

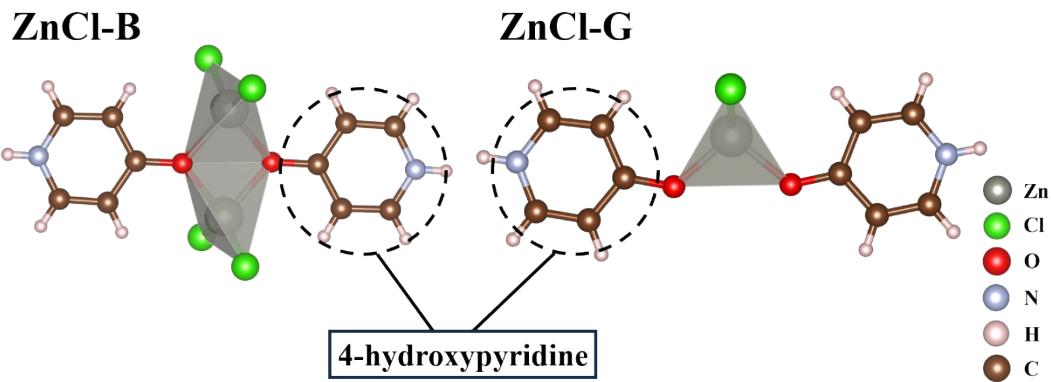
# **Tunable Multicolor Photoluminescence in Metal–Organic Halides via Pressure-Treatment $\pi$ - $\pi$ Interactions**

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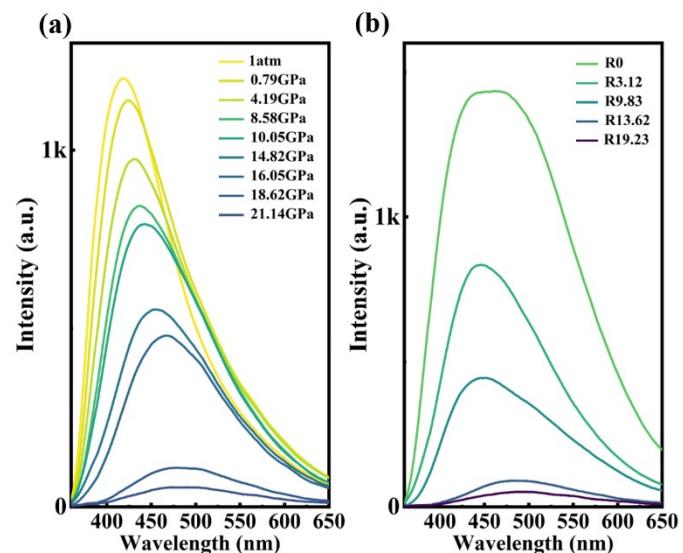
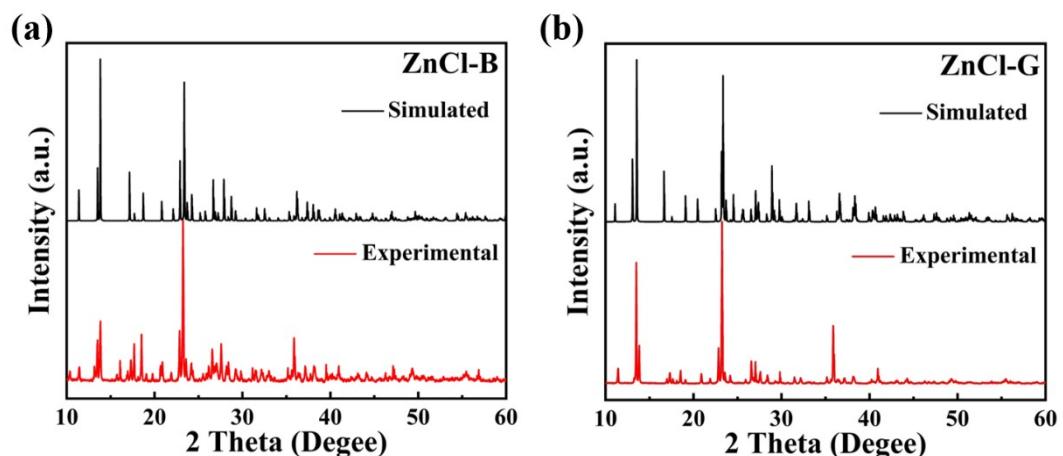
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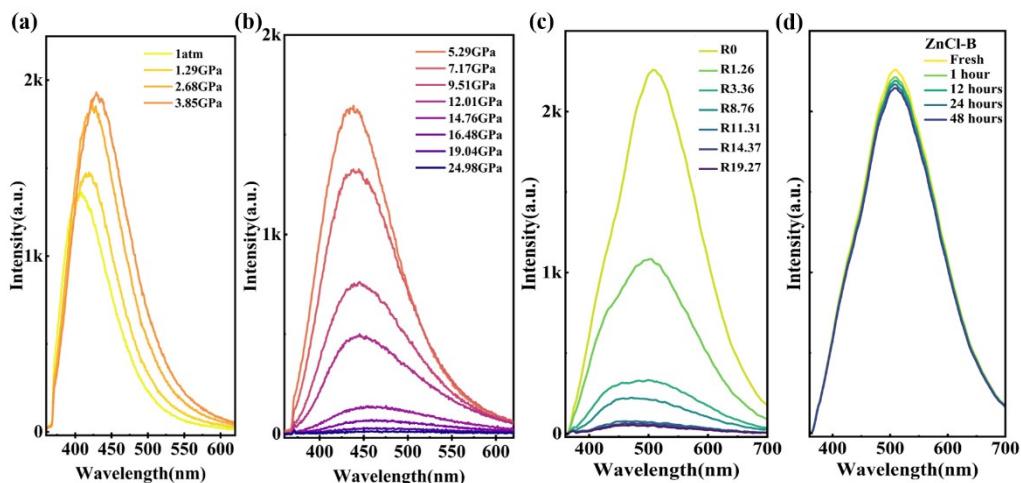


**Fig S1.** The crystal structure of mononuclear ZnCl-G and binuclear ZnCl

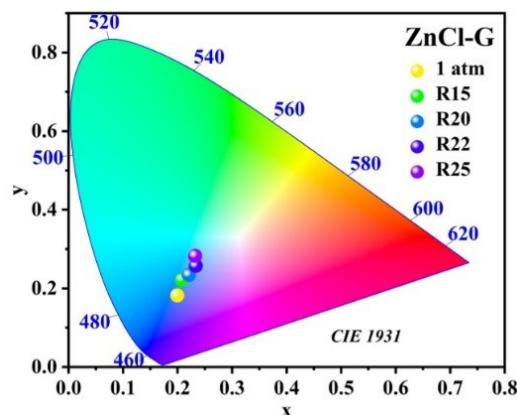


**Fig S2.** (a) XRD patterns of ZnCl-B, (b) XRD patterns of Zn-G.

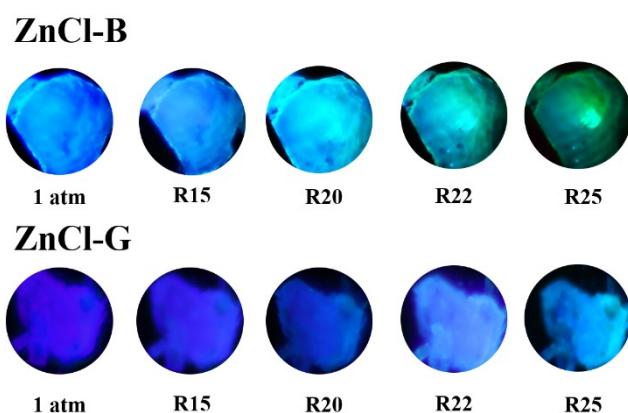
**Fig S3.** (a) PL spectra of ZnCl-G in the pressure range of 1 atm-21.14 GPa. (b) PL spectra of ZnCl-G during decompression.



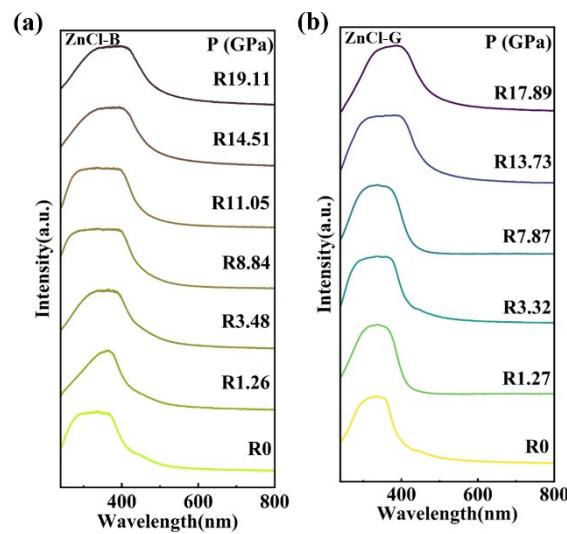
**Fig S4.** (a) PL spectra of ZnCl-B under pressure from 1 atm to 3.85 GPa. (b) PL spectra of ZnCl-B under pressure from 5.29 GPa to 24.98 GPa. (c) PL spectra of ZnCl-B during decompression. (d) PL spectra of ZnCl-B after 25 GPa pressure treatment with different resting times



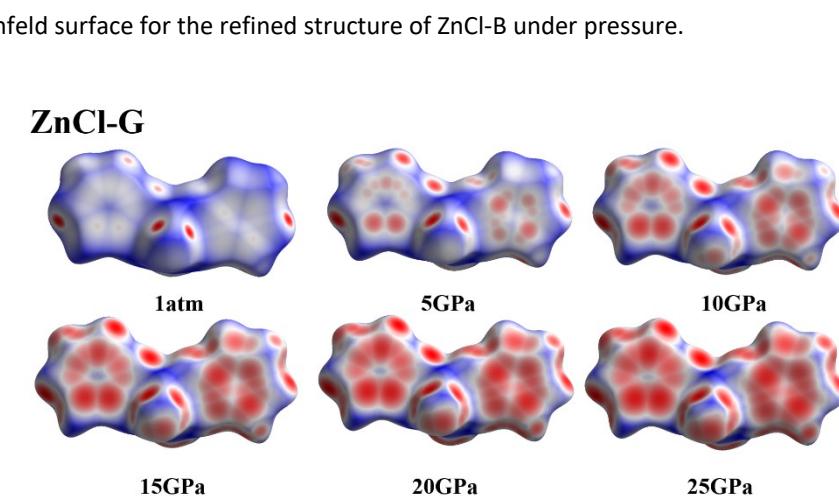
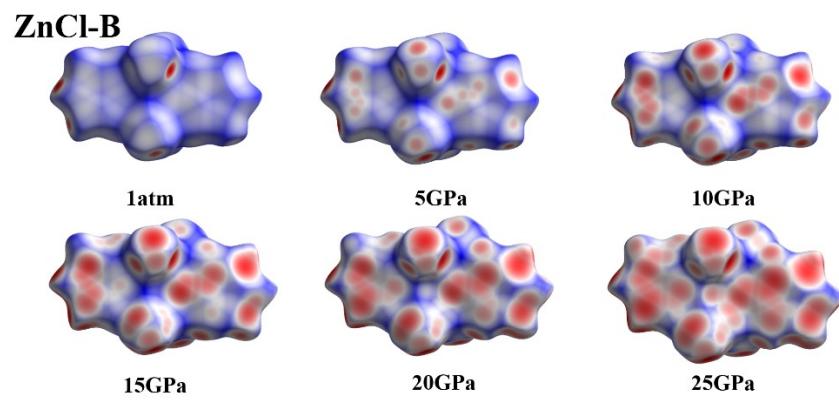
**Fig S5.** Chromaticity coordinate diagram of ZnCl-G at 1 atm and after pressure treatment



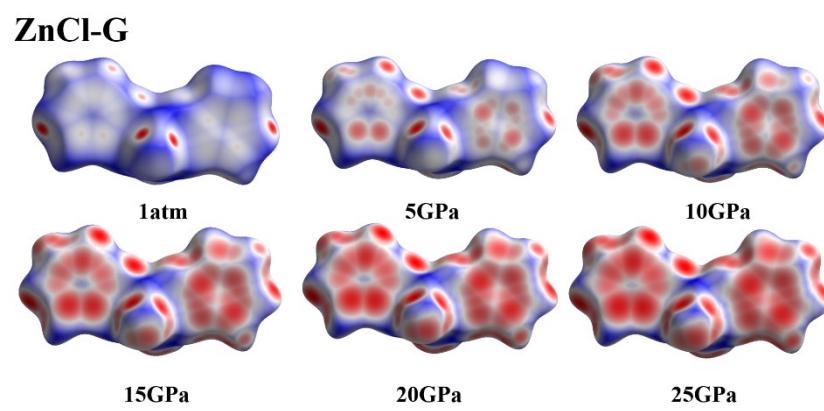
**Fig S6** The PL photos of ZnCl-G/B after different pressure treatments



**Fig S7.** (a) UV-vis absorption spectra of ZnCl-B during decompression, (b) UV-vis absorption spectra of ZnCl-G during decompression.

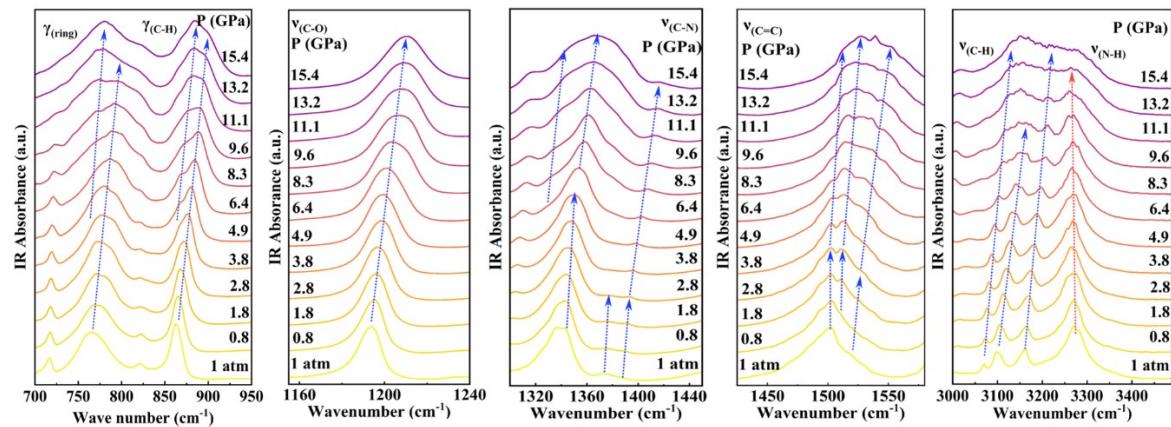


**Fig S8.** Hirshfeld surface for the refined structure of ZnCl-B under pressure.



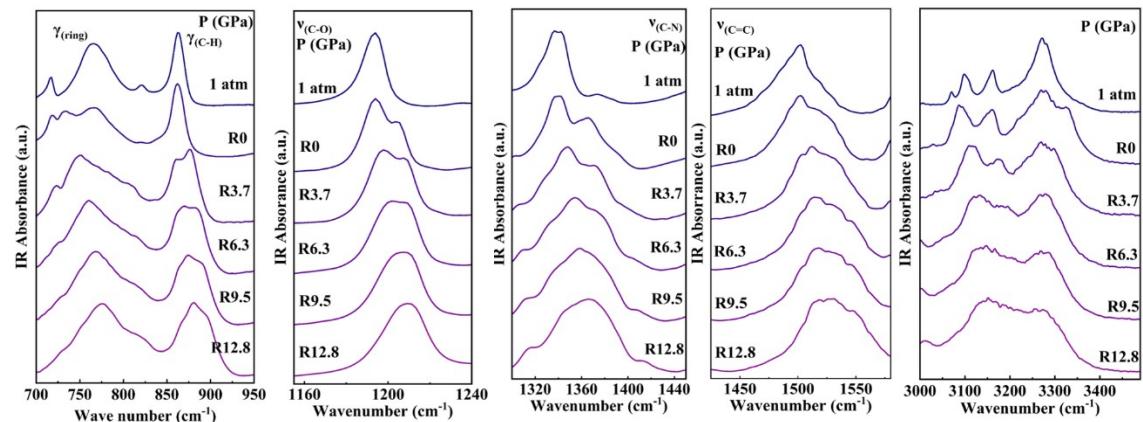
**Fig S9.** Hirshfeld surface for the refined structure of ZnCl-G under pressure.

## ZnCl-G



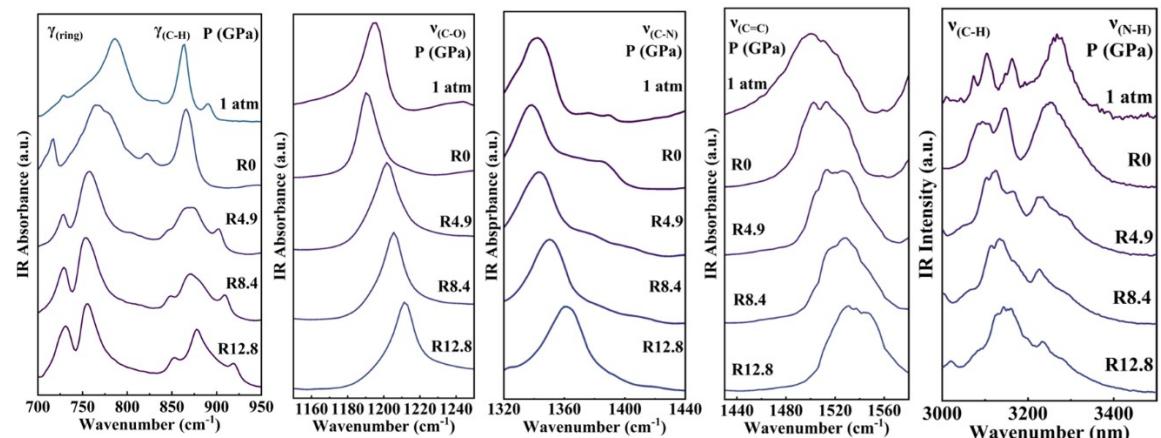
**Fig S10.** The IR spectra of ZnCl-G during compression.

## ZnCl-G

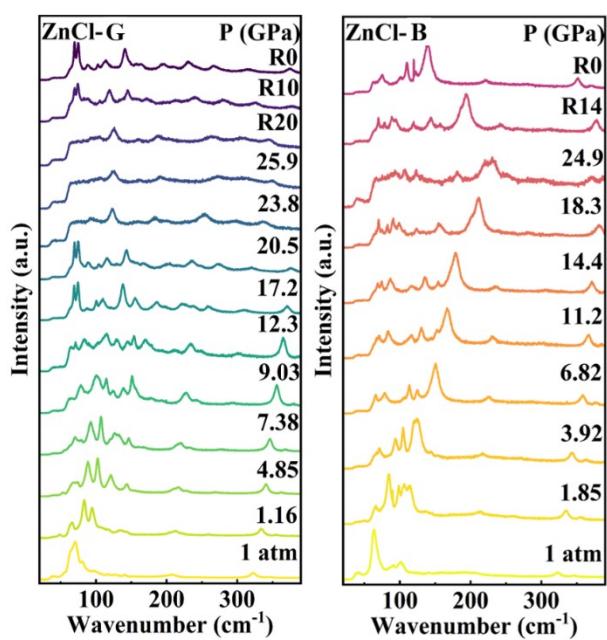


**Fig S11.** The IR spectra of ZnCl-G during decompression.

## ZnCl-B



**Fig S12.** The IR spectra of ZnCl-B during decompression.



**Fig S13** The Raman Spectra of ZnCl-G/B with different pressures