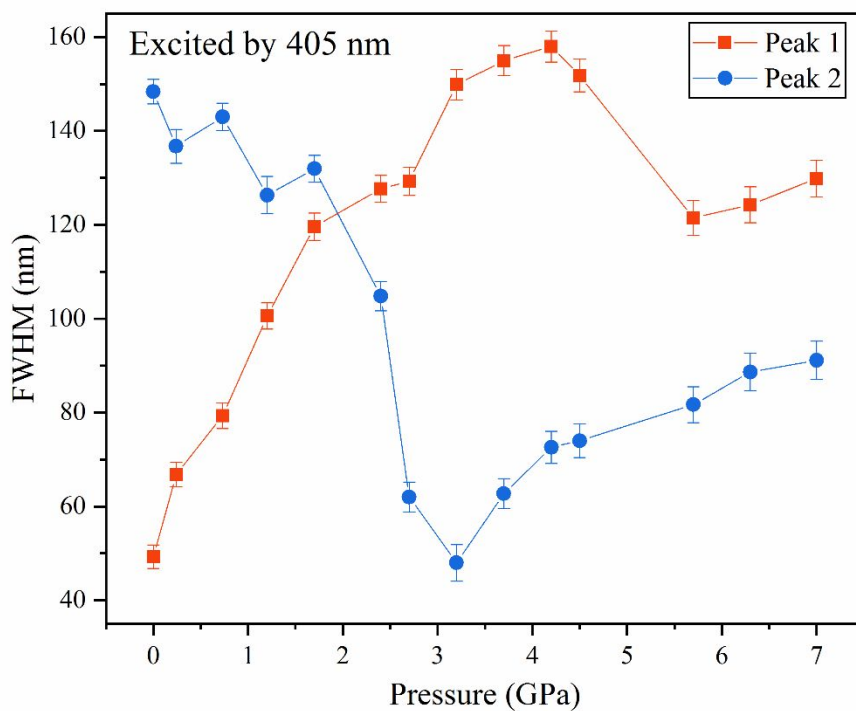
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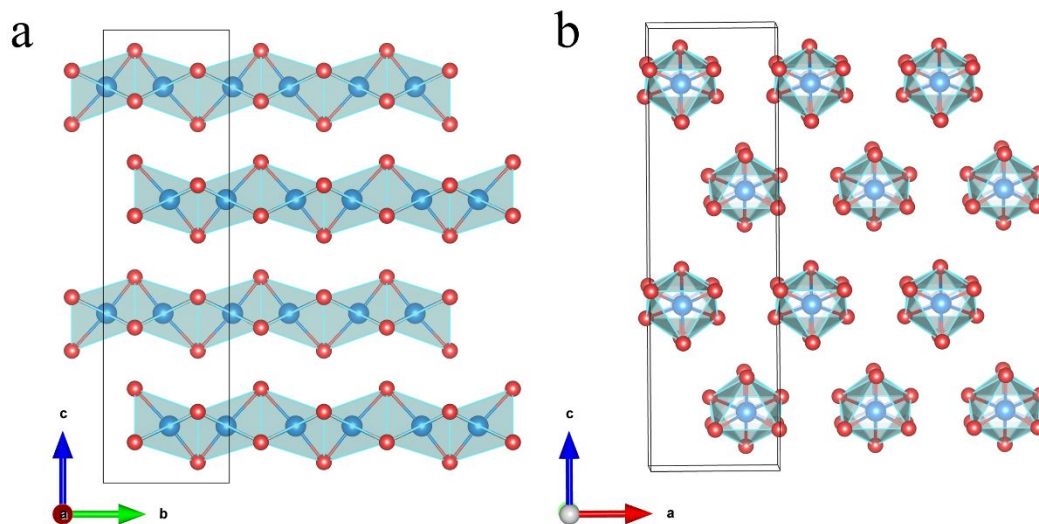
**Figure S1.** The PL spectra of EAPbI<sub>3</sub> excited by 405nm laser at a function of pressure.



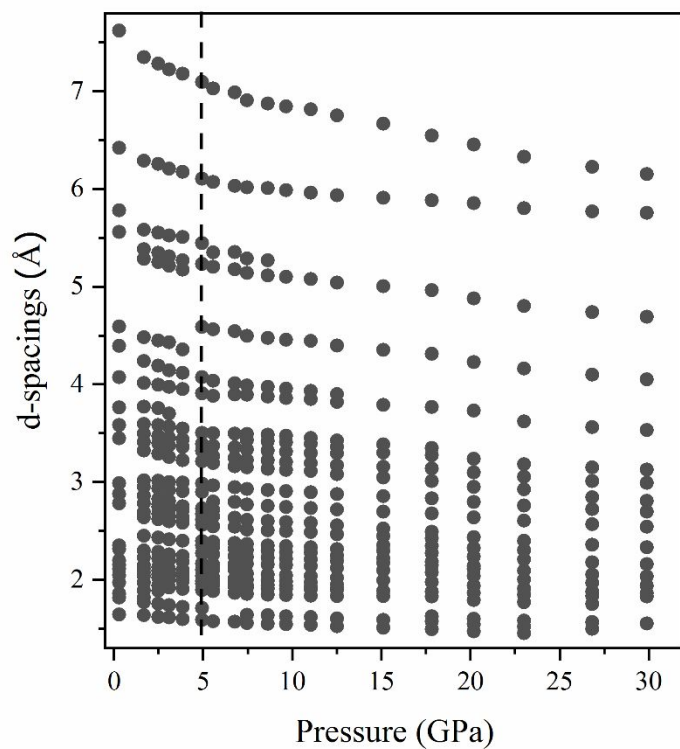
**Figure S2.** The PL spectra of EAPbI<sub>3</sub> excited by 405nm laser and fitted by multi-Gaussian function at different pressure.



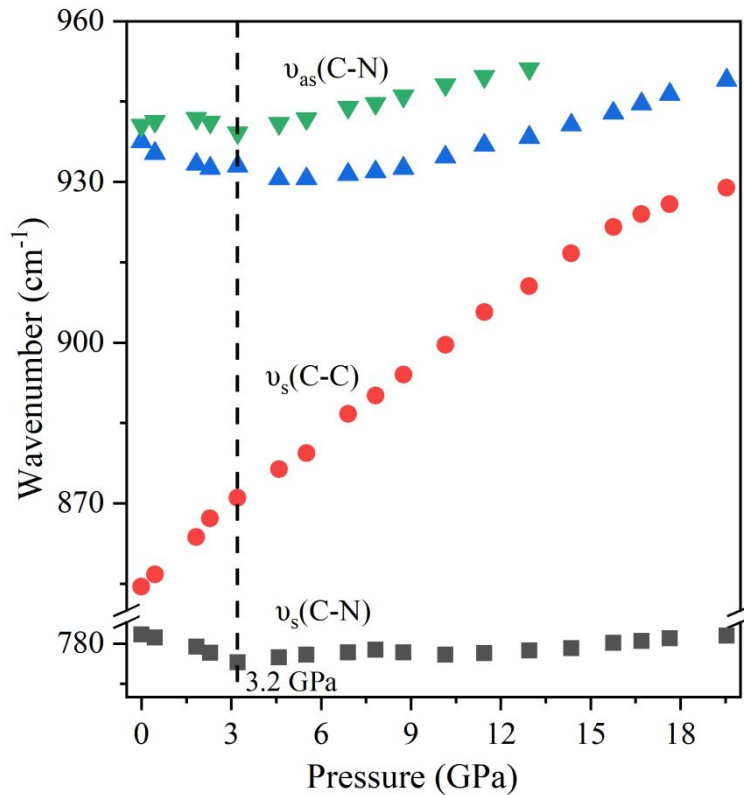
**Figure S3.** Full width at half maxima (FWHM) of peak 1 and peak 2 excited by 405 nm laser.



**Figure S4.** Schematic extended *Pccn* phase crystal structure of  $\text{C}_2\text{H}_5\text{NH}_3\text{PbI}_3$  viewed along the *a*-axis (a) and *b*-axis (b). The unit-cell outlines are shown by the black lines.



**Figure S5.** The d-spacings of EAPbI<sub>3</sub> as a function of pressure.



**Figure S6.** The evolution of  $\nu_{as}(\text{C-N})$  and  $\nu_s(\text{C-N})$  vibration modes of EA<sup>+</sup> as a function of pressure.

## References

- [1] H. K. Mao, J. Xu, P. M. Bell, *J. Geophys. Res.* **1986**, 91, 4673.