Table S19. Bond lengths (Å) and angles (°) for $\{(DMF)_{12}Ce_2[Ni(CN)_4]_3\}_\infty$ (type **C**) **4**.

Bond lengths

Ce-O(1)	2.4806(14)	C(2B)-H(2BC)	0.9800
Ce-O(4)	2.4835(16)	O(3)-C(3)	1.234(3)
Ce-O(3)	2.5059(15)	C(3)-N(3)	1.324(3)
Ce-O(2)	2.5310(14)	C(3)-H(3A)	0.9500
Ce-O(6)	2.5589(14)	N(3)-C(3A)	1.458(3)
Ce-O(5)	2.5626(15)	N(3)-C(3B)	1.461(3)
Ce-N(12)#1	2.6338(18)	C(3A)-H(3AA)	0.9800
Ce-N(11)	2.6486(18)	C(3A)-H(3AB)	0.9800
Ce-N(21)	2.6513(17)	C(3A)-H(3AC)	0.9800
Ni(1)-C(11)	1.866(2)	C(3B)-H(3BA)	0.9800
Ni(1)-C(13)	1.867(2)	C(3B)-H(3BB)	0.9800
Ni(1)-C(12)	1.870(2)	C(3B)-H(3BC)	0.9800
Ni(1)-C(14)	1.872(2)	O(4)-C(4)	1.236(3)
Ni(2)-C(21)	1.870(2)	C(4)-N(4)	1.316(3)
Ni(2)-C(22)	1.876(2)	C(4)-H(4A)	0.9500
C(11)-N(11)	1.153(3)	N(4)-C(4A)	1.450(3)
C(12)-N(12)	1.152(3)	N(4)-C(4B)	1.456(3)
C(13)-N(13)	1.149(3)	C(4A)-H(4AA)	0.9800
C(14)-N(14)	1.150(3)	C(4A)-H(4AB)	0.9800
C(22)-N(22)	1.150(3)	C(4A)-H(4AC)	0.9800
C(21)-N(21)	1.150(3)	C(4B)-H(4BA)	0.9800
O(1)-C(1)	1.247(3)	C(4B)-H(4BB)	0.9800
C(1)-N(1)	1.311(3)	C(4B)-H(4BC)	0.9800
C(1)-H(1)	0.9500	O(5)-C(5)	1.235(3)
N(1)-C(1B)	1.453(3)	C(5)-N(5)	1.318(3)
N(1)-C(1A)	1.457(3)	C(5)-H(5A)	0.9500
C(1A)-H(1AA)	0.9800	N(5)-C(5A)	1.448(3)
C(1A)-H(1AB)	0.9800	N(5)-C(5B)	1.451(4)
C(1A)-H(1AC)	0.9800	C(5A)-H(5AA)	0.9800
C(1B)-H(1BA)	0.9800	C(5A)-H(5AB)	0.9800
C(1B)-H(1BB)	0.9800	C(5A)-H(5AC)	0.9800
C(1B)-H(1BC)	0.9800	C(5B)-H(5BA)	0.9800
O(2)-C(2)	1.237(3)	C(5B)-H(5BB)	0.9800
C(2)-N(2)	1.317(3)	C(5B)-H(5BC)	0.9800
C(2)-H(2A)	0.9500	O(6)-C(6)	1.231(3)
N(2)-C(2A)	1.444(3)	C(6)-N(6)	1.321(3)
N(2)-C(2B)	1.456(3)	C(6)-H(6A)	0.9500
C(2A)-H(2AA)	0.9800	N(6)-C(6A)	1.446(3)
C(2A)-H(2AB)	0.9800	N(6)-C(6B)	1.453(3)
C(2A)-H(2AC)	0.9800	C(6A)-H(6AA)	0.9800
C(2B)-H(2BA)	0.9800	C(6A)-H(6AB)	0.9800
C(2B)-H(2BB)	0.9800	C(6A)-H(6AC)	0.9800

C(6B)-H(6BA)	0.9800	C(6B)-H(6BC)	0.9800
C(6B)-H(6BB)	0.9800		

Angles

O(1)-Ce-O(4)	136.98(5)	C(12)-Ni(1)-C(14)	173.09(9)
O(1)-Ce-O(3)	136.26(5)	C(21)-Ni(2)-C(21)#2	180.00(10)
O(4)-Ce-O(3)	71.11(6)	C(21)-Ni(2)-C(22)	91.58(9)
O(1)-Ce-O(2)	69.34(5)	C(21)#2-Ni(2)-C(22)	88.42(9)
O(4)-Ce-O(2)	126.43(6)	C(21)-Ni(2)-C(22)#2	88.42(9)
O(3)-Ce-O(2)	127.10(5)	C(21)#2-Ni(2)-C(22)#2	91.58(9)
O(1)-Ce-O(6)	70.46(5)	C(22)-Ni(2)-C(22)#2	180.000(1)
O(4)-Ce-O(6)	67.90(5)	N(11)-C(11)-Ni(1)	174.05(19)
O(3)-Ce-O(6)	111.14(5)	C(11)-N(11)-Ce	168.34(16)
O(2)-Ce-O(6)	121.73(5)	N(12)-C(12)-Ni(1)	174.21(19)
O(1)-Ce-O(5)	82.65(5)	C(12)-N(12)-Ce#1	164.15(17)
O(4)-Ce-O(5)	71.80(6)	N(13)-C(13)-Ni(1)	176.4(2)
O(3)-Ce-O(5)	139.92(5)	N(14)-C(14)-Ni(1)	178.2(2)
O(2)-Ce-O(5)	67.42(5)	N(22)-C(22)-Ni(2)	177.67(19)
O(6)-Ce-O(5)	67.17(5)	N(21)-C(21)-Ni(2)	178.57(19)
O(1)-Ce-N(12)#1	79.00(5)	C(21)-N(21)-Ce	175.77(17)
O(4)-Ce-N(12)#1	141.93(6)	C(1)-O(1)-Ce	131.37(14)
O(3)-Ce-N(12)#1	72.40(6)	O(1)-C(1)-N(1)	124.2(2)
O(2)-Ce-N(12)#1	70.38(5)	O(1)-C(1)-H(1)	117.9
O(6)-Ce-N(12)#1	137.56(5)	N(1)-C(1)-H(1)	117.9
O(5)-Ce-N(12)#1	137.61(5)	C(1)-N(1)-C(1B)	121.30(19)
O(1)-Ce-N(11)	72.59(5)	C(1)-N(1)-C(1A)	120.7(2)
O(4)-Ce-N(11)	101.03(6)	C(1B)-N(1)-C(1A)	117.8(2)
O(3)-Ce-N(11)	68.54(5)	N(1)-C(1A)-H(1AA)	109.5
O(2)-Ce-N(11)	132.29(5)	N(1)-C(1A)-H(1AB)	109.5
O(6)-Ce-N(11)	68.18(5)	H(1AA)-C(1A)-H(1AB)	109.5
O(5)-Ce-N(11)	133.99(5)	N(1)-C(1A)-H(1AC)	109.5
N(12)#1-Ce-N(11)	75.10(6)	H(1AA)-C(1A)-H(1AC)	109.5
O(1)-Ce-N(21)	138.71(5)	H(1AB)-C(1A)-H(1AC)	109.5
O(4)-Ce-N(21)	73.28(6)	N(1)-C(1B)-H(1BA)	109.5
O(3)-Ce-N(21)	71.13(5)	N(1)-C(1B)-H(1BB)	109.5
O(2)-Ce-N(21)	69.46(5)	H(1BA)-C(1B)-H(1BB)	109.5
O(6)-Ce-N(21)	137.10(5)	N(1)-C(1B)-H(1BC)	109.5
O(5)-Ce-N(21)	84.15(5)	H(1BA)-C(1B)-H(1BC)	109.5
N(12)#1-Ce-N(21)	85.04(6)	H(1BB)-C(1B)-H(1BC)	109.5
N(11)-Ce-N(21)	138.77(6)	C(2)-O(2)-Ce	131.91(14)
C(11)-Ni(1)-C(13)	172.79(10)	O(2)-C(2)-N(2)	125.0(2)
C(11)-Ni(1)-C(12)	91.65(9)	O(2)-C(2)-H(2A)	117.5
C(13)-Ni(1)-C(12)	88.87(9)	N(2)-C(2)-H(2A)	117.5
C(11)-Ni(1)-C(14)	89.58(9)	C(2)-N(2)-C(2A)	121.22(19)
C(13)-Ni(1)-C(14)	90.77(9)	C(2)-N(2)-C(2B)	121.43(19)

C(2A)-N(2)-C(2B)	117.33(19)
N(2)-C(2A)-H(2AA)	109.5
N(2)-C(2A)-H(2AB)	109.5
H(2AA)-C(2A)-H(2AB)	109.5
N(2)-C(2A)-H(2AC)	109.5
H(2AA)-C(2A)-H(2AC)	109.5
H(2AB)-C(2A)-H(2AC)	109.5
N(2)-C(2B)-H(2BA)	109.5
N(2)-C(2B)-H(2BB)	109.5
H(2BA)-C(2B)-H(2BB)	109.5
N(2)-C(2B)-H(2BC)	109.5
H(2BA)-C(2B)-H(2BC)	109.5
H(2BB)-C(2B)-H(2BC)	109.5
C(3)-O(3)-Ce	136.11(14)
O(3)-C(3)-N(3)	123.8(2)
O(3)-C(3)-H(3A)	118.1
N(3)-C(3)-H(3A)	118.1
C(3)-N(3)-C(3A)	121.4(2)
C(3)-N(3)-C(3B)	121.0(2)
C(3A)-N(3)-C(3B)	117.6(2)
N(3)-C(3A)-H(3AA)	109.5
N(3)-C(3A)-H(3AB)	109.5
H(3AA)-C(3A)-H(3AB)	109.5
N(3)-C(3A)-H(3AC)	109.5
H(3AA)-C(3A)-H(3AC)	109.5
H(3AB)-C(3A)-H(3AC)	109.5
N(3)-C(3B)-H(3BA)	109.5
N(3)-C(3B)-H(3BB)	109.5
H(3BA)-C(3B)-H(3BB)	109.5
N(3)-C(3B)-H(3BC)	109.5
H(3BA)-C(3B)-H(3BC)	109.5
H(3BB)-C(3B)-H(3BC)	109.5
C(4)-O(4)-Ce	143.25(15)
O(4)-C(4)-N(4)	124.9(2)
O(4)-C(4)-H(4A)	117.5
N(4)-C(4)-H(4A)	117.5
C(4)-N(4)-C(4A)	121.2(2)
C(4)-N(4)-C(4B)	121.7(2)
C(4A)-N(4)-C(4B)	116.9(2)
N(4)-C(4A)-H(4AA)	109.5
N(4)-C(4A)-H(4AB)	109.5
H(4AA)-C(4A)-H(4AB)	109.5
N(4)-C(4A)-H(4AC)	109.5
H(4AA)-C(4A)-H(4AC)	109.5
H(4AB)-C(4A)-H(4AC)	109.5
N(4)-C(4B)-H(4BA)	109.5
N(4)-C(4B)-H(4BB)	109.5
H(4BA)-C(4B)-H(4BB)	109.5
N(4)-C(4B)-H(4BC)	109.5
H(4BA)-C(4B)-H(4BC)	109.5
H(4BB)-C(4B)-H(4BC)	109.5
C(5)-O(5)-Ce	119.75(14)
O(5)-C(5)-N(5)	125.5(2)
O(5)-C(5)-H(5A)	117.2
N(5)-C(5)-H(5A)	117.2
C(5)-N(5)-C(5A)	121.3(2)
C(5)-N(5)-C(5B)	121.8(2)
C(5A)-N(5)-C(5B)	116.9(2)
N(5)-C(5A)-H(5AA)	109.5
N(5)-C(5A)-H(5AB)	109.5
H(5AA)-C(5A)-H(5AB)	109.5
N(5)-C(5A)-H(5AC)	109.5
H(5AA)-C(5A)-H(5AC)	109.5
H(5AB)-C(5A)-H(5AC)	109.5
N(5)-C(5B)-H(5BA)	109.5
N(5)-C(5B)-H(5BB)	109.5
H(5BA)-C(5B)-H(5BB)	109.5
N(5)-C(5B)-H(5BC)	109.5
H(5BA)-C(5B)-H(5BC)	109.5
H(5BB)-C(5B)-H(5BC)	109.5
C(6)-O(6)-Ce	148.24(15)
O(6)-C(6)-N(6)	123.7(2)
O(6)-C(6)-H(6A)	118.1
N(6)-C(6)-H(6A)	118.1
C(6)-N(6)-C(6A)	120.22(19)
C(6)-N(6)-C(6B)	122.2(2)
C(6A)-N(6)-C(6B)	117.6(2)
N(6)-C(6A)-H(6AA)	109.5
N(6)-C(6A)-H(6AB)	109.5
H(6AA)-C(6A)-H(6AB)	109.5
N(6)-C(6A)-H(6AC)	109.5
H(6AA)-C(6A)-H(6AC)	109.5
H(6AB)-C(6A)-H(6AC)	109.5
N(6)-C(6B)-H(6BA)	109.5
N(6)-C(6B)-H(6BB)	109.5
H(6BA)-C(6B)-H(6BB)	109.5
N(6)-C(6B)-H(6BC)	109.5
H(6BA)-C(6B)-H(6BC)	109.5
H(6BB)-C(6B)-H(6BC)	109.5

Symmetry transformations used to generate equivalent atoms:
#1 -x,-y+1,-z+1 #2 -x,-y+2,-z+2

Table S20. Anisotropic displacement parameters ($Å^2$ x 10^3) for $\{(DMF)_{12}Ce_2[Ni(CN)_4]_3\}_\infty$ (type **C**) **4**.

Atom	U11	U22	U33	U23	U13	U12
Ce	16(1)	18(1)	16(1)	2(1)	6(1)	7(1)
Ni(1)	17(1)	19(1)	22(1)	1(1)	5(1)	7(1)
Ni(2)	20(1)	22(1)	21(1)	1(1)	10(1)	8(1)
C(11)	16(1)	25(1)	24(1)	5(1)	5(1)	4(1)
N(11)	25(1)	24(1)	32(1)	3(1)	11(1)	8(1)
C(12)	23(1)	18(1)	28(1)	5(1)	12(1)	9(1)
N(12)	21(1)	23(1)	31(1)	6(1)	6(1)	6(1)
C(13)	22(1)	33(1)	31(1)	0(1)	3(1)	10(1)
N(13)	45(1)	55(1)	45(1)	-7(1)	9(1)	29(1)
C(14)	25(1)	26(1)	32(1)	3(1)	10(1)	11(1)
N(14)	34(1)	54(1)	33(1)	9(1)	3(1)	17(1)
C(22)	21(1)	28(1)	28(1)	0(1)	13(1)	7(1)
N(22)	38(1)	38(1)	50(1)	17(1)	22(1)	15(1)
C(21)	24(1)	22(1)	23(1)	5(1)	9(1)	8(1)
N(21)	34(1)	30(1)	28(1)	7(1)	18(1)	15(1)
O(1)	37(1)	32(1)	22(1)	6(1)	16(1)	15(1)
C(1)	31(1)	33(1)	23(1)	9(1)	14(1)	11(1)
N(1)	35(1)	29(1)	26(1)	4(1)	17(1)	8(1)
C(1A)	60(2)	42(2)	48(2)	3(1)	37(1)	16(1)
C(1B)	38(1)	37(1)	49(2)	-3(1)	10(1)	5(1)
O(2)	27(1)	30(1)	33(1)	13(1)	12(1)	15(1)
C(2)	29(1)	26(1)	28(1)	10(1)	11(1)	11(1)
N(2)	31(1)	26(1)	29(1)	10(1)	9(1)	14(1)
C(2A)	50(2)	30(1)	56(2)	18(1)	19(1)	12(1)
C(2B)	38(1)	42(1)	50(2)	17(1)	12(1)	26(1)
O(3)	50(1)	28(1)	29(1)	10(1)	20(1)	7(1)
C(3)	22(1)	25(1)	32(1)	8(1)	10(1)	4(1)
N(3)	25(1)	29(1)	36(1)	15(1)	8(1)	5(1)
C(3A)	31(1)	55(2)	40(2)	28(1)	6(1)	4(1)
C(3B)	42(2)	26(1)	77(2)	19(1)	19(1)	11(1)
O(4)	30(1)	78(1)	23(1)	17(1)	5(1)	24(1)
C(4)	30(1)	40(1)	23(1)	8(1)	10(1)	13(1)
N(4)	21(1)	34(1)	29(1)	7(1)	5(1)	8(1)
C(4A)	40(2)	36(1)	60(2)	16(1)	14(1)	5(1)
C(4B)	26(1)	52(2)	66(2)	12(2)	-3(1)	12(1)
O(5)	29(1)	26(1)	38(1)	3(1)	11(1)	2(1)
C(5)	26(1)	28(1)	34(1)	4(1)	4(1)	7(1)
N(5)	26(1)	28(1)	41(1)	9(1)	13(1)	6(1)
C(5A)	30(1)	46(2)	52(2)	-5(1)	13(1)	-5(1)

C(5B)	51(2)	76(2)	66(2)	39(2)	26(2)	15(2)
O(6)	21(1)	38(1)	37(1)	1(1)	9(1)	13(1)
C(6)	24(1)	29(1)	24(1)	-1(1)	8(1)	6(1)
N(6)	20(1)	31(1)	31(1)	1(1)	7(1)	8(1)
C(6A)	26(1)	37(1)	53(2)	4(1)	3(1)	2(1)
C(6B)	31(1)	49(2)	66(2)	-1(1)	12(1)	21(1)

The anisotropic displacement factor exponent takes the form:
$-2\pi^2(h^2a^{*2}U11 + ... + 2h\ k\ a^*\ b^*\ U12)$

Table S21. Atomic coordinates (x 10^4) and equivalent isotropic displacement parameters (Å^2 x 10^3) for $\{(DMF)_{12}Ce_2[Pd(CN)_4]_3\}_\infty$ (type **C**) **5.**

Atom	x	y	z	U(eq)[a,b]
Ce	2271(1)	7873(1)	7411(1)	20(1)
Pd(1)	2774(1)	3700(1)	5666(1)	24(1)
Pd(2)	0	10000	10000	25(1)
C(11)	2338(4)	5002(4)	6303(3)	27(1)
N(11)	2172(3)	5810(3)	6652(3)	34(1)
C(12)	1157(4)	3346(3)	4421(3)	26(1)
N(12)	183(4)	3062(3)	3750(3)	32(1)
C(13)	3306(4)	2496(4)	4990(4)	37(1)
N(13)	3638(5)	1830(4)	4579(4)	63(1)
C(14)	4298(4)	3959(4)	6958(4)	34(1)
N(14)	5147(4)	4099(4)	7723(4)	55(1)
C(21)	850(4)	9339(4)	9126(3)	30(1)
N(21)	1345(4)	8938(3)	8632(3)	36(1)
C(22)	112(4)	8748(4)	10725(4)	33(1)
N(22)	194(4)	8016(4)	11123(4)	54(1)
O(1)	2354(3)	7783(2)	5652(2)	34(1)
C(1)	2874(4)	7269(4)	5170(3)	34(1)
N(1)	2252(4)	6488(3)	4324(3)	36(1)
C(1A)	860(5)	6136(4)	3904(4)	54(1)
C(1B)	2955(6)	5904(5)	3827(4)	55(1)
O(2)	1273(3)	9284(2)	6581(2)	35(1)
C(2)	255(4)	9539(4)	6488(3)	33(1)
N(2)	48(4)	10493(3)	6323(3)	33(1)
C(2A)	1045(5)	11380(4)	6272(4)	51(1)
C(2B)	-1186(5)	10724(5)	6205(4)	52(1)
O(3)	1346(3)	6550(3)	8326(2)	43(1)
C(3)	1399(4)	6531(4)	9217(4)	33(1)
N(3)	1575(3)	5692(3)	9661(3)	36(1)
C(3A)	1650(5)	5739(5)	10727(4)	51(1)
C(3B)	1775(5)	4720(4)	9121(5)	60(2)
O(4)	3817(3)	8162(4)	9211(3)	56(1)
C(4)	4964(5)	8392(4)	9759(4)	41(1)
N(4)	5600(3)	7686(3)	10101(3)	38(1)
C(4A)	4959(6)	6504(5)	9813(5)	60(2)
C(4B)	6919(5)	8011(5)	10812(6)	74(2)
O(5)	3913(3)	9750(3)	7842(3)	41(1)
C(5)	4281(5)	10083(4)	7174(4)	44(1)
N(5)	5365(4)	10825(3)	7342(3)	40(1)
C(5A)	6269(6)	11327(5)	8396(5)	68(2)
C(5B)	5738(7)	11180(7)	6521(6)	83(2)

O(6)	4481(3)	7683(3)	7457(2)	40(1)
C(6)	5238(4)	7102(4)	7533(3)	33(1)
N(6)	6480(3)	7494(3)	7785(3)	35(1)
C(6A)	7350(5)	6789(5)	7872(5)	66(2)
C(6B)	7045(5)	8672(5)	7973(5)	57(2)
H(1)	3779	7450	5427	41
H(1A1)	570	5556	3283	81
H(1A2)	527	6763	3733	81
H(1A3)	550	5854	4415	81
H(1B1)	2348	5357	3217	82
H(1B2)	3457	5535	4310	82
H(1B3)	3528	6432	3624	82
H(2)	-421	9008	6541	40
H(2A1)	709	12015	6143	77
H(2A2)	1320	11129	5713	77
H(2A3)	1773	11591	6924	77
H(2B1)	-1152	11469	6089	77
H(2B2)	-1370	10663	6830	77
H(2B3)	-1860	10193	5618	77
H(3)	1307	7157	9605	39
H(3A1)	1777	5049	10921	77
H(3A2)	855	5847	10785	77
H(3A3)	2367	6352	11185	77
H(3B1)	1884	4187	9562	89
H(3B2)	2541	4936	8954	89
H(3B3)	1035	4387	8486	89
H(4)	5425	9144	9948	49
H(4A1)	5566	6100	10131	90
H(4A2)	4642	6257	9064	90
H(4A3)	4242	6367	10051	90
H(4B1)	7196	7355	10962	110
H(4B2)	6987	8476	11451	110
H(4B3)	7463	8423	10503	110
H(5)	3737	9780	6479	53
H(5A1)	7013	11848	8375	101
H(5A2)	6545	10752	8738	101
H(5A3)	5852	11715	8778	101
H(5B1)	6571	11723	6817	125
H(5B2)	5102	11511	6115	125
H(5B3)	5792	10545	6077	125
H(6)	4902	6329	7404	39
H(6A1)	8224	7246	8066	99
H(6A2)	7104	6282	7210	99
H(6A3)	7304	6369	8397	99
H(6B1)	7968	8816	8150	85

H(6B2)	6871	9051	8543	85
H(6B3)	6674	8941	7354	85

[a] U(eq) is defined as one third of the trace of the orthogonalized Uij tensor.
[b] Atomic coordinates and thermal parameters for hydrogen atoms were calculated and fixed during the refinement.

Table S22. Bond lengths (Å) and angles (°) for $\{(DMF)_{12}Ce_2[Pd(CN)_4]_3\}_\infty$ (type **C**) **5**.

Bond lengths

Ce-O(1)	2.478(3)	C(2B)-H(2B3)	0.9700
Ce-O(4)	2.481(3)	O(3)-C(3)	1.230(5)
Ce-O(3)	2.499(3)	C(3)-N(3)	1.315(6)
Ce-O(2)	2.516(3)	C(3)-H(3)	0.9400
Ce-O(5)	2.554(3)	N(3)-C(3B)	1.451(7)
Ce-O(6)	2.560(3)	N(3)-C(3A)	1.456(7)
Ce-N(21)	2.639(4)	C(3A)-H(3A1)	0.9700
Ce-N(11)	2.641(4)	C(3A)-H(3A2)	0.9700
Ce-N(12)#1	2.647(4)	C(3A)-H(3A3)	0.9700
Pd(1)-C(13)	1.984(5)	C(3B)-H(3B1)	0.9700
Pd(1)-C(14)	1.986(5)	C(3B)-H(3B2)	0.9700
Pd(1)-C(11)	1.993(5)	C(3B)-H(3B3)	0.9700
Pd(1)-C(12)	1.995(5)	O(4)-C(4)	1.228(6)
Pd(2)-C(21)	1.988(5)	C(4)-N(4)	1.304(6)
Pd(2)-C(22)	1.991(5)	C(4)-H(4)	0.9400
C(11)-N(11)	1.148(5)	N(4)-C(4B)	1.441(7)
C(12)-N(12)	1.143(5)	N(4)-C(4A)	1.454(7)
C(13)-N(13)	1.149(6)	C(4A)-H(4A1)	0.9700
C(14)-N(14)	1.147(6)	C(4A)-H(4A2)	0.9700
C(21)-N(21)	1.153(5)	C(4A)-H(4A3)	0.9700
C(22)-N(22)	1.144(6)	C(4B)-H(4B1)	0.9700
O(1)-C(1)	1.235(5)	C(4B)-H(4B2)	0.9700
C(1)-N(1)	1.313(6)	C(4B)-H(4B3)	0.9700
C(1)-H(1)	0.9400	O(5)-C(5)	1.227(6)
N(1)-C(1A)	1.445(7)	C(5)-N(5)	1.315(6)
N(1)-C(1B)	1.460(6)	C(5)-H(5)	0.9400
C(1A)-H(1A1)	0.9700	N(5)-C(5B)	1.440(8)
C(1A)-H(1A2)	0.9700	N(5)-C(5A)	1.457(7)
C(1A)-H(1A3)	0.9700	C(5A)-H(5A1)	0.9700
C(1B)-H(1B1)	0.9700	C(5A)-H(5A2)	0.9700
C(1B)-H(1B2)	0.9700	C(5A)-H(5A3)	0.9700
C(1B)-H(1B3)	0.9700	C(5B)-H(5B1)	0.9700
O(2)-C(2)	1.238(5)	C(5B)-H(5B2)	0.9700
C(2)-N(2)	1.308(6)	C(5B)-H(5B3)	0.9700
C(2)-H(2)	0.9400	O(6)-C(6)	1.229(5)
N(2)-C(2A)	1.448(6)	C(6)-N(6)	1.308(6)
N(2)-C(2B)	1.456(6)	C(6)-H(6)	0.9400
C(2A)-H(2A1)	0.9700	N(6)-C(6B)	1.442(7)
C(2A)-H(2A2)	0.9700	N(6)-C(6A)	1.450(7)
C(2A)-H(2A3)	0.9700	C(6A)-H(6A1)	0.9700
C(2B)-H(2B1)	0.9700	C(6A)-H(6A2)	0.9700
C(2B)-H(2B2)	0.9700	C(6A)-H(6A3)	0.9700

C(6B)-H(6B1)	0.9700	C(6B)-H(6B3)	0.9700
C(6B)-H(6B2)	0.9700		

Angles

O(1)-Ce-O(4)	137.36(11)	C(11)-Pd(1)-C(12)	91.43(16)
O(1)-Ce-O(3)	135.95(11)	C(21)#2-Pd(2)-C(21)	180.00(19)
O(4)-Ce-O(3)	70.60(13)	C(21)#2-Pd(2)-C(22)#2	88.13(17)
O(1)-Ce-O(2)	69.64(10)	C(21)-Pd(2)-C(22)#2	91.87(17)
O(4)-Ce-O(2)	127.19(12)	C(21)#2-Pd(2)-C(22)	91.87(17)
O(3)-Ce-O(2)	126.58(11)	C(21)-Pd(2)-C(22)	88.13(17)
O(1)-Ce-O(5)	83.69(11)	C(22)#2-Pd(2)-C(22)	180.000(2)
O(4)-Ce-O(5)	71.93(13)	N(11)-C(11)-Pd(1)	173.9(4)
O(3)-Ce-O(5)	139.27(11)	C(11)-N(11)-Ce	167.4(3)
O(2)-Ce-O(5)	67.95(11)	N(12)-C(12)-Pd(1)	173.2(4)
O(1)-Ce-O(6)	70.56(10)	C(12)-N(12)-Ce#1	163.5(3)
O(4)-Ce-O(6)	67.94(11)	N(13)-C(13)-Pd(1)	177.1(5)
O(3)-Ce-O(6)	111.30(11)	N(14)-C(14)-Pd(1)	177.4(4)
O(2)-Ce-O(6)	122.09(11)	N(21)-C(21)-Pd(2)	178.5(4)
O(5)-Ce-O(6)	67.44(10)	C(21)-N(21)-Ce	174.5(4)
O(1)-Ce-N(21)	138.83(10)	N(22)-C(22)-Pd(2)	177.9(4)
O(4)-Ce-N(21)	73.50(12)	C(1)-O(1)-Ce	132.9(3)
O(3)-Ce-N(21)	71.00(11)	O(1)-C(1)-N(1)	124.7(4)
O(2)-Ce-N(21)	69.29(11)	O(1)-C(1)-H(1)	117.6
O(5)-Ce-N(21)	83.61(11)	N(1)-C(1)-H(1)	117.6
O(6)-Ce-N(21)	137.14(11)	C(1)-N(1)-C(1A)	120.8(4)
O(1)-Ce-N(11)	72.08(11)	C(1)-N(1)-C(1B)	120.6(4)
O(4)-Ce-N(11)	100.82(13)	C(1A)-N(1)-C(1B)	118.5(4)
O(3)-Ce-N(11)	68.75(11)	N(1)-C(1A)-H(1A1)	109.5
O(2)-Ce-N(11)	131.81(11)	N(1)-C(1A)-H(1A2)	109.5
O(5)-Ce-N(11)	134.57(11)	H(1A1)-C(1A)-H(1A2)	109.5
O(6)-Ce-N(11)	68.42(11)	N(1)-C(1A)-H(1A3)	109.5
N(21)-Ce-N(11)	138.76(12)	H(1A1)-C(1A)-H(1A3)	109.5
O(1)-Ce-N(12)#1	79.35(11)	H(1A2)-C(1A)-H(1A3)	109.5
O(4)-Ce-N(12)#1	140.88(12)	N(1)-C(1B)-H(1B1)	109.5
O(3)-Ce-N(12)#1	71.79(12)	N(1)-C(1B)-H(1B2)	109.5
O(2)-Ce-N(12)#1	70.22(11)	H(1B1)-C(1B)-H(1B2)	109.5
O(5)-Ce-N(12)#1	138.07(11)	N(1)-C(1B)-H(1B3)	109.5
O(6)-Ce-N(12)#1	138.00(10)	H(1B1)-C(1B)-H(1B3)	109.5
N(21)-Ce-N(12)#1	84.52(12)	H(1B2)-C(1B)-H(1B3)	109.5
N(11)-Ce-N(12)#1	74.93(11)	C(2)-O(2)-Ce	133.3(3)
C(13)-Pd(1)-C(14)	90.85(18)	O(2)-C(2)-N(2)	124.9(4)
C(13)-Pd(1)-C(11)	175.01(18)	O(2)-C(2)-H(2)	117.5
C(14)-Pd(1)-C(11)	88.84(17)	N(2)-C(2)-H(2)	117.5
C(13)-Pd(1)-C(12)	89.31(17)	C(2)-N(2)-C(2A)	121.6(4)
C(14)-Pd(1)-C(12)	174.93(17)	C(2)-N(2)-C(2B)	121.7(4)

C(2A)-N(2)-C(2B)	116.7(4)
N(2)-C(2A)-H(2A1)	109.5
N(2)-C(2A)-H(2A2)	109.5
H(2A1)-C(2A)-H(2A2)	109.5
N(2)-C(2A)-H(2A3)	109.5
H(2A1)-C(2A)-H(2A3)	109.5
H(2A2)-C(2A)-H(2A3)	109.5
N(2)-C(2B)-H(2B1)	109.5
N(2)-C(2B)-H(2B2)	109.5
H(2B1)-C(2B)-H(2B2)	109.5
N(2)-C(2B)-H(2B3)	109.5
H(2B1)-C(2B)-H(2B3)	109.5
H(2B2)-C(2B)-H(2B3)	109.5
C(3)-O(3)-Ce	137.4(3)
O(3)-C(3)-N(3)	124.1(4)
O(3)-C(3)-H(3)	117.9
N(3)-C(3)-H(3)	117.9
C(3)-N(3)-C(3B)	120.7(4)
C(3)-N(3)-C(3A)	121.0(4)
C(3B)-N(3)-C(3A)	118.2(4)
N(3)-C(3A)-H(3A1)	109.5
N(3)-C(3A)-H(3A2)	109.5
H(3A1)-C(3A)-H(3A2)	109.5
N(3)-C(3A)-H(3A3)	109.5
H(3A1)-C(3A)-H(3A3)	109.5
H(3A2)-C(3A)-H(3A3)	109.5
N(3)-C(3B)-H(3B1)	109.5
N(3)-C(3B)-H(3B2)	109.5
H(3B1)-C(3B)-H(3B2)	109.5
N(3)-C(3B)-H(3B3)	109.5
H(3B1)-C(3B)-H(3B3)	109.5
H(3B2)-C(3B)-H(3B3)	109.5
C(4)-O(4)-Ce	144.5(3)
O(4)-C(4)-N(4)	125.9(5)
O(4)-C(4)-H(4)	117.0
N(4)-C(4)-H(4)	117.0
C(4)-N(4)-C(4B)	123.5(5)
C(4)-N(4)-C(4A)	120.1(4)
C(4B)-N(4)-C(4A)	116.4(4)
N(4)-C(4A)-H(4A1)	109.5
N(4)-C(4A)-H(4A2)	109.5
H(4A1)-C(4A)-H(4A2)	109.5
N(4)-C(4A)-H(4A3)	109.5
H(4A1)-C(4A)-H(4A3)	109.5
H(4A2)-C(4A)-H(4A3)	109.5
N(4)-C(4B)-H(4B1)	109.5
N(4)-C(4B)-H(4B2)	109.5
H(4B1)-C(4B)-H(4B2)	109.5
N(4)-C(4B)-H(4B3)	109.5
H(4B1)-C(4B)-H(4B3)	109.5
H(4B2)-C(4B)-H(4B3)	109.5
C(5)-O(5)-Ce	120.6(3)
O(5)-C(5)-N(5)	126.0(5)
O(5)-C(5)-H(5)	117.0
N(5)-C(5)-H(5)	117.0
C(5)-N(5)-C(5B)	123.2(5)
C(5)-N(5)-C(5A)	120.6(5)
C(5B)-N(5)-C(5A)	116.3(5)
N(5)-C(5A)-H(5A1)	109.5
N(5)-C(5A)-H(5A2)	109.5
H(5A1)-C(5A)-H(5A2)	109.5
N(5)-C(5A)-H(5A3)	109.5
H(5A1)-C(5A)-H(5A3)	109.5
H(5A2)-C(5A)-H(5A3)	109.5
N(5)-C(5B)-H(5B1)	109.5
N(5)-C(5B)-H(5B2)	109.5
H(5B1)-C(5B)-H(5B2)	109.5
N(5)-C(5B)-H(5B3)	109.5
H(5B1)-C(5B)-H(5B3)	109.5
H(5B2)-C(5B)-H(5B3)	109.5
C(6)-O(6)-Ce	148.4(3)
O(6)-C(6)-N(6)	124.0(4)
O(6)-C(6)-H(6)	118.0
N(6)-C(6)-H(6)	118.0
C(6)-N(6)-C(6B)	120.4(4)
C(6)-N(6)-C(6A)	122.8(4)
C(6B)-N(6)-C(6A)	116.7(4)
N(6)-C(6A)-H(6A1)	109.5
N(6)-C(6A)-H(6A2)	109.5
H(6A1)-C(6A)-H(6A2)	109.5
N(6)-C(6A)-H(6A3)	109.5
H(6A1)-C(6A)-H(6A3)	109.5
H(6A2)-C(6A)-H(6A3)	109.5
N(6)-C(6B)-H(6B1)	109.5
N(6)-C(6B)-H(6B2)	109.5
H(6B1)-C(6B)-H(6B2)	109.5
N(6)-C(6B)-H(6B3)	109.5
H(6B1)-C(6B)-H(6B3)	109.5
H(6B2)-C(6B)-H(6B3)	109.5

Symmetry transformations used to generate equivalent atoms:
#1 -x,-y+1,-z+1 #2 -x,-y+2,-z+2

Table S23. Anisotropic displacement parameters ($Å^2 \times 10^3$) for $\{(DMF)_{12}Ce_2[Pd(CN)_4]_3\}_\infty$ (type **C**) **5**.

Atom	U11	U22	U33	U23	U13	U12
Ce	20(1)	22(1)	21(1)	5(1)	7(1)	10(1)
Pd(1)	20(1)	22(1)	30(1)	4(1)	6(1)	9(1)
Pd(2)	22(1)	27(1)	26(1)	0(1)	10(1)	10(1)
C(11)	19(2)	29(3)	30(2)	7(2)	4(2)	6(2)
N(11)	32(2)	30(2)	41(2)	4(2)	15(2)	12(2)
C(12)	24(2)	22(2)	32(2)	7(2)	11(2)	10(2)
N(12)	26(2)	29(2)	39(2)	8(2)	9(2)	11(2)
C(13)	29(2)	36(3)	44(3)	1(2)	8(2)	14(2)
N(13)	57(3)	62(3)	67(3)	-7(3)	14(3)	34(3)
C(14)	28(2)	33(3)	41(3)	8(2)	10(2)	13(2)
N(14)	43(3)	68(3)	45(3)	11(2)	2(2)	22(2)
C(21)	31(2)	32(2)	28(2)	8(2)	11(2)	12(2)
N(21)	45(2)	41(2)	36(2)	9(2)	23(2)	24(2)
C(22)	29(2)	37(3)	37(3)	5(2)	16(2)	14(2)
N(22)	56(3)	50(3)	67(3)	21(3)	30(2)	22(2)
O(1)	44(2)	40(2)	30(2)	11(1)	19(2)	22(2)
C(1)	38(3)	43(3)	29(2)	13(2)	16(2)	16(2)
N(1)	45(2)	34(2)	34(2)	7(2)	22(2)	14(2)
C(1A)	45(3)	42(3)	63(4)	-2(3)	11(3)	7(2)
C(1B)	75(4)	48(3)	56(3)	7(3)	43(3)	19(3)
O(2)	35(2)	37(2)	43(2)	18(1)	17(1)	21(1)
C(2)	35(3)	33(3)	35(3)	12(2)	13(2)	13(2)
N(2)	38(2)	28(2)	37(2)	15(2)	10(2)	18(2)
C(2A)	52(3)	37(3)	66(4)	23(3)	19(3)	11(2)
C(2B)	46(3)	52(3)	64(4)	20(3)	15(3)	32(3)
O(3)	63(2)	36(2)	37(2)	14(2)	25(2)	14(2)
C(3)	28(2)	34(3)	37(3)	12(2)	12(2)	7(2)
N(3)	29(2)	34(2)	46(2)	22(2)	11(2)	10(2)
C(3A)	32(3)	69(4)	49(3)	36(3)	5(2)	5(2)
C(3B)	50(3)	37(3)	91(5)	22(3)	23(3)	11(3)
O(4)	37(2)	107(3)	30(2)	23(2)	6(2)	34(2)
C(4)	41(3)	53(3)	35(3)	15(2)	18(2)	20(2)
N(4)	28(2)	43(2)	40(2)	11(2)	7(2)	13(2)
C(4A)	53(3)	46(3)	74(4)	15(3)	17(3)	7(3)
C(4B)	30(3)	66(4)	102(5)	19(4)	-7(3)	13(3)
O(5)	32(2)	33(2)	56(2)	5(2)	17(2)	5(1)
C(5)	34(3)	37(3)	52(3)	9(2)	4(2)	9(2)
N(5)	30(2)	36(2)	54(3)	13(2)	14(2)	8(2)
C(5A)	50(3)	66(4)	69(4)	-7(3)	22(3)	-8(3)

C(5B)	69(4)	99(6)	86(5)	49(4)	30(4)	10(4)
O(6)	24(2)	45(2)	46(2)	-4(2)	8(1)	15(2)
C(6)	31(3)	32(2)	37(3)	6(2)	13(2)	12(2)
N(6)	24(2)	39(2)	39(2)	2(2)	8(2)	12(2)
C(6A)	40(3)	67(4)	93(5)	7(3)	22(3)	29(3)
C(6B)	30(3)	51(3)	71(4)	4(3)	3(3)	4(2)

The anisotropic displacement factor exponent takes the form:
$-2\pi^2(h^2a^{*2}U11 + ... + 2h\ k\ a^*\ b^*\ U12)$

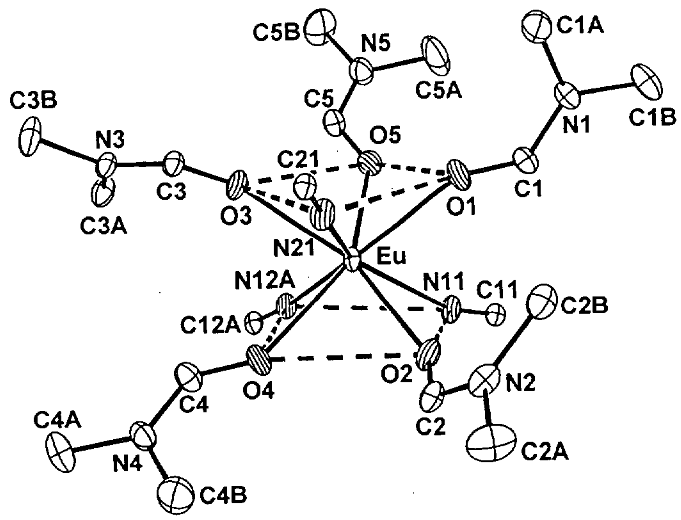

Figure S1a

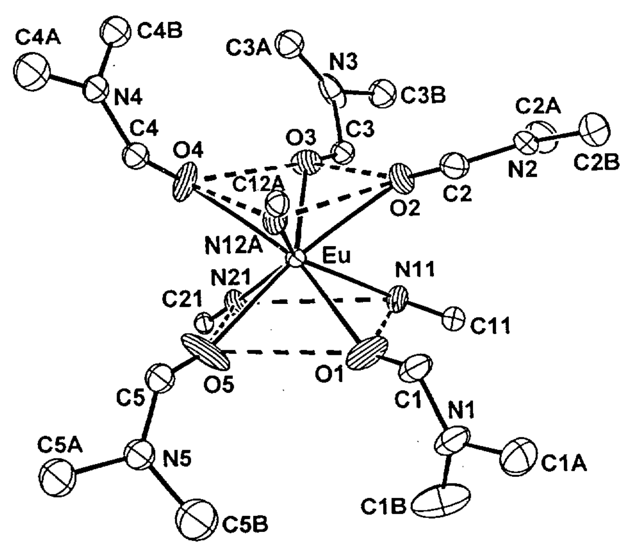

Figure S1b

Figure S1. Coordination geometry around the Eu^{3+} in (a) **2a** and (b) **2b**.

Discussion of Coordination Geometries of Eu^{3+} in Complexes 2a and 2b. The coordination geometries around Eu^{3+} in both **2a** (Figure S1a) and **2b** (Figure S1b) are a slightly distorted square antiprism. Three nitrogen atoms of the cyanide ligands and five oxygen atoms of the DMF are coordinated to the Eu^{3+} centers in both types of complexes. Two nitrogen atoms occupy adjacent vertices and share an edge of one base of the antiprism. The third nitrogen atom occupies a vertex of the second base opposite to the shared edge. In **2a**, two nitrogen atoms that share the edge of the base are from cyanide ligands of two *cis* bridging $[M(CN)_4]^{2-}$ anions. The third nitrogen atom is from a cyanide ligand of a *trans* bridging $[Ni(CN)_4]^{2-}$ anion (Figure 3a). In **2b** two nitrogen atoms consist of the one from a cyanide ligand of a *cis* bridging $[Ni(CN)_4]^{2-}$ anion and the other from a cyanide ligand of a *trans* bridging $[Ni(CN)_4]^{2-}$ anion. The third nitrogen atom is from a cyanide ligand of the second *cis*- bridging $[Ni(CN)_4]^{2-}$ anion (Figure 3b). These results are consistent with other reported type **A** and type **B** complexes.[7a]