Supporting Information File

Tuning dimensionality between 2D and 1D MOFs by lanthanide contraction and ligand-to-metal ratio.

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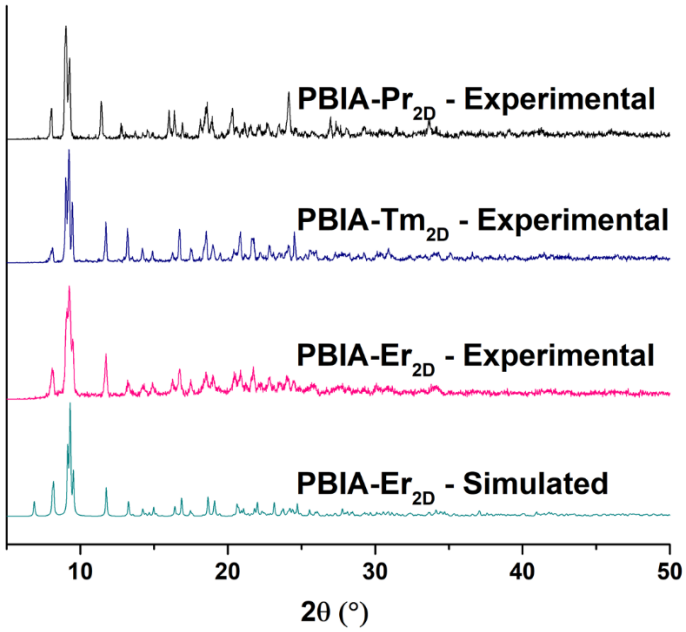

Figure S1. Powder X-ray diffraction patterns of PBIA-Er_{2D} simulated (light blue), PBIA-Er_{2D} experimental (pink), PBIA-Tm_{2D} experimental (blue), and PBIA-Pr_{2D} experimental (black). These compounds are isostructural, thus, experimental patterns are compared with the simulated powder pattern from the SCXRD of PBIA-Er_{2D}.

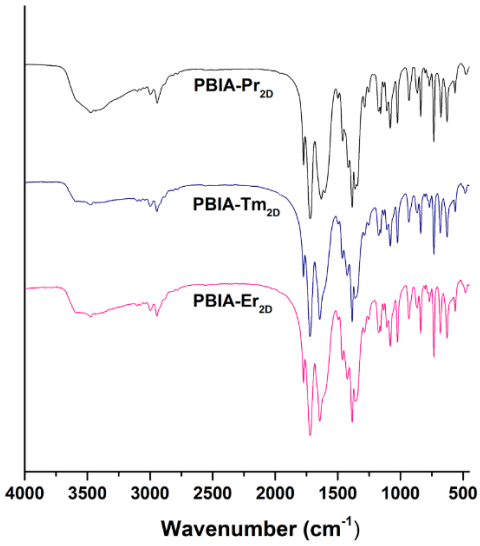

Figure S2. FTIR spectra of Pr, Tm and Er 2D materials.

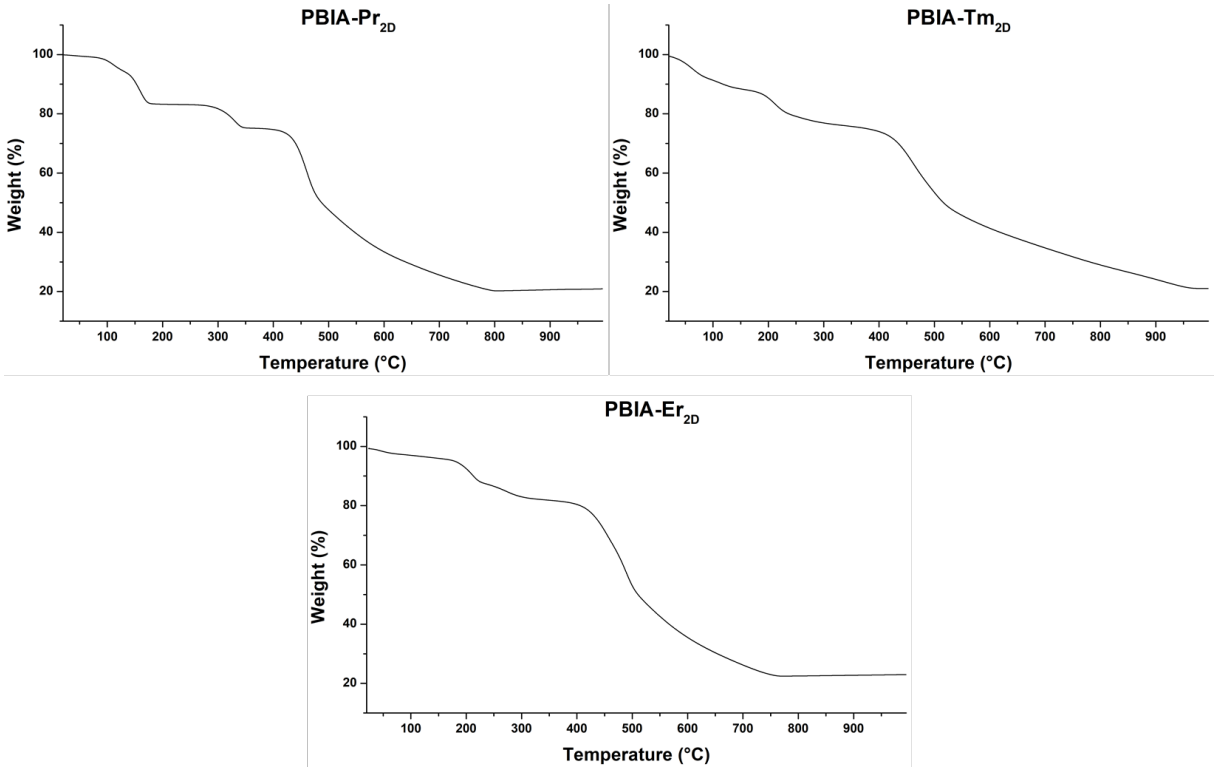

Figure S3. Thermograms of PBIA-Pr_{2D}, PBIA-Tm_{2D}, and PBIA-Er_{2D}.

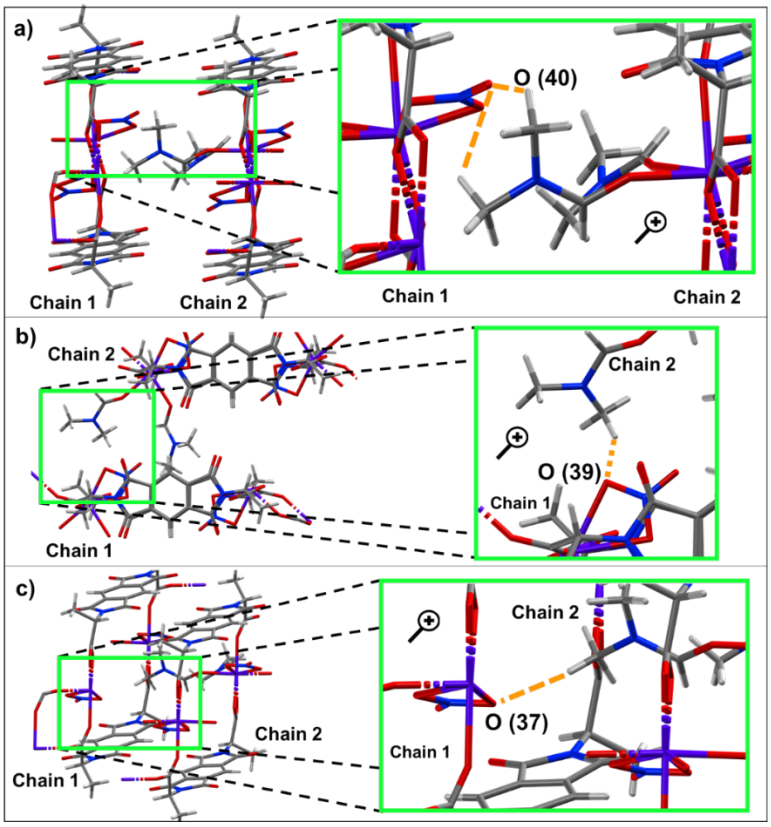

Figure S4. H-bonding interactions between 1D chains in PBIA-Tm_{1D}. Interactions between a) O(40), b) O(39), and c) O(37) from nitrate with hydrogens from DMF of the adjacent chain.

Table S1. Selected geometrical parameters of PBIA-Tm_{1D}

Bond distances [Å]	**PBIA-Tm_{1D}**
Tm-O(1)$_{iso}$	2.2584(18)
Tm-O(26)$_{iso}$	2.2433(17)
Tm-O(18)$_{bidentate\text{-}chelate}$	2.354(2)
Tm-O(19)$_{bidentate\text{-}chelate}$	2.409(2)
Tm-O(37)$_{bidentate\text{-}nitrate}$	2.457(2)
Tm-O(39)$_{bidentate\text{-}nitrate}$	2.375(2)
Tm-O(27)$_{DMF1}$	2.261(9)
Tm-O(27A)$_{DMF1A}$	2.230(5)
Tm-O(32)$_{DMF2}$	2.266(7)
Tm-O(32A)$_{DMF2A}$	2.285(6)
C(2)-O(26)	1.235(3)
C(2)-O(1)	1.237(3)
C(17)-O(18)	1.241(4)
C(17)-O(19)	1.233(4)
N(38)-O(37)	1.258(5)
N(38)-O(39)	1.270(4)
N(38)-O(40)	1.219(4)
C(28)-O(27)	1.155(11)
C(28A)-O(27A)	1.116(12)
C(33)-O(32)	1.243(9)
C(33A)-O(32A)	1.321(10)
Bond angles [°]	
O(26)-Tm-O(1)$_{iso}$	89.09(7)
O(18)-Tm-O(19)$_{bidentate\text{-}chelate}$	53.95(8)
O(37)-Tm-O(39)$_{bidentate\text{-}nitrate}$	52.89(10)
O(1)-C(2)-O(26)$_{iso}$	126.4(2)
O(18)-C(17)-O(19)$_{bidentate\text{-}chelate}$	121.7(3)
O(37)-N(38)-O(39$_{bidentate\text{-}nitrate}$	116.8(3)
Dihedral angles [°]	
Tm-O(26)-C(2)-O(1)	-85.7(4)
Tm-O(1)-C(2)-O(26)	14.9(6)
C(2)-O(1)-Tm-O(26)	16.5460(13)
C(2)-O(26)-Tm-O(1)	76.157(2)
Tm-O(19)-C(17)-O(18)	3.4(4)
Tm-O(18)-C(17)-O(19)	-3.5(4)
Tm-O(37)-N(38)-O(1)	3.32760(2)
Tm-O(39)-N(38)-O(37)	-3.4636(2)

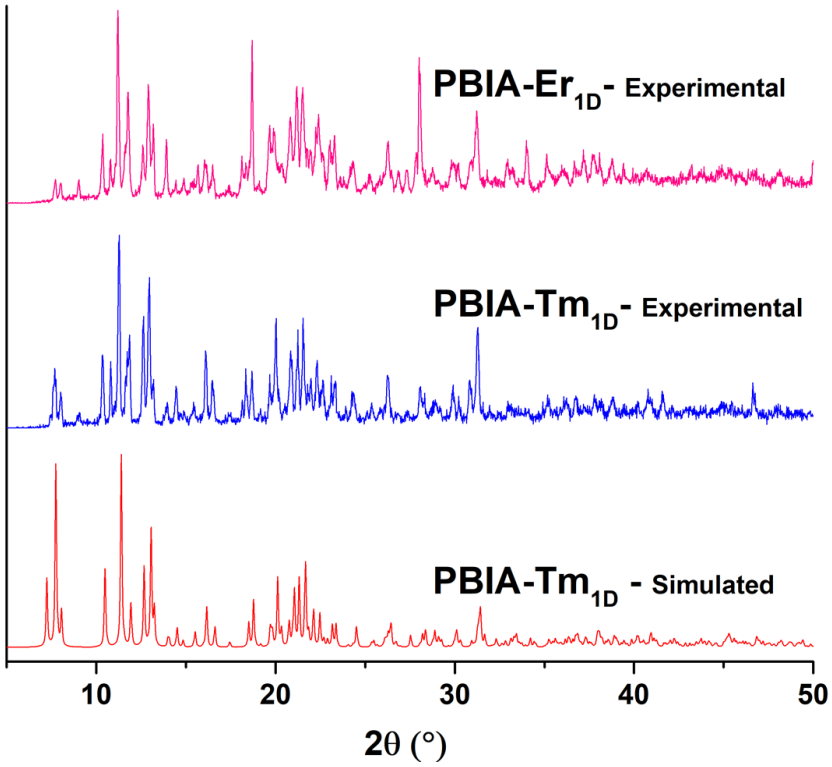

Figure S5. Simulated PXRD pattern of PBIA-Tm_{1D} (red). Good agreement is observed among experimental patterns of PBIA-Tm_{1D} (blue) and PBIA-Er_{1D} (pink).

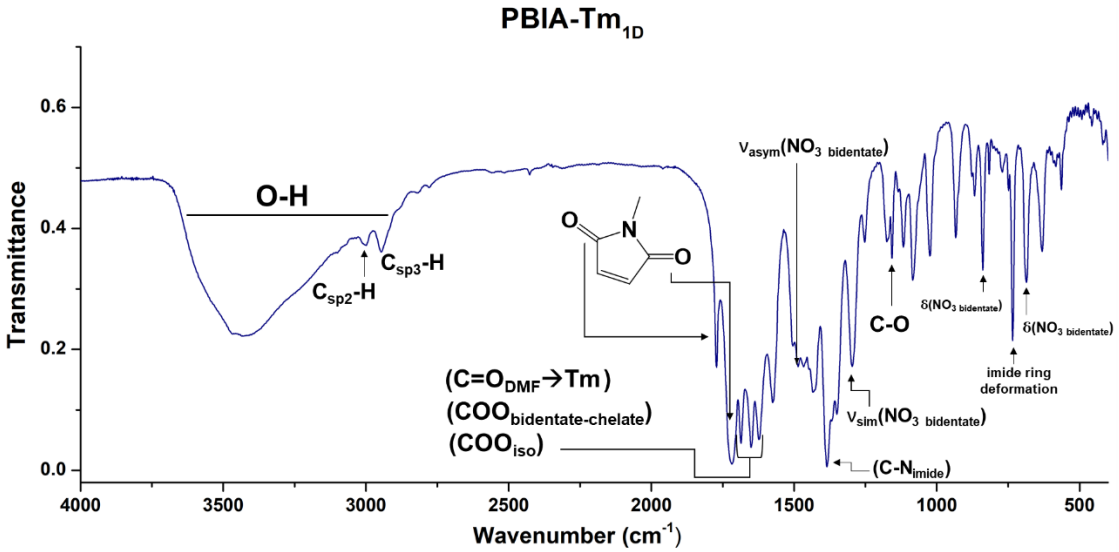

Figure S6. FTIR spectra of PBIA-Tm_{1D}.

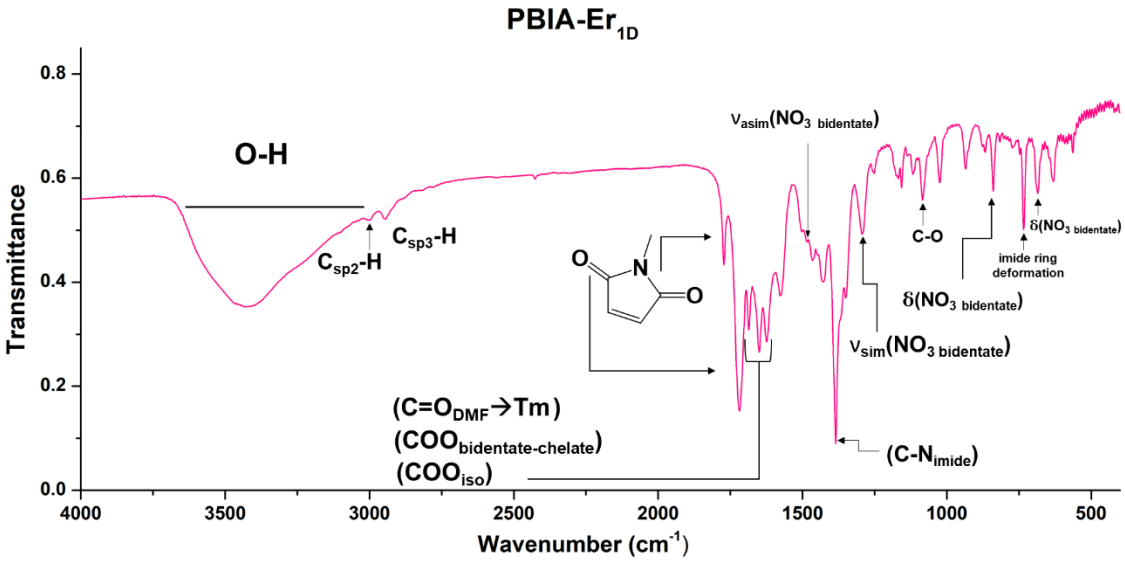

Figure S7. FTIR spectra of PBIA-Er_{1D}.