Supporting Information

Three Metalloporphyrin Frameworks containing imidazole groups: Synthesis, Characterization and Properties

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Figure S17: Structures of TBHP (a) and ethylbenzene (b) molecules

Table S1. Selected bond lengths (Å) and Angles (°) for the complexes **1**-**3**.

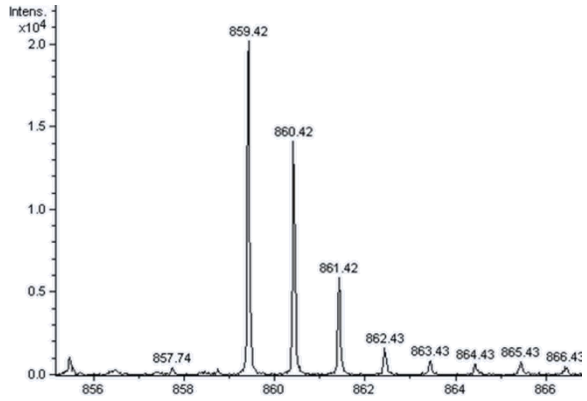

Figure S1. MS of $\mathbf{L_1}$: *trans*-(tBu-Ph)$_2$(Im-Ph)$_2$Por.

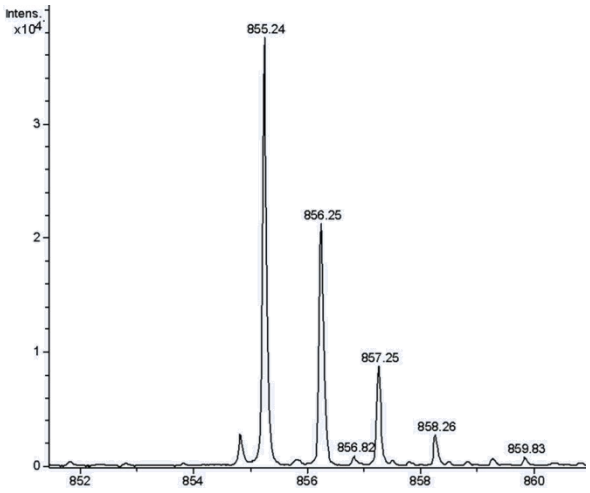

Figure S2. MS of $\mathbf{L_2}$: *trans*-(F$_3$-Ph)$_2$(Im-Ph)$_2$Por.

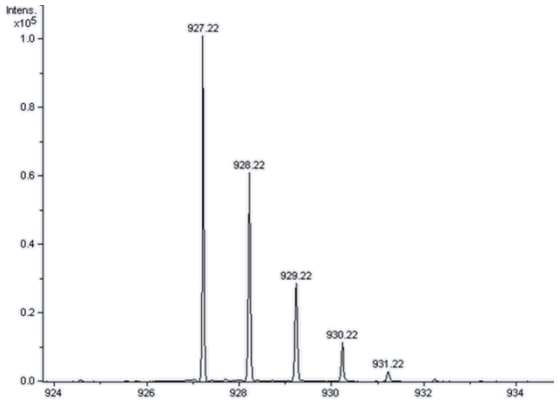

Figure S3. MS of $\mathbf{L_3}$: *trans*-$(F_5\text{-Ph})_2(\text{Im-Ph})_2$Por.

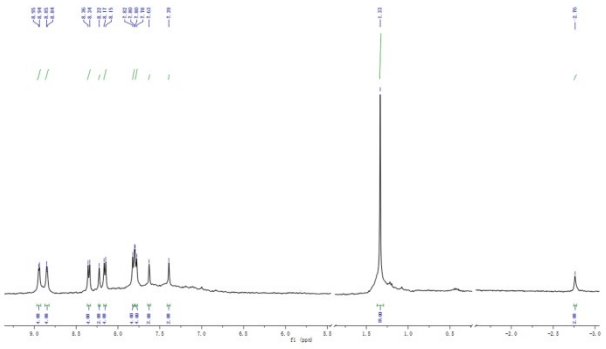

Figure S4. ^{1}H NMR spectrum of $\mathbf{L_1}$: *trans*-$(\text{tBu-Ph})_2(\text{Im-Ph})_2$Por.

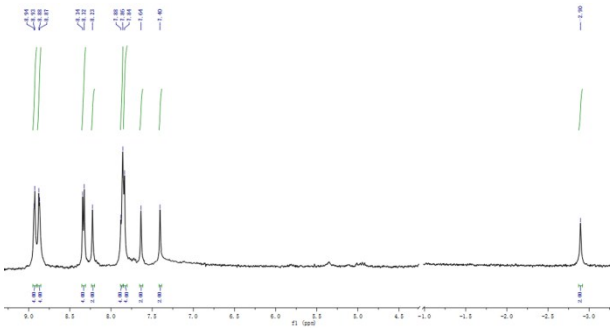

Figure S5. ^{1}H NMR spectrum of $\mathbf{L_2}$: *trans*-$(F_3\text{-Ph})_2(\text{Im-Ph})_2$Por.

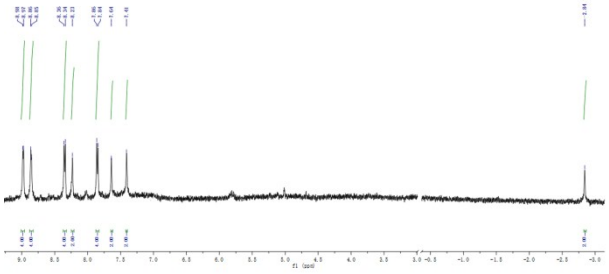

Figure S6. ^{1}H NMR spectrum of $\mathbf{L_3}$: *trans*-$(F_5\text{-Ph})_2(\text{Im-Ph})_2$Por.

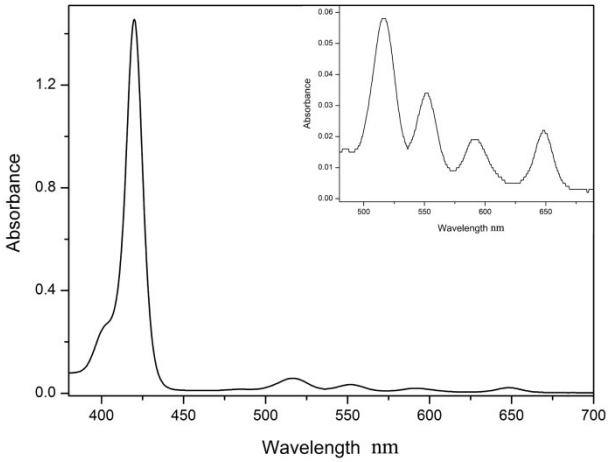

Figure S7. The UV-vis absorption spectrum of $\mathbf{L_1}$ in CH_2Cl_2

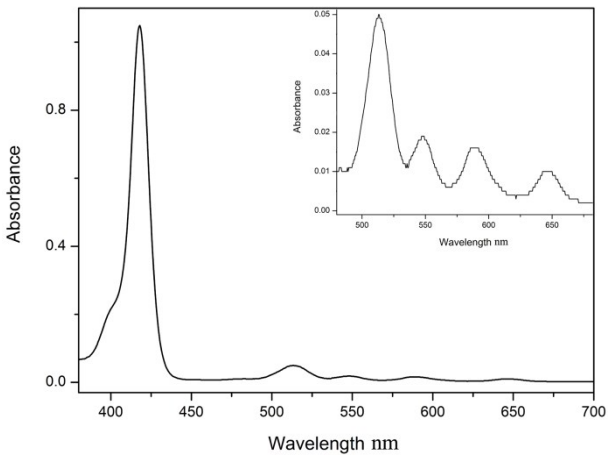

Figure S8: The UV-vis absorption spectrum of $\mathbf{L_2}$ in CH_2Cl_2

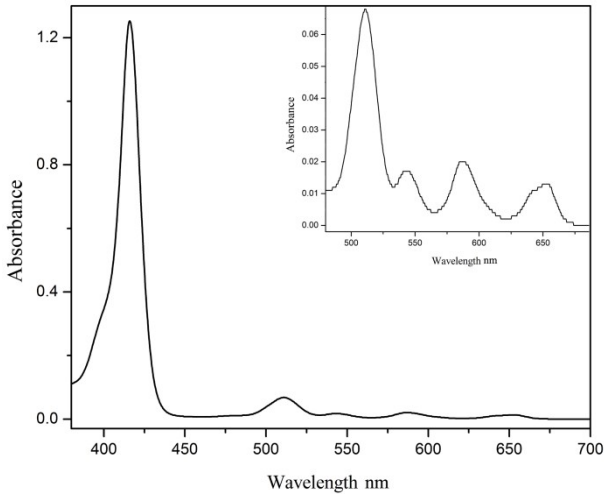

Figure S9. The UV-vis absorption spectrum of $\mathbf{L_3}$ in CH_2Cl_2

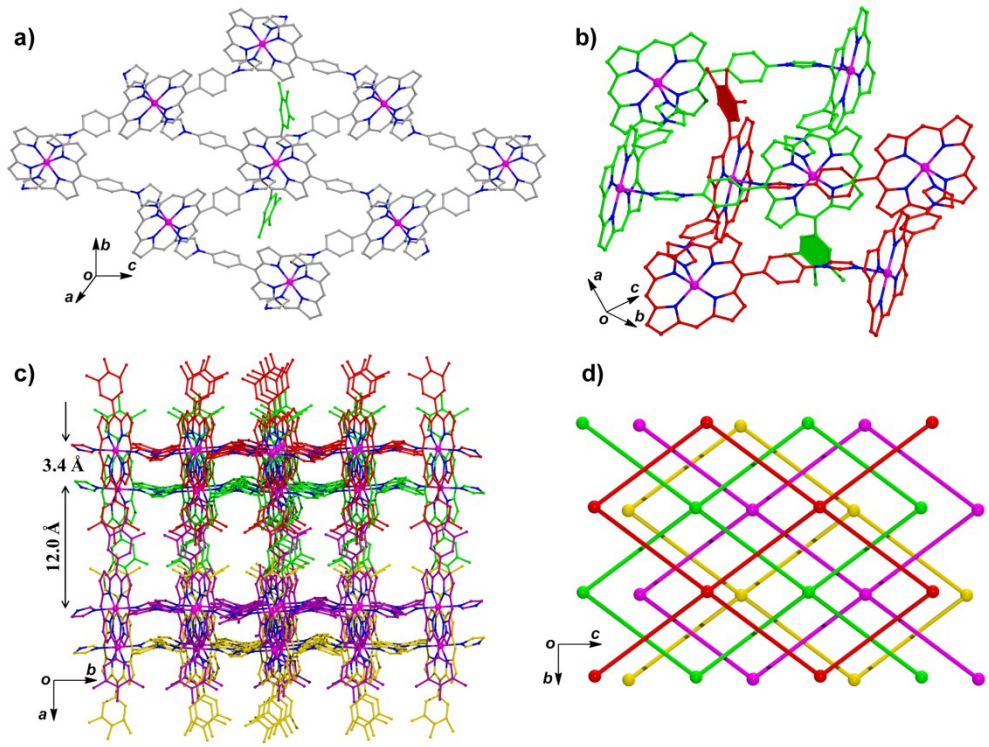

Figure S10. (a) 2D grid layer, b) mutual insertion of 3,4,5-trifluorophenyl groups in **2** between two layers, c) packing diagram of four layers and their topological representation in **2** viewed along the *c* axis, d) Topological graph exhibiting four Stacking layers.

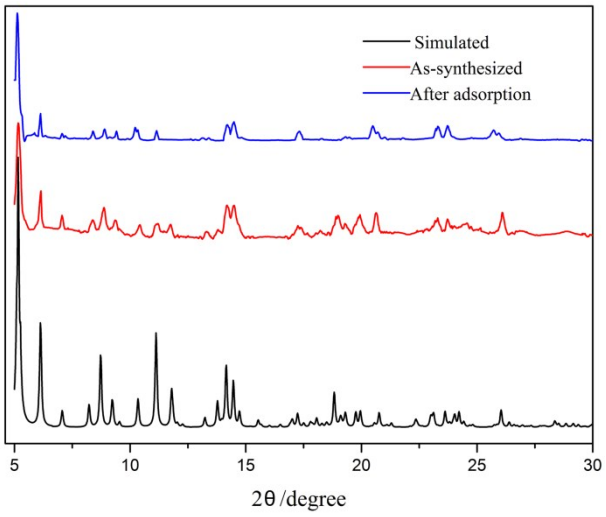

Figure S11. Powder X-ray diffraction pattern of complex **1**

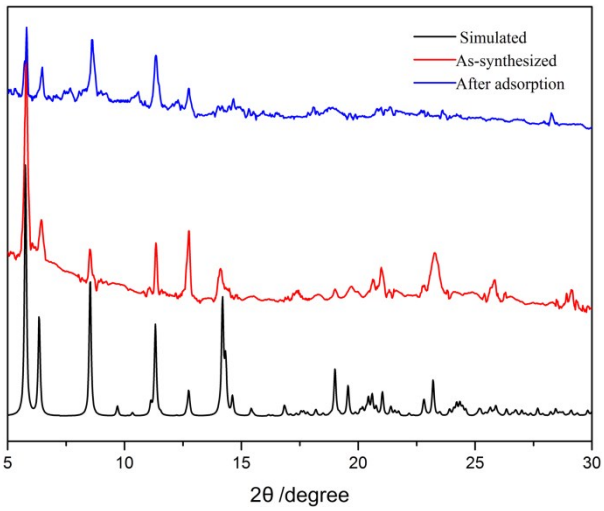

Figure S12. Powder X-ray diffraction pattern of complex **2**

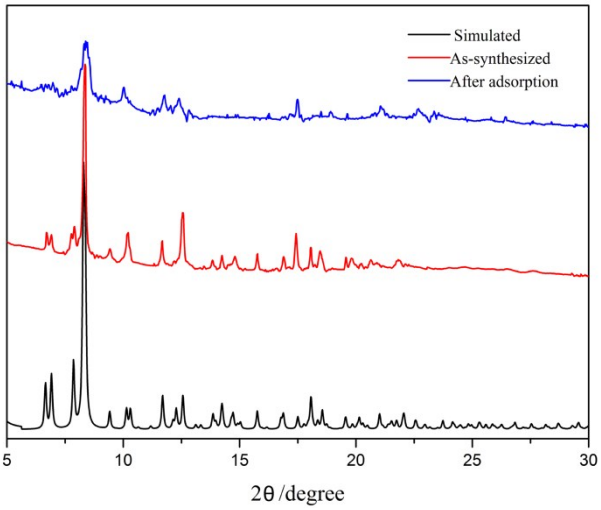

Figure S13. Powder X-ray diffraction pattern of complex **3**

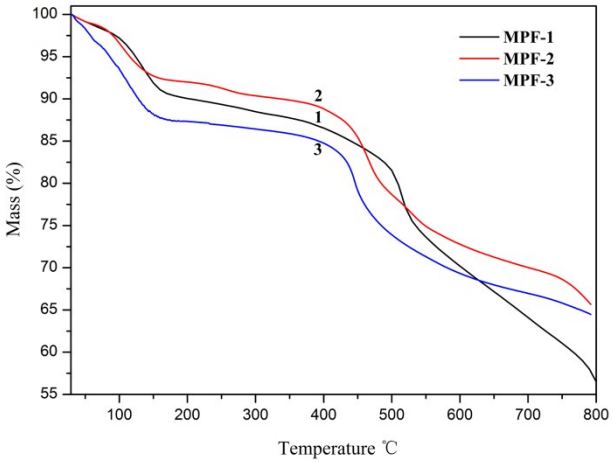

Figure S14. TGA curves for complexes **1-3**

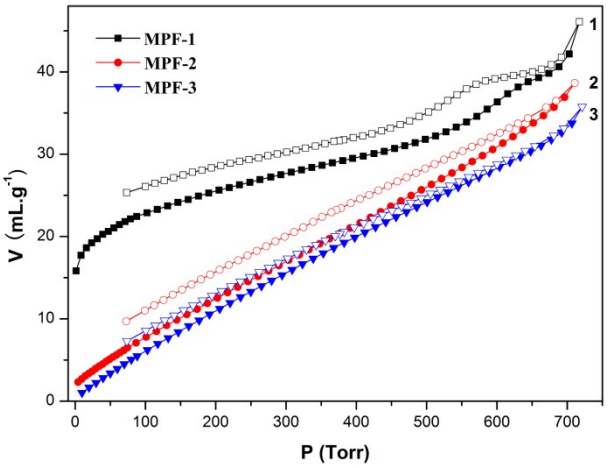

Figure S15. N_2 adsorption isotherms of complexes **1**, **2** and **3** at 77K: **1** (black); **2** (red); **3** (blue)

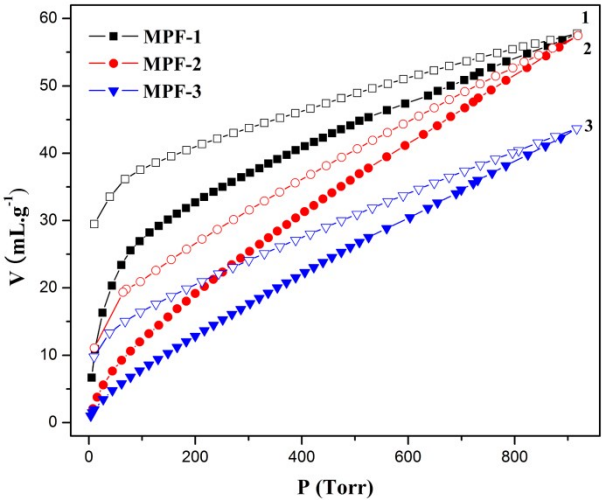

Figure S16. H_2 adsorption isotherms of complexes **1**, **2** and **3** at 77K: **1** (black); **2** (red); **3** (blue)

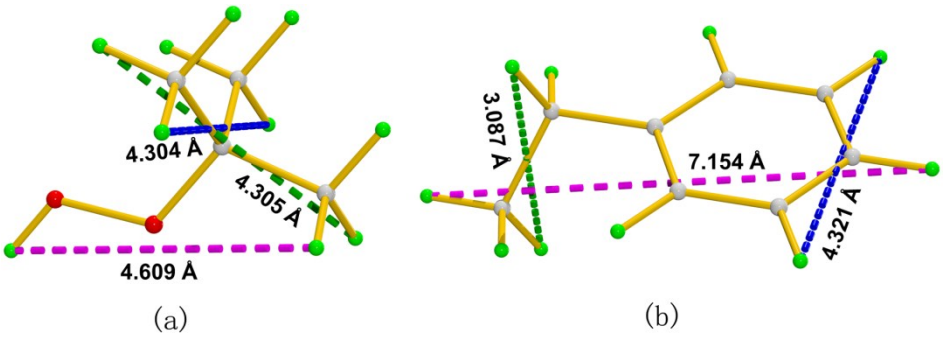

Figure S16. Structure of TBHP (a) and ethylbenzene (b) molecules

Table S1. Selected bond lengths (Å) and Angles (°) for complexes **1-3**

Complex **1**			
Co(1)-N(1)	1.980(4)	Co(1)-N(3)	1.973(4)
Co(1)-N(2)	1.979(4)	Co(1)-N(4)	1.976(4)

Co(1)-N(6)#1	2.219(4)	Co(1)-N(8)#2	2.238(4)
N(1)-Co(1)-N(2)	89.70(18)	N(1)-Co(1)-N(4)	89.74(18)
N(3)-Co(1)-N(4)	90.20(18)	N(3)-Co(1)-N(2)	90.42(18)
N(2)-Co(1)-N(8)#2	93.69(17)	N(4)-Co(1)-N(8)#2	87.40(17)
N(1)-Co(1)-N(8)#2	88.64(16)	N(3)-Co(1)-N(8)#2	88.15(16)
N(2)-Co(1)-N(6)#1	88.23(17)	N(4)-Co(1)-N(6)#1	90.68(16)
N(1)-Co(1)-N(6)#1	91.62(16)	N(3)-Co(1)-N(6)#1	91.59(16)
N(3)-Co(1)-N(1)	176.79(17)	N(4)-Co(1)-N(2)	178.77(17)
N(6)#1-Co(1)-N(8)#2	178.06(19)		

Complex **2**

Co(1)-N(1)	1.994(4)	Co(1)-N(2)	1.999(4)
Co(1)-N(3)	1.997(4)	Co(1)-N(4)	1.969(4)
Co(1)-N(8)#1	2.249(4)	Co(1)-N(6)#2	2.277(4)
N(1)-Co(1)-N(2)	89.83(18)	N(3)-Co(1)-N(2)	90.44(17)
N(4)-Co(1)-N(1)	90.40(18)	N(4)-Co(1)-N(3)	89.36(17)
N(4)-Co(1)-N(2)	178.83(16)	N(3)-Co(1)-N(1)	178.82(16)
N(1)-Co(1)-N(6)#2	89.44(16)	N(2)-Co(1)-N(6)#2	89.18(16)
N(3)-Co(1)-N(6)#2	91.71(16)	N(4)-Co(1)-N(6)#2	89.67(16)
N(1)-Co(1)-N(8)#1	91.39(16)	N(2)-Co(1)-N(8)#1	91.87(16)
N(3)-Co(1)-N(8)#1	87.46(16)	N(4)-Co(1)-N(8)#1	89.28(16)
N(8)#1-Co(1)-N(6)#2	178.67(16)		

Complex **3**

Fe(1)-N(1)	2.003(3)	Fe(1)-N(1)#3	2.003(3)
Fe(1)-N(2)	1.983(3)	Fe(1)-N(2)#3	1.983(3)

Fe(1)-N(3)#1	1.978(4)	Fe(1)-N(3)#2	1.978(4)
N(2)-Fe(1)-N(1)	92.25(15)	N(2)#3- Fe(1)-N(1)	89.75(15)
N(2)-Fe(1)-N(1)#3	89.75(15)	N(2)#3-Fe(1)-N(1)#3	90.25(15)
N(3)#1-Fe(1)-N(1)	91.49(14)	N(3)#2-Fe(1)-N(1)#3	91.49(14)
N(3)#1-Fe(1)-N(2)	90.11(15)	N(3)#2-Fe(1)-N(1)	88.51(14)
N(3)#1-Fe(1)-N(1)#3	88.51(14)	N(3)#2-Fe(1)-N(2)	89.90(15)
N(3)#1-Fe(1)-N(2)#3	89.90(15)	N(3)#2-Fe(1)-N(2)#3	90.10(15)
N(2)-Fe(1)-N(2)#3	180.00(19)	N(1)#3-Fe(1)-N(1)	180.00(18)
N(3)#1-Fe(1)-N(3)#2	180.00(17)		

Symmetry codes used to generate equivalent atoms: Complex **1**: #1 x, -y, z+1/2; #2 x, -y+1, z-1/2; #3 x, -y, z-1/2; #4 x, -y+1, z+1/2. Complex **2**: #1 x, -y, z-1/2; #2 x, -y+1, z+1/2; #3 x, -y+1, z-1/2;#4 x, -y, z+1/2. Complex **3**: #1 y-1/4, -x+3/4, z-1/4; #2 –y+1/4, x+1/4, -z+1/4; #3 –x, -y+1, -z; #4 –y+3/4, x+1/4, z+1/4.