Supporting Information

Pressure-Induced Tunable Emission Colors and Irreversible Bandgap Narrowing in Organic–Inorganic Manganese Bromide Hybrid

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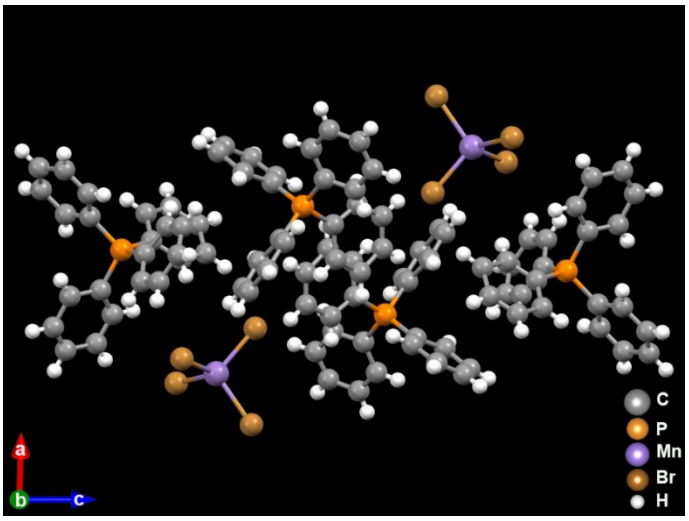

Fig. S1. The crystal asymmetric structure of 0D $(C_{24}H_{20}P)_2MnBr_4$.

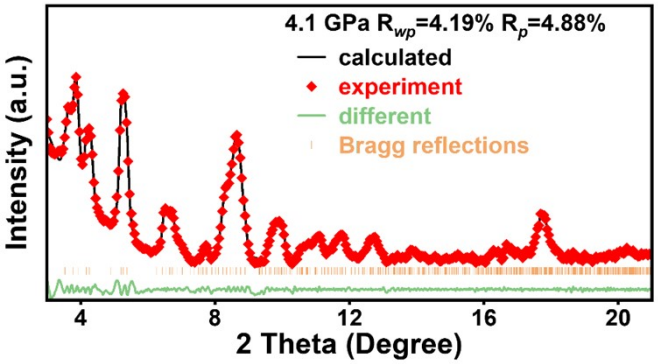

Fig. S2. The refinements ADXRD spectra of $(C_{24}H_{20}P)_2MnBr_4$ SCs at 4.1 GPa.

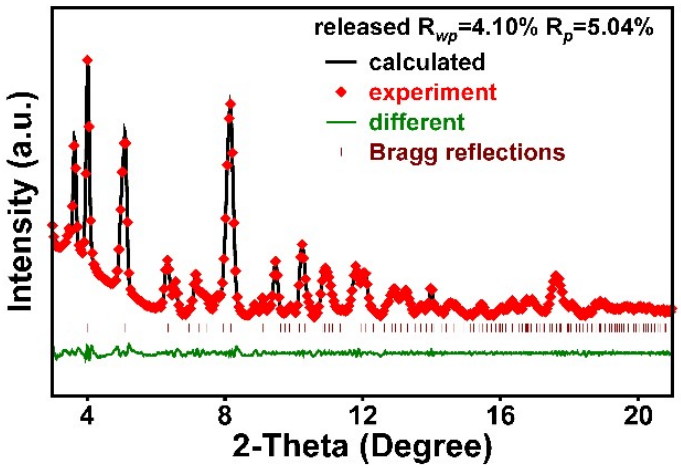

Fig. S3 The refinements released ADXRD spectra of $(C_{24}H_{20}P)_2MnBr_4$ SCs.

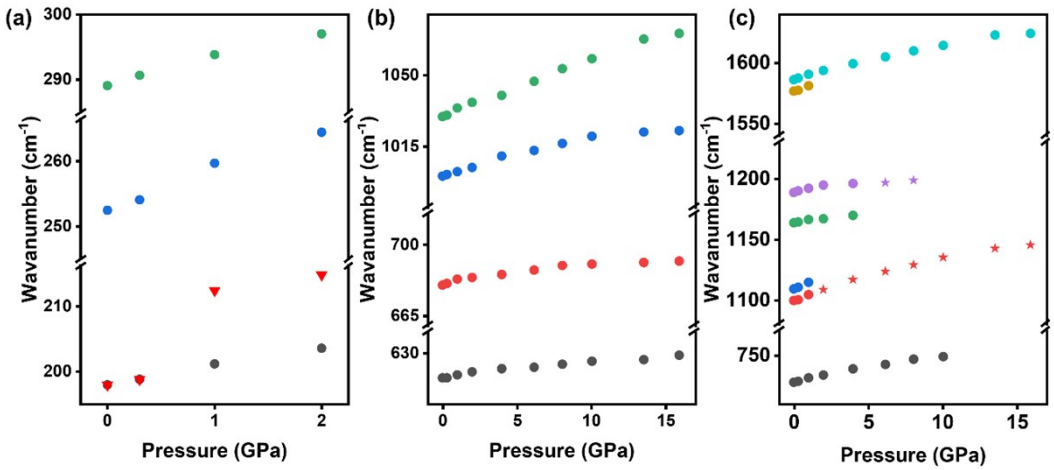

Fig. S4. The representative corresponding frequency shifts (a-c) of $(C_{24}H_{20}P)_2MnBr_4$ SCs from 1atm to 20.0 GPa.

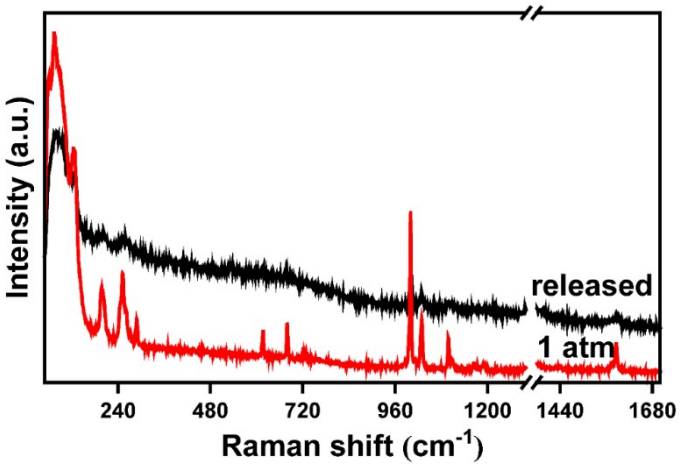

Fig. S5. The Raman spectra of $(C_{24}H_{20}P)_2MnBr_4$ SCs at 1atm and released from 20.0 GPa.

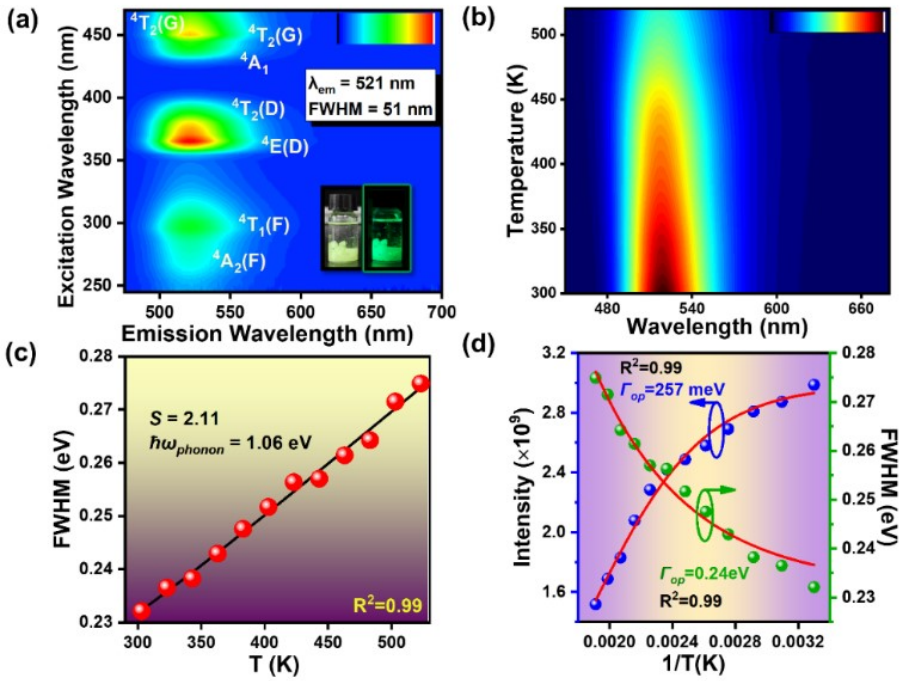

Fig. S6 (a) PLE spectra of $(C_{24}H_{20}P)_2MnBr_4$ SCs from 250 to 470 nm. (b) Temperature-dependent PL spectra within the temperature range of 300-520 K of $(C_{24}H_{20}P)_2MnBr_4$ SCs. (c) S and $\hbar\omega_{phonon}$ values for $(C_{24}H_{20}P)_2MnBr_4$ SCs through fitting the FWHM with temperature data. (d) Value of Γ_{op} for $(C_{24}H_{20}P)_2MnBr_4$ SCs by Toyozawa equation.

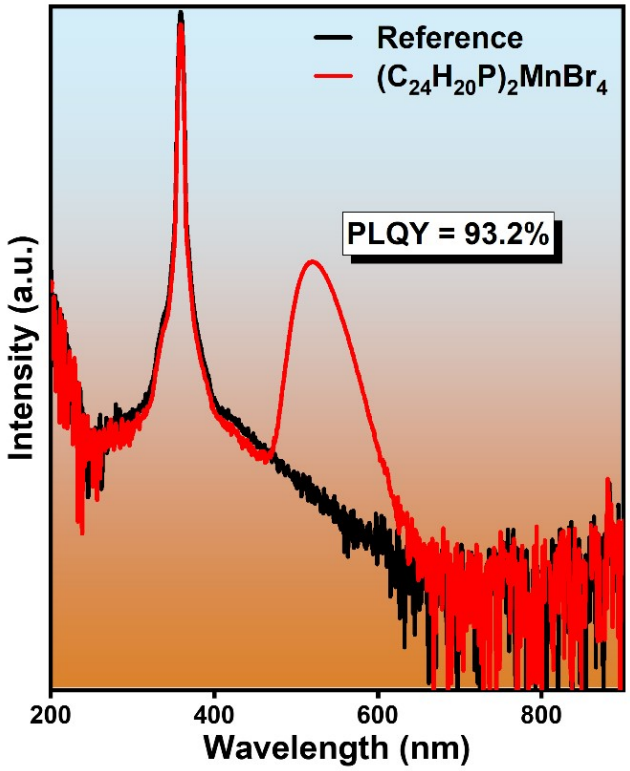

Fig. S7. The PLQY of $(C_{24}H_{20}P)_2MnBr_4$ SCs exciting at λ_{ex} = 360 nm.

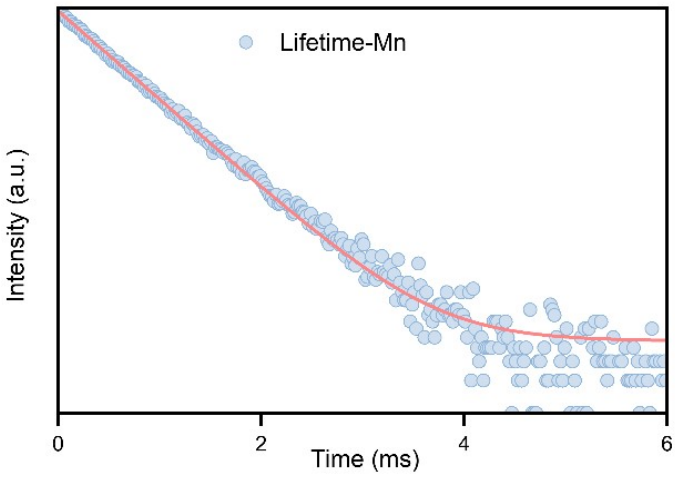

Fig. S8. The decay curve of $(C_{24}H_{20}P)_2MnBr_4$ SCs.

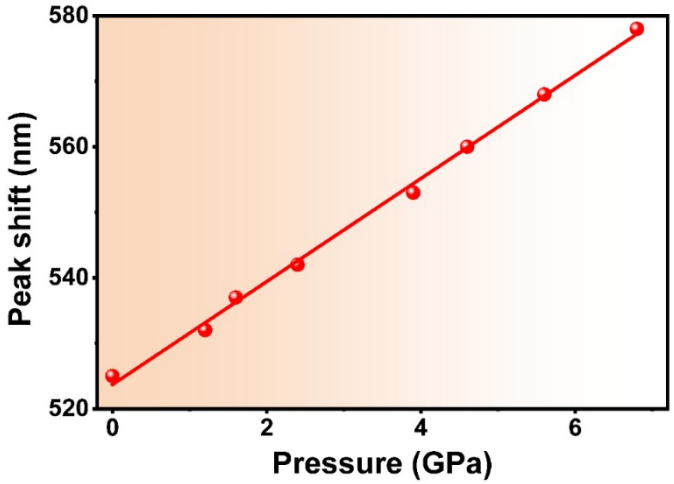

Fig. S9 The PL shift of $(C_{24}H_{20}P)_2MnBr_4$ SCs under different pressure.

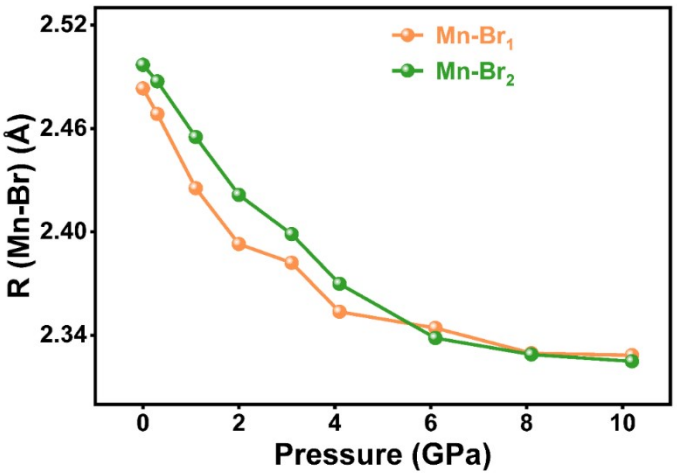

Fig. S10. The Mn-Br bond length changes as a function of pressure.

Table S1. The CIE chromaticity coordinates of $(C_{24}H_{20}P)_2MnBr_4$ SCs under different pressures.

Pressure (GPa)	x	y
0	0.2607	0.5203
1.2	0.2861	0.4773
2.4	0.2776	0.5443
3.9	0.2815	0.5852
4.6	0.3198	0.5779
5.6	0.3972	0.5470
6.8	0.4210	0.5173
8.3	0.4510	0.4657
9.8	0.4117	0.3880