

Supporting Information

Mn(II)-doped zero-dimensional hybrid Cd bromide with efficient green emission

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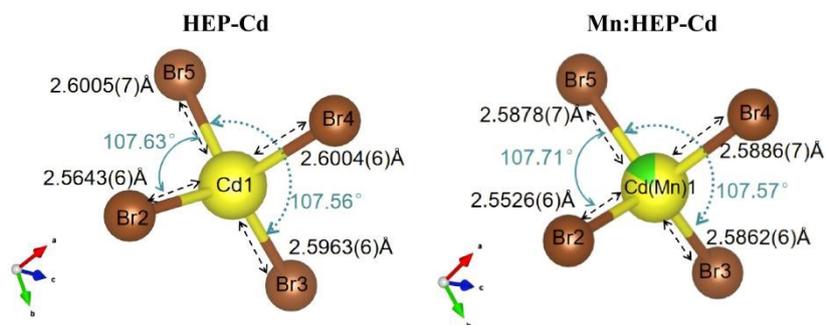


Fig. S1. Structural configuration of Cd-Br octahedra in HEP-Cd and Mn:HEP-Cd.

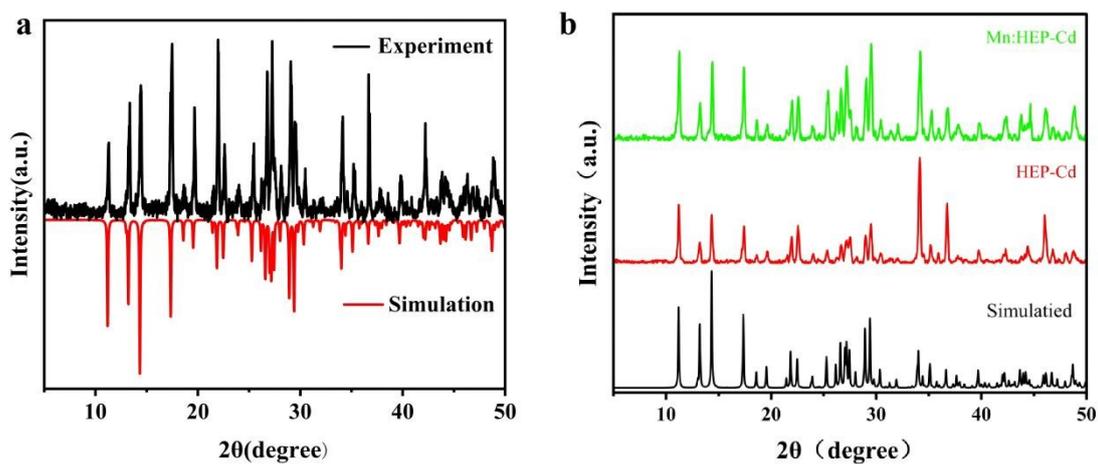


Fig. S2. (a) Simulated and experimental powder XRD patterns of HEP-Cd. (b) Powder XRD patterns of samples HEP-Cd and Mn:HEP-Cd after 60 days of storage

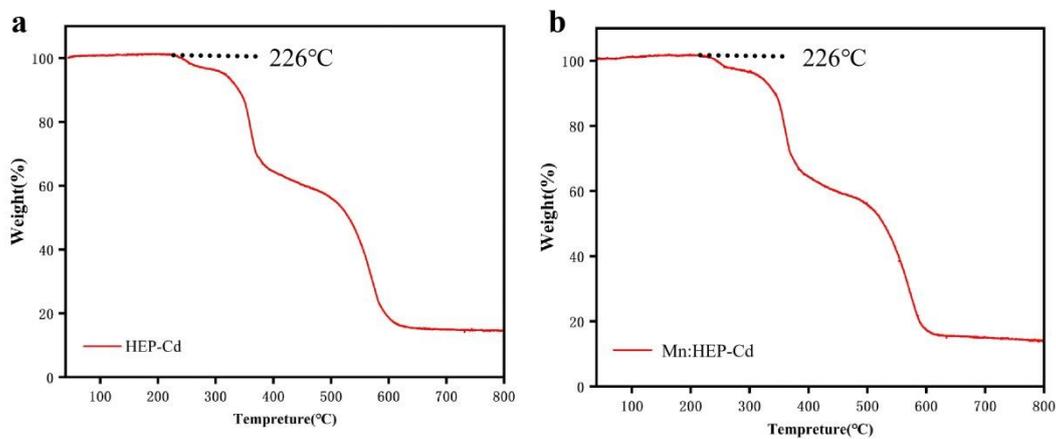


Fig. S3. Thermogravimetric analysis (TGA) of HEP-Cd and Mn:HEP-Cd single crystals.

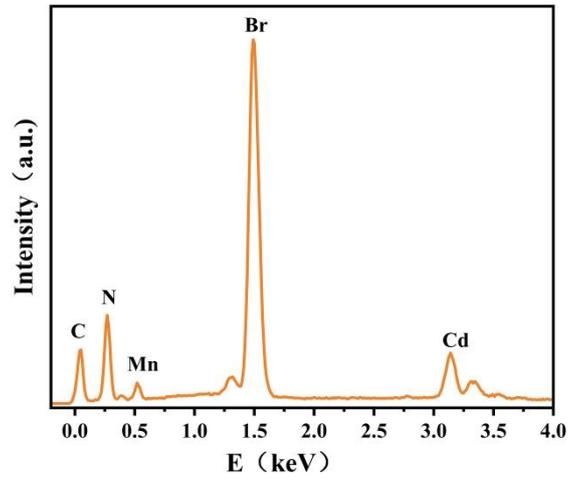


Fig. S4. The EDS pattern of Mn:HEP-Cd.

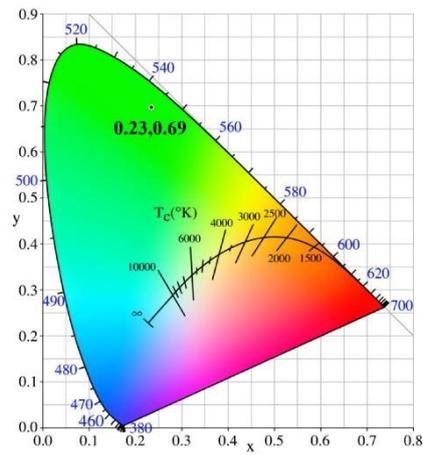


Fig. S5. CIE chromaticity coordinates.

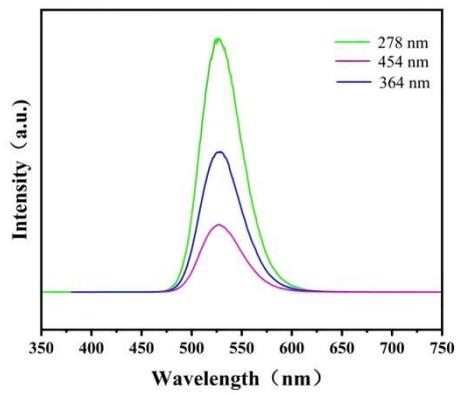


Fig. S6. The PL spectra of Mn:HEP-Cd at different excitations.

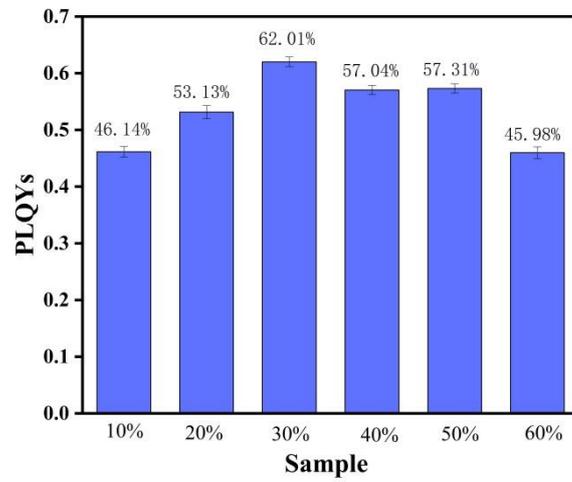


Fig. S7. PLQYs of $x\text{Mn}^{2+}:(\text{HEP})\text{CdBr}_4$ ($x=10\%\sim 60\%$)

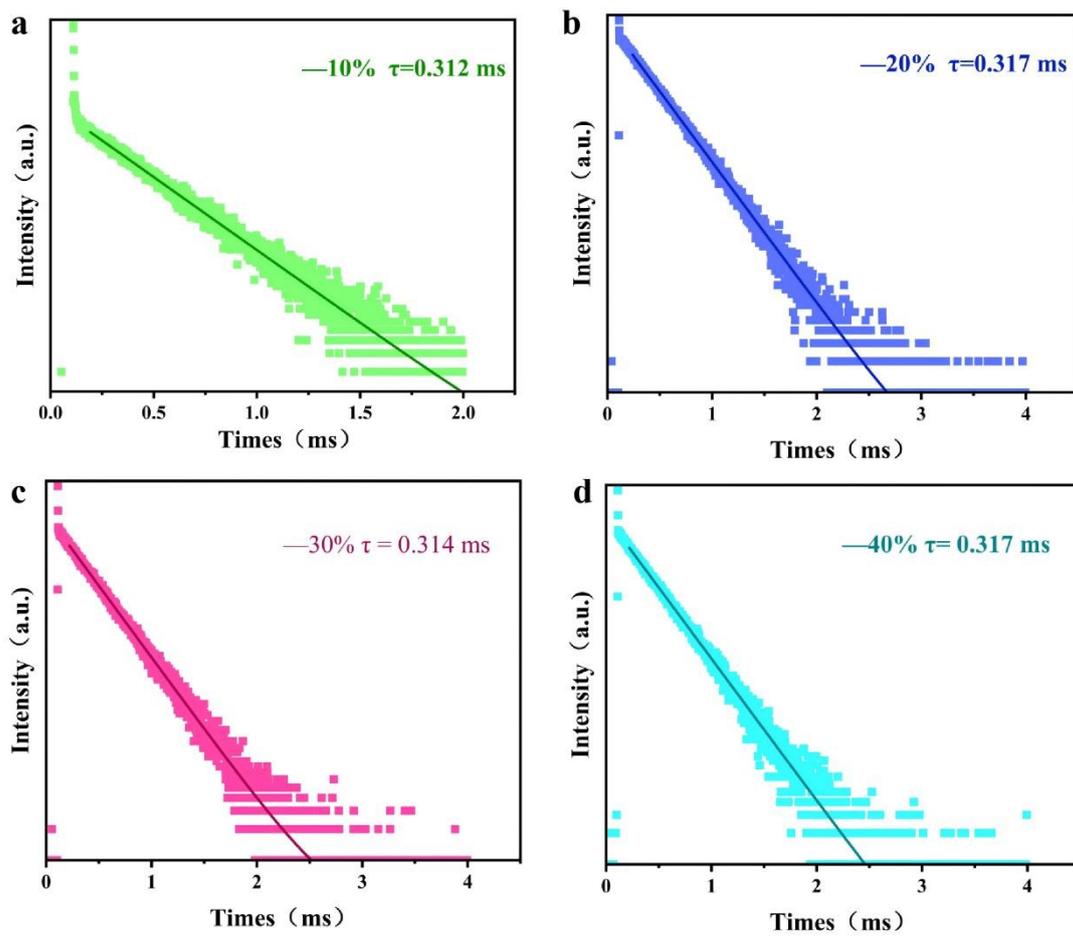


Fig. S8. Time-resolved PL spectra of $x\text{Mn}^{2+}:(\text{HEP})\text{CdBr}_4$ ($x=10\%\sim 40\%$) monitored at 527 nm at 278 nm excitation.

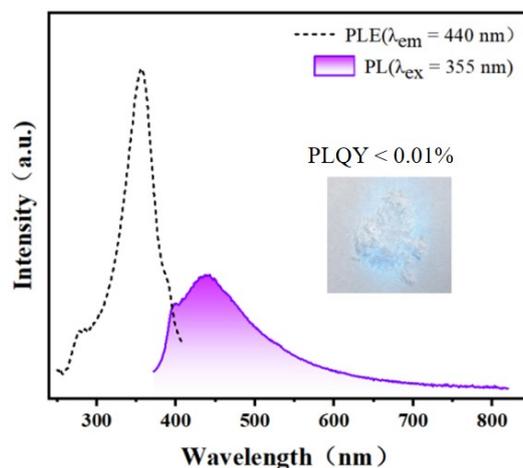


Fig. S9. Photoluminescence spectrum of HEP-Cd. The illustration shows an image of the compound under UV light.

Table S1 ICP-OES results of $x\text{Mn}^{2+}:(\text{HEP})\text{CdBr}_4$ ($x=10\%\sim 40\%$)

Mn/Cd in precursor solution	Mass percent of Mn	Mass percent of Cd	Mn/Cd in crystals
10%	0.511%	18.5%	5.62%
20%	0.854%	18.7%	9.30%
30%	1.430%	15.6%	18.67%
40%	2.000%	16.4%	24.83%

Table S2 Comparison of green-emitting Cd-based OIMHs

Material	PLQY	Emission Peak	Reference
Mn:HEP-Cd	62.01%	527 nm	This work
AEPipCdMnBr	50 %	540 nm	Inorganic Chemistry, 61(13), 5363–5372.
[(2-mb)tpp] ₂ Cd _{0.1} Mn _{0.9} Cl ₄	57.68%	513 nm	Chemical Engineering Journal, 450, 138458.
Tpy-Cd	25.67%	490 nm	Inorganic Chemistry 2023 62 (51), 21451-21460
80%Cu ⁺ :(PPDA)CdCl ₄ .	49%	523 nm	Chemistry - a European Journal, 31(37), e202404567–e202404567.

Table S3 Fitting Parameters of Fluorescence Lifetime

Sample	10%	20%	30%	40%
Function	$y = A1 \cdot \exp(-x/t1) + y0$			
Reduced Chi-Sqr (χ^2)	4.92144E-6	1.3709E-5	6.95323E-6	6.1387E-6
R ²	0.993	0.998	0.998	0.998