

Supporting Information

Building Manganese Halide Hybrid Materials with 0D, 1D, and 2D Dimensionalities

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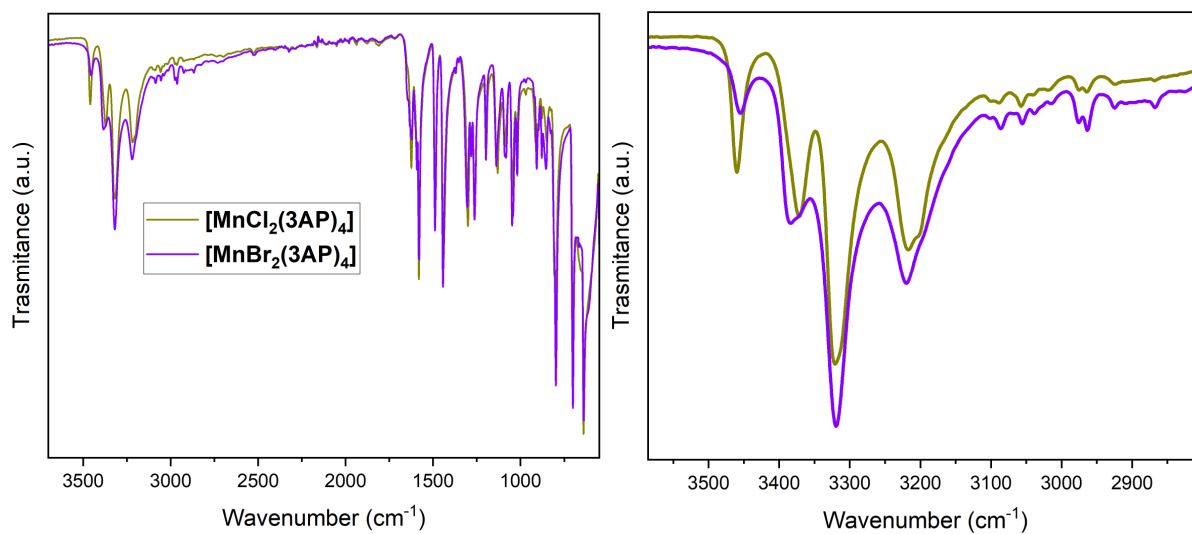


Figure S1. Infrared spectra for the complexes $[\text{MnCl}_2(\text{3AP})_4]$ (yellow) and $[\text{MnBr}_2(\text{3AP})_4]$ (lavender). Right plot is a zoom in the region of N-H stretching.

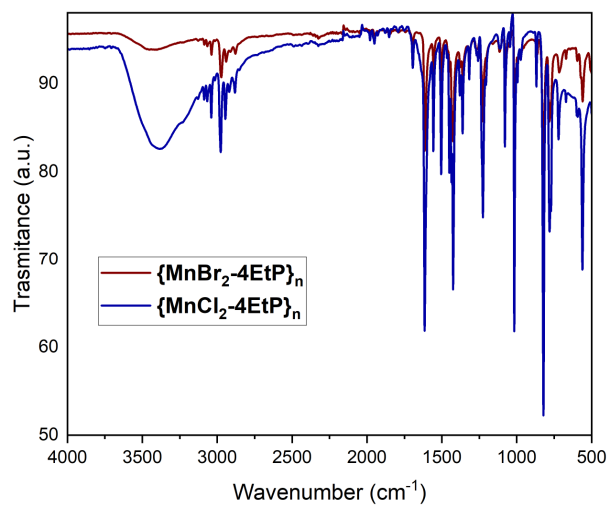


Figure S2. Infrared spectra for the complexes {MnCl₂(4EtP)₂}_n (blue) and {MnBr₂(4EtP)₂}_n (red).

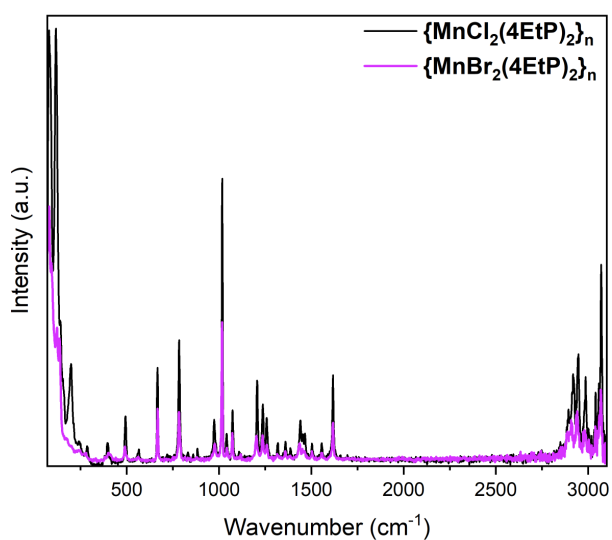


Figure S3. Raman spectra for the complexes {MnCl₂(4EtP)₂}_n (black) and {MnBr₂(4EtP)₂}_n (magenta).



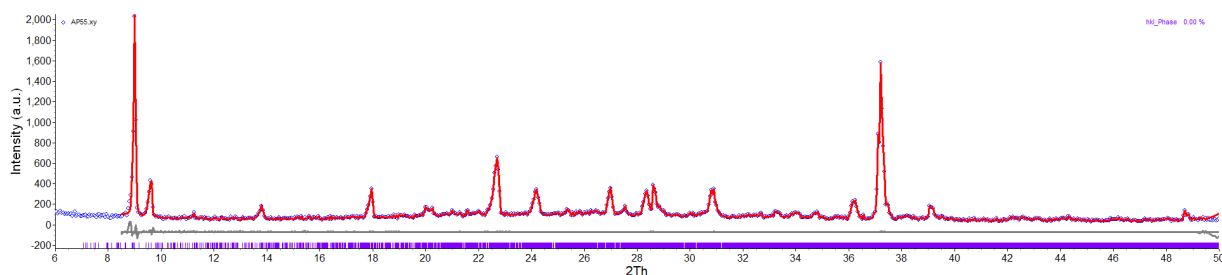


Figure S5. Pawley fit of $[\text{MnCl}_2(3\text{AP})_4]$. Unit cell and space group was initially taken from single crystal data. Blue circles are the experimental data, the solid red line indicates the Pawley fit, and the solid gray line at the bottom indicates the difference. Rwp for the fit is 7.51%.

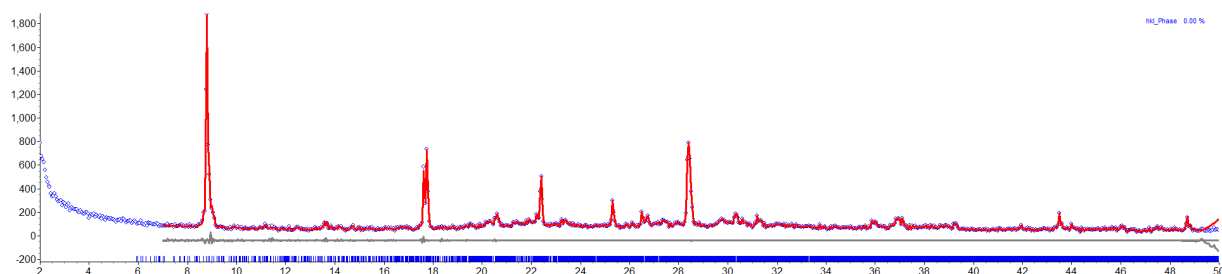


Figure S6. Pawley fit of $[\text{MnBr}_2(3\text{AP})_4]$. Unit cell and space group was initially taken from single crystal data. Blue circles are the experimental data, the solid red line indicates the Pawley fit, and the solid gray line at the bottom indicates the difference. Rwp for the fit is 10.58%.

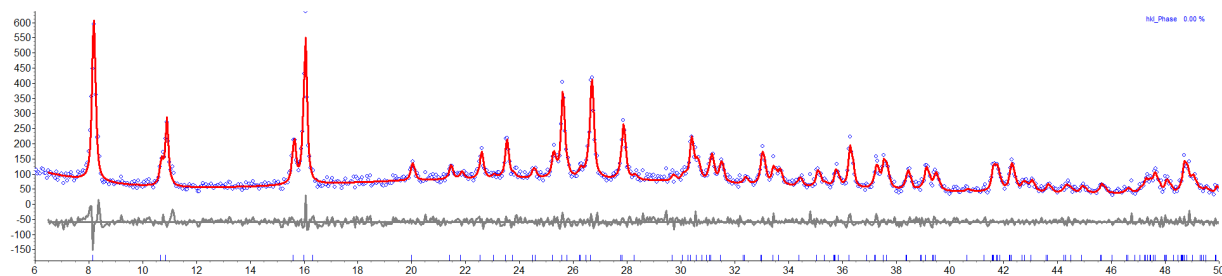


Figure S7. Pawley fit of $\{\text{MnCl}_2-(4\text{EtP})_2\}_n$. Unit cell and space group was initially taken from single crystal data. Blue circles are the experimental data, the solid red line indicates the Pawley fit, and the solid gray line at the bottom indicates the difference. Rwp for the fit is 11.24%.

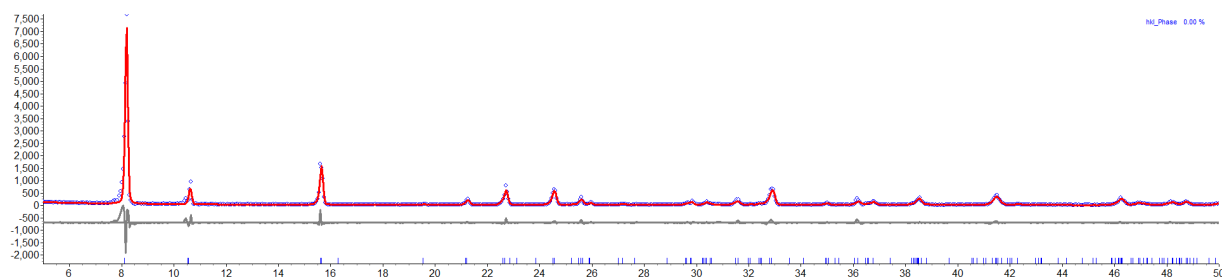


Figure S8. Pawley fit of $\{\text{MnBr}_2\cdot(4\text{EtP})_2\}_n$. Unit cell and space group was initially taken from single crystal data. Blue circles are the experimental data, the solid red line indicates the Pawley fit, and the solid gray line at the bottom indicates the difference. Rwp for the fit is 20.74%.

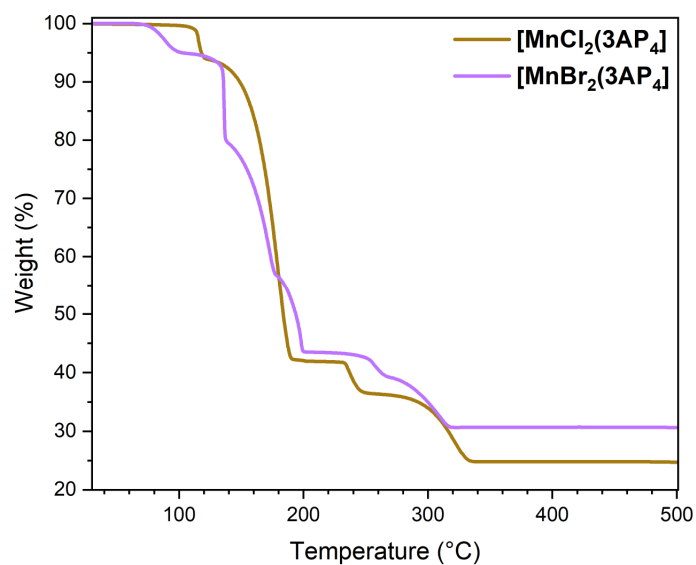


Figure S9. TGA of $[\text{MnCl}_2(3\text{AP})_4]$ (yellow) and $[\text{MnBr}_2(3\text{AP})_4]$ (lavender).

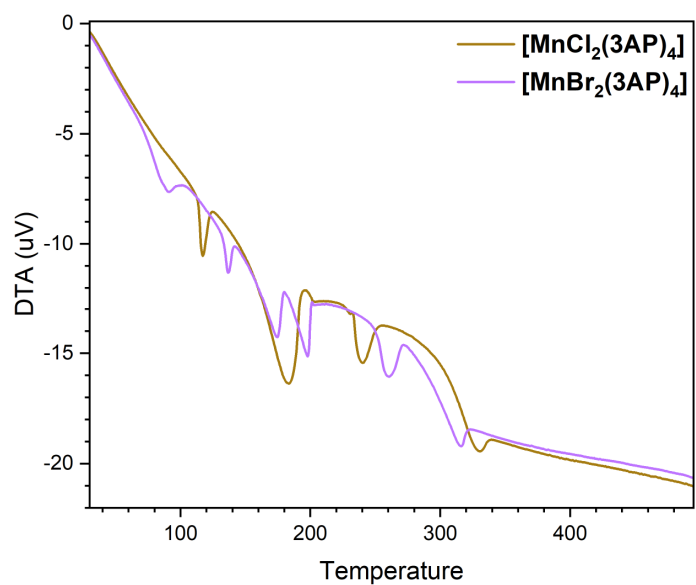


Figure S10. DTA of $[\text{MnCl}_2(3\text{AP})_4]$ (yellow) and $[\text{MnBr}_2(3\text{AP})_4]$ (lavender).

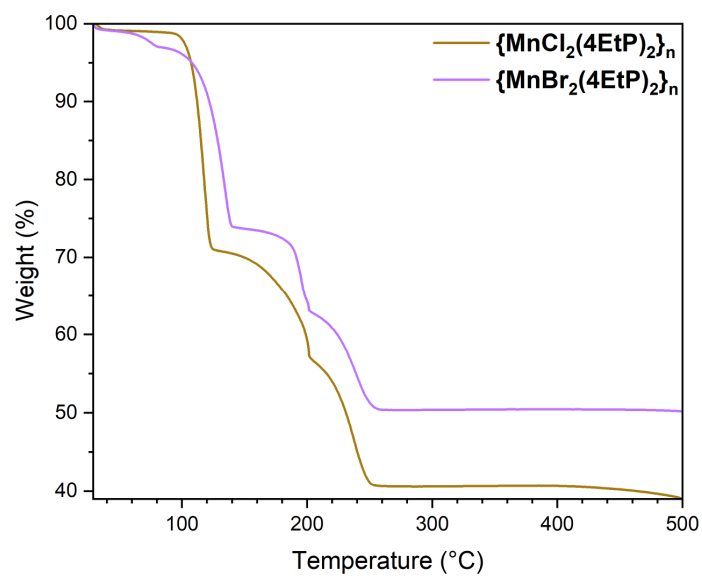


Figure S11. TGA of $\{\text{MnCl}_2(4\text{EtP})_2\}_n$ (yellow) and $\{\text{MnBr}_2(4\text{EtP})_2\}_n$ (lavander).

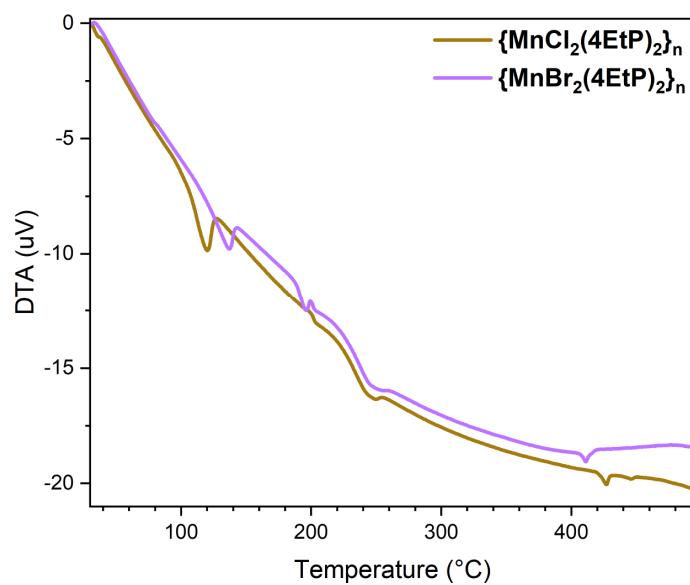


Figure S12. DTA of $\{\text{MnCl}_2(4\text{EtP})_2\}_n$ (yellow) and $\{\text{MnBr}_2(4\text{EtP})_2\}_n$ (lavander).

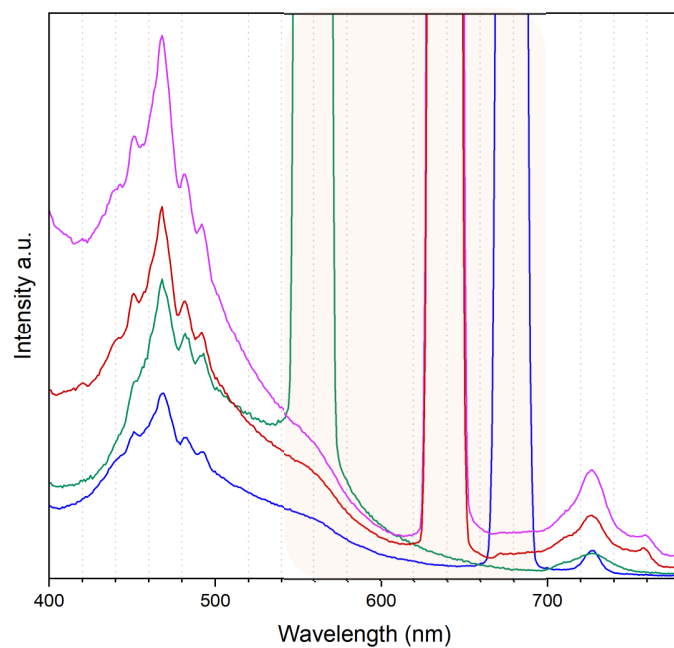


Figure S13. Solid-state PL spectra of $[\text{MnCl}_2(\text{3AP})_4]$ (blue), $[\text{MnBr}_2(\text{3AP})_4]$ (green), $\{\text{MnCl}_2(\text{4EtP})_2\}_n$ (red) and $\{\text{MnBr}_2(\text{4EtP})_2\}_n$ (magenta). The rectangle in yellow is secondary diffraction and does not come from the sample. Data was not normalized.