SUPPORTING INFORMATION

Self assembly of a tren-derivative hydrogenated Schiff base with transition metal ions: syntheses, crystal structures and photoluminescent properties

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Table S1 Selected bond lengths (Å) and angles (°) of complex **1.**

Zn(1)-O(1)	2.067(3)	N(3)-Zn(1)-N(1)	83.12(14)
Zn(1)-N(3)	2.100(3)	N(2)-Zn(1)-N(1)	82.32(14)
Zn(1)-N(2)	2.101(3)	N(4)-Zn(1)-N(1)	81.60(13)
Zn(1)-N(4)	2.114(3)	N(5)[a]-Zn(2)-N(5)	180
Zn(1)-N(1)	2.205(3)	N(5)[a]-Zn(2)-O(3)	90.60(12)
Zn(2)-N(5)	2.137(3)	N(5)-Zn(2)-O(3)	89.40(12)
Zn(2) -N(5) [a]	2.137(3)	N(5)[a]-Zn(2)-O(3)[a]	89.40(12)
Zn(2)-O(3)	2.146(3)	N(5)-Zn(2)-O(3)[a]	90.60(12)
Zn(2) -O(3) [a]	2.146(3)	O(3)-Zn(2)-O(3)[a]	180
Zn(2)-O(2)	2.148(3)	N(5)[a]-Zn(2)-O(2)	90.75(11)
Zn(2) -O(2) [a]	2.148(3)	N(5)-Zn(2)-O(2)	89.25(11)
N(8)-O(7)	1.236(7)	O(3)-Zn(2)-O(2)	89.62(13)
N(8)-O(8)	1.245(6)	O(3)[a]-Zn(2)-O(2)	90.38(12)
N(8)-O(9)	1.262(6)	N(5)[a]-Zn(2)-O(2)[a]	89.25(11)
N(9)-O(5)	1.210(6)	N(5)-Zn(2)-O(2)[a]	90.75(11)
N(9)-O(4)	1.214(7)	O(3)-Zn(2)-O(2)[a]	90.38(12)
N(9)-O(6)	1.224(6)	O(3)[a]-Zn(2)-O(2)[a]	89.62(13)
N(10)-O(21)	1.212(8)	O(2)-Zn(2)-O(2)[a]	180
N(10)-O(23)	1.217(8)	O(7)-N(8)-O(8)	119.6(6)
N(10)-O(22)	1.312(8)	O(7)-N(8)-O(9)	121.0(5)
O(1)-Zn(1)-N(3)	97.31(13)	O(8)-N(8)-O(9)	119.4(6)
O(1)-Zn(1)-N(2)	100.10(13)	O(5)-N(9)-O(4)	116.0(5)
N(3)-Zn(1)-N(2)	112.45(15)	O(5)-N(9)-O(6)	121.6(5)
O(1)-Zn(1)-N(4)	95.88(13)	O(4)-N(9)-O(6)	122.1(5)
N(3)-Zn(1)-N(4)	125.70(16)	O(21)-N(10)-O(23)	122.8(10)
N(2)-Zn(1)-N(4)	116.55(15)	O(21)-N(10)-O(22)	117.2(10)
O(1)-Zn(1)-N(1)	177.12(13)	O(23)-N(10)-O(22)	115.9(9)

Symmetry codes: (a) *-x, -y+1, -z+2*.

Table S2 Selected bond lengths (Å) and angles (°) of complex **2.**

Cd(1)-N(2)[a]	2.425(4)	N(2)[a]-Cd(1)-Cl(4)	84.22(10)
Cd(1)-N(1)	2.442(4)	N(1)-Cd(1)-Cl(4)	89.33(10)
Cd(1)-Cl(3)	2.4988(13)	Cl(3)-Cd(1)-Cl(4)	146.20(6)
Cd(1)-Cl(2)	2.5037(15)	Cl(2)-Cd(1)-Cl(4)	109.19(5)
Cd(1)-Cl(4)	2.5216(14)	N(5)-Cd(2)-N(4)	133.04(15)
Cd(2)-N(5)	2.354(4)	N(5)-Cd(2)-N(6)	111.24(15)
Cd(2)-N(4)	2.369(4)	N(4)-Cd(2)-N(6)	97.27(14)
Cd(2)-N(6)	2.375(4)	N(5)-Cd(2)-N(7)	76.30(15)
Cd(2)-N(7)	2.413(4)	N(4)-Cd(2)-N(7)	76.26(14)
Cd(2)-Cl(1)	2.4702(16)	N(6)-Cd(2)-N(7)	74.87(14)

N(2)-Cd(1)[b]	2.425(4)	N(5)-Cd(2)-Cl(1)	102.19(12)
N(2)[a]-Cd(1)-N(1)	157.93(15)	N(4)-Cd(2)-Cl(1)	111.68(11)
N(2)[a]-Cd(1)-Cl(3)	86.38(10)	N(6)-Cd(2)-Cl(1)	95.38(11)
N(1)-Cd(1)-Cl(3)	87.36(10)	N(7)-Cd(2)-Cl(1)	168.45(11)
N(2)[a]-Cd(1)-Cl(2)	100.95(11)	C(6)-N(2)-Cd(1)[b]	122.4(3)
N(1)-Cd(1)-Cl(2)	101.10(11)	C(10)-N(2)-Cd(1)[b]	119.8(3)
Cl(3)-Cd(1)-Cl(2)	104.45(5)		

Symmetry codes: (a) *-x+2, y+3/2, -z+5/2*; (b) *-x+2, y-3/2, -z+5/2*.

Table S3 Selected bond lengths (Å) and angles (°) of complex **3.**

Cd(1)-N(4)	2.27(2)	N(2)-Cd(1)-N(1)	75.6(2)
Cd(1)-N(3)	2.353(5)	N(4')-Cd(1)-N(1)	74.9(5)
Cd(1)-N(2)	2.372(6)	O(2)-Cd(1)-N(1)	148.13(17)
Cd(1)-N(4')	2.38(2)	N(4)-Cd(1)-O(1)	88.5(6)
Cd(1)-O(2)	2.407(5)	N(3)-Cd(1)-O(1)	134.21(19)
Cd(1)-N(1)	2.440(6)	N(2)-Cd(1)-O(1)	88.0(2)
Cd(1)-O(1)	2.456(5)	N(4')-Cd(1)-O(1)	84.0(5)
Cd(2)-O(4)	2.317(5)	O(2)-Cd(1)-O(1)	51.79(18)
Cd(2)-O(4)^{a}	2.317(5)	N(1)-Cd(1)-O(1)	150.2(2)
Cd(2)-N(7)^{b}	2.372(5)	O(4)-Cd(2)-O(4)^{a}	180
Cd(2)-N(7)^{c}	2.372(5)	O(4)-Cd(2)-N(7)^{b}	90.25(19)
Cd(2)-N(6)	2.383(5)	O(4)^{a}-Cd(2)-N(7)^{b}	89.75(19)
Cd(2)-N(6)^{a}	2.383(5)	O(4)-Cd(2)-N(7)^{c}	89.75(19)
N(7)-Cd(2)^{d}	2.372(5)	O(4)^{a}-Cd(2)-N(7)^{c}	90.25(19)
N(8)-O(1)	1.226(8)	N(7)^{b}-Cd(2)-N(7)^{c}	180
N(8)-O(3)	1.238(7)	O(4)-Cd(2)-N(6)	84.68(18)
N(8)-O(2)	1.250(7)	O(4)^{a}-Cd(2)-N(6)	95.32(18)
N(9)-O(5)	1.161(9)	N(7)^{b}-Cd(2)-N(6)	86.40(18)
N(9)-O(7)	1.175(12)	N(7)^{c}-Cd(2)-N(6)	93.60(18)
N(9)-O(6)	1.297(13)	O(4)-Cd(2)-N(6)^{a}	95.32(18)
N(10)-O(10)	1.158(12)	O(4)^{a}-Cd(2)-N(6)^{a}	84.68(18)
N(10)-O(8)	1.255(12)	N(7)^{b}-Cd(2)-N(6)^{a}	93.60(18)
N(10)-O(9)	1.288(13)	N(7)^{c}-Cd(2)-N(6)^{a}	86.40(18)
N(4)-C(7)	1.48(2)	N(6)-Cd(2)-N(6)^{a}	180
N(4)-Cd(1)-N(3)	114.7(4)	O(1)-N(8)-O(3)	121.0(6)
N(4)-Cd(1)-N(2)	115.4(4)	O(1)-N(8)-O(2)	118.2(6)
N(3)-Cd(1)-N(2)	112.9(2)	O(3)-N(8)-O(2)	120.8(6)
N(4)-Cd(1)-N(4')	15.7(6)	O(5)-N(9)-O(7)	132.8(11)
N(3)-Cd(1)-N(4')	127.7(5)	O(5)-N(9)-O(6)	111.8(11)
N(2)-Cd(1)-N(4')	100.1(6)	O(7)-N(9)-O(6)	107.8(10)
N(4)-Cd(1)-O(2)	135.1(6)	O(10)-N(10)-O(8)	122.6(15)
N(3)-Cd(1)-O(2)	87.73(18)	O(10)-N(10)-O(9)	123.8(15)
N(2)-Cd(1)-O(2)	86.74(19)	O(8)-N(10)-O(9)	113.3(10)
N(4')-Cd(1)-O(2)	135.2(5)	N(8)-O(1)-Cd(1)	94.1(4)
N(4)-Cd(1)-N(1)	76.8(6)	N(8)-O(2)-Cd(1)	95.8(4)
N(3)-Cd(1)-N(1)	75.52(19)		

Symmetry codes: (a)-*x+1, -y+1, -z+2;* (b) *x+1/2, -y+1/2, z+1/2;* (c)-*x+1/2, y+1/2, -z+3/2; (d) -x+1/2, y-1/2, -z+3/2.* .

Table S4 Selected bond lengths (Å) and angles (^{o}) of complex **4.**

Mn(1)-N(7)[a]	2.300(4)	N(5)-Mn(1)-Cl(2)	88.57(9)
Mn(1)-N(7)[b]	2.300(4)	N(7)[a]-Mn(1)-Cl(2)[c]	90.08(11)
Mn(1)-N(5)[c]	2.348(4)	N(7)[b]-Mn(1)-Cl(2)[c]	89.92(11)
Mn(1)-N(5)	2.348(4)	N(5)[c]-Mn(1)-Cl(2)[c]	88.57(9)
Mn(1)-Cl(2)	2.5027(11)	N(5)-Mn(1)-Cl(2)[c]	91.43(9)
Mn(1)-Cl(2)[c]	2.5027(11)	Cl(2)-Mn(1)-Cl(2)[c]	180
Mn(2)-O(1)	2.239(4)	O(1)-Mn(2)-N(2)	84.03(14)
Mn(2)-N(2)	2.301(4)	O(1)-Mn(2)-N(4)	85.97(18)
Mn(2)-N(4)	2.324(4)	N(2)-Mn(2)-N(4)	146.71(15)
Mn(2)-N(3)	2.327(4)	O(1)-Mn(2)-N(3)	176.01(15)
Mn(2)-N(1)	2.331(4)	N(2)-Mn(2)-N(3)	93.55(14)
Mn(2)-Cl(1)	2.4471(15)	N(4)-Mn(2)-N(3)	94.40(18)
N(7)-Mn(1)[d]	2.300(4)	O(1)-Mn(2)-N(1)	100.03(14)
N(7)[a]-Mn(1)-N(7)[b]	180	N(2)-Mn(2)-N(1)	76.28(13)
N(7)[a]-Mn(1)-N(5)[c]	87.04(14)	N(4)-Mn(2)-N(1)	74.34(14)
N(7)[b]-Mn(1)-N(5)[c]	92.96(14)	N(3)-Mn(2)-N(1)	76.27(14)
N(7)[a]-Mn(1)-N(5)	92.96(14)	O(1)-Mn(2)-Cl(1)	90.97(12)
N(7)[b]-Mn(1)-N(5)	87.04(14)	N(2)-Mn(2)-Cl(1)	112.53(10)
N(5)[c]-Mn(1)-N(5)	180	N(4)-Mn(2)-Cl(1)	99.29(12)
N(7)[a]-Mn(1)-Cl(2)	89.92(11)	N(3)-Mn(2)-Cl(1)	92.89(11)
N(7)[b]-Mn(1)-Cl(2)	90.08(11)	N(1)-Mn(2)-Cl(1)	166.74(11)
N(5)[c]-Mn(1)-Cl(2)	91.43(9)		

Symmetry codes: (a) *x+1/2, -y-1/2, z-1/2*;(b) *-x+1/2, y+1/2, -z+1/2*;(c) *-x+1, -y, -z*; (d) *-x+1/2, y-1/2, -z+1/2*.

Figure S1 Comparison of experimental and calculated powder X-ray diffraction patterns of complex **1.**

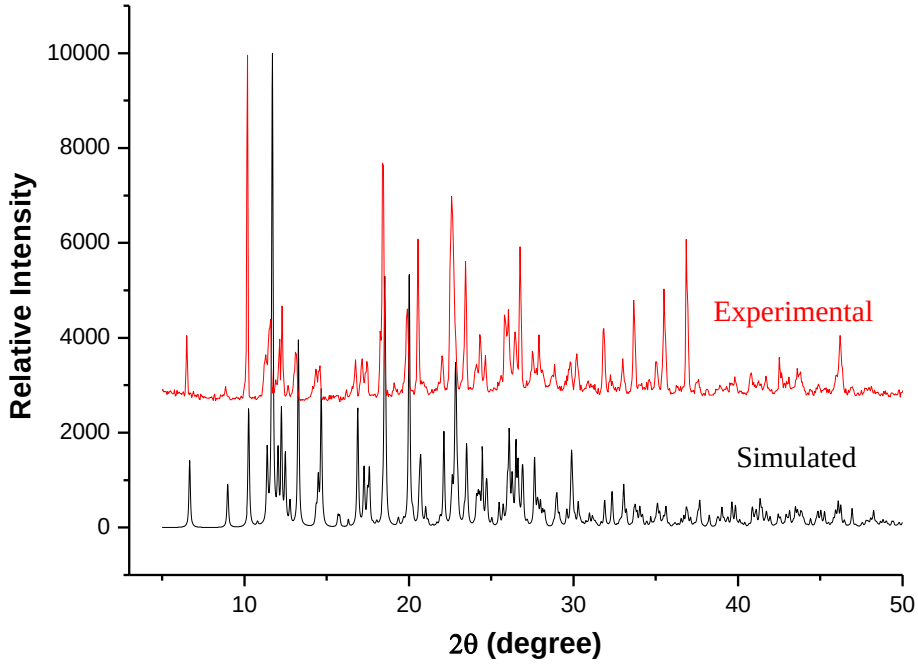

Figure S2 Comparison of experimental and calculated powder X-ray diffraction patterns of complex **2.**

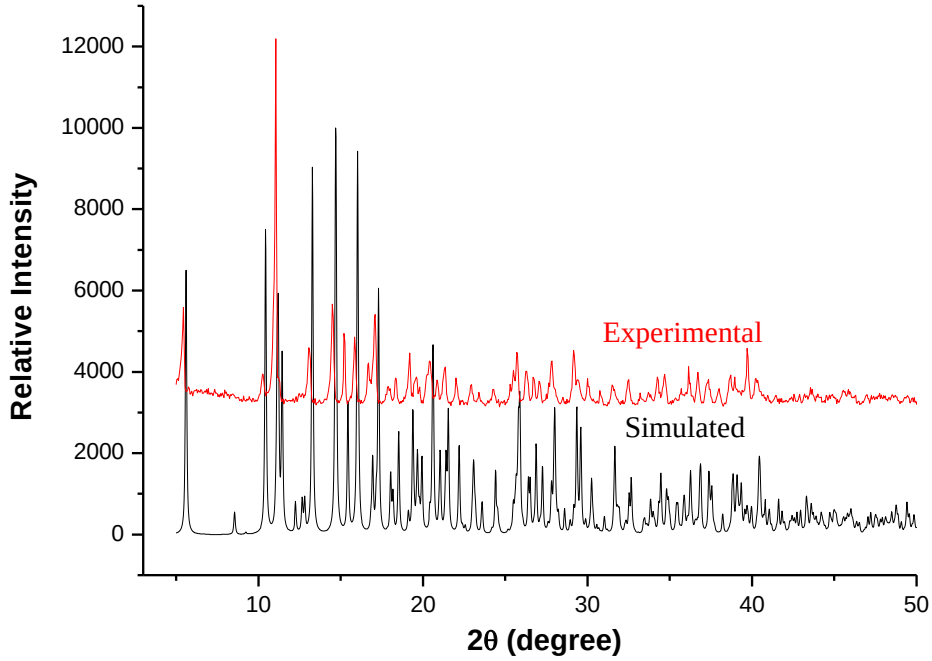

Figure S3 Comparison of experimental and calculated powder X-ray diffraction

patterns of complex **3.**

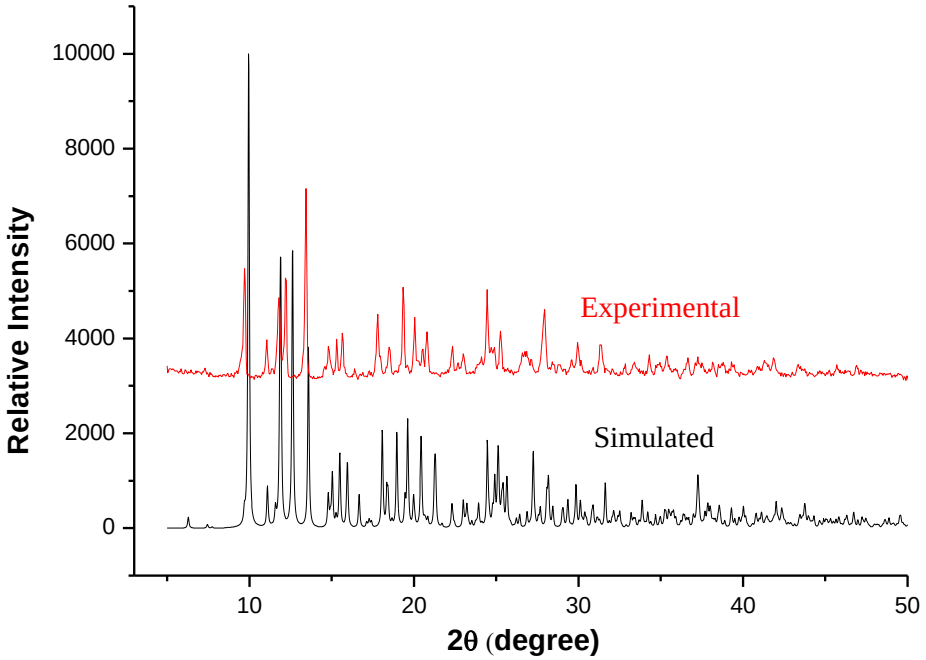

Figure S4 Comparison of experimental and calculated powder X-ray diffraction patterns of complex **4.**