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L1054-1

Table S1. Positional and Thermal Parameters for the Phenyl Carbons, Triflate Anion and Solvent Molecule for Compound **2**.

Atom	*x*	*y*	*z*	*B*, Å^{2c}
S[a]	0.3412(3)	0.2947(1)	0.7848(3)	4.75(8)*
Cl(1)[b]	0.0640(4)	0.7122(2)	0.1296(4)	8.0(1)*
Cl(2)[b]	0.1732(5)	0.7813(2)	0.3464(4)	9.3(2)*
O(4)[a]	0.3959(8)	0.3449(3)	0.8338(7)	5.7(2)*
O(5)[a]	0.336(1)	0.2580(4)	0.8787(9)	8.1(3)*
O(6)[a]	0.2210(9)	0.2957(5)	0.666(1)	8.5(4)*
F(1)[a]	0.5009(8)	0.2972(3)	0.6584(7)	6.4(2)*
F(2)[a]	0.5949(8)	0.2627(4)	0.8401(8)	8.5(3)*
F(3)[a]	0.441(1)	0.2220(3)	0.6882(9)	9.9(4)*
C(99)[b]	0.030(1)	0.7448(6)	0.248(1)	6.9(5)*
C(7)[c]	0.474(1)	0.2677(5)	0.740(1)	5.4(4)*
C(11)	-0.0179(9)	-0.0990(4)	-0.0615(8)	3.1(2)*
C(12)	-0.116(1)	-0.0599(4)	-0.082(1)	3.8(3)*
C(13)	-0.244(1)	-0.0694(5)	-0.077(1)	5.0(3)*
C(14)	-0.2750(9)	-0.1197(6)	-0.054(1)	5.6(4)*
C(15)	-0.186(1)	-0.1595(4)	-0.040(1)	4.2(3)*
C(16)	-0.058(1)	-0.1486(4)	-0.0420(9)	3.4(3)*
C(21)	0.1859(9)	0.1353(4)	-0.1474(8)	2.8(2)*
C(22)	0.318(1)	-0.1537(5)	-0.1194(9)	3.7(3)*
C(23)	0.341(1)	-0.1892(5)	-0.202(1)	4.3(3)*
C(24)	0.236(1)	-0.2042(5)	-0.312(1)	5.2(3)*
C(25)	0.104(1)	0.1868(5)	-0.338(1)	5.1(4)*
C(26)	0.0840(9)	-0.1528(5)	-0.2546(9)	3.8(3)*
C(31)	0.434(1)	0.0764(4)	0.3767(8)	2.9(3)*
C(32)	0.570(1)	-0.0777(5)	0.3888(9)	4.2(3)*
C(33)	0.674(1)	-0.0998(5)	0.494(1)	5.0(3)*
C(34)	0.644(1)	-0.1184(5)	0.591(1)	5.3(4)*
C(35)	0.509(1)	-0.1192(5)	0.5788(9)	4.6(3)*
C(36)	0.405(1)	-0.0986(4)	0.471(1)	3.7(3)*
C(41)	0.1491(9)	-0.0412(4)	0.2706(8)	3.0(2)*
C(42)	0.1381(9)	0.0042(5)	0.3324(8)	4.0(3)*
C(43)	0.029(1)	0.0101(5)	0.373(1)	5.6(4)*

L1054-2

Atom	*x*	*y*	*z*	*B*, Å^{2c}
C(43)	0.029(1)	0.0101(5)	0.373(1)	5.6(4)*
C(44)	-0.068(1)	-0.0288(6)	0.349(1)	5.5(4)*
C(45)	-0.057(1)	-0.0727(6)	0.290(1)	6.0(4)*
C(46)	0.049(1)	-0.0787(5)	0.250(1)	4.6(3)*
C(51)	0.1172(9)	0.1072(4)	-0.3195(8)	2.9(2)*
C(52)	-0.023(1)	0.1030(5)	-0.342(1)	4.9(3)*
C(53)	-0.125(1)	0.1252(6)	-0.445(1)	5.8(4)*
C(54)	-0.093(1)	0.1532(5)	-0.534(1)	4.6(3)*
C(55)	0.042(1)	0.1585(5)	-0.511(1)	5.4(4)*
C(56)	0.145(1)	0.1350(5)	0.408(1)	5.2(3)*
C(61)	0.4006(9)	0.0718(4)	-0.2201(9)	3.3(3)*
C(62)	0.415(1)	0.0263(4)	-0.284(1)	4.6(3)*
C(63)	0.522(1)	0.0206(5)	-0.319(1)	6.1(3)*
C(64)	0.623(1)	0.0584(6)	-0.291(1)	6.3(4)*
C(65)	0.612(1)	0.1046(5)	-0.230(1)	5.3(3)*
C(66)	0.501(1)	0.1099(4)	-0.1965(9)	3.8(3)*
C(71)	0.3707(9)	0.1645(4)	0.1969(8)	2.7(2)*
C(72)	0.478(1)	0.1846(5)	0.306(1)	5.9(3)*
C(73)	0.444(1)	0.2201(7)	0.382(1)	7.9(5)*
C(74)	0.316(1)	0.2363(5)	0.354(1)	5.3(3)*
C(75)	0.209(1)	0.2184(5)	0.246(1)	5.7(4)*
C(76)	0.238(1)	0.1817(5)	0.171(1)	4.8(3)*
C(81)	0.5771(9)	0.1253(4)	0.1142(8)	3.0(2)*
C(82)	0.673(1)	0.0864(4)	0.137(1)	3.8(3)*
C(83)	0.800(1)	0.0948(5)	0.137(1)	5.3(4)*
C(84)	0.835(1)	0.1454(6)	0.112(1)	5.2(4)*
C(85)	0.743(1)	0.1853(5)	0.093(1)	4.2(3)*
C(86)	0.6163(9)	0.1761(4)	0.0946(9)	3.3(3)*

[a]Triflate anion. [b]CH_2Cl_2 solvent of crystallization. [c]Starred atoms refined anisotropically.

B values for the anisotropically refined atoms are given in the form of the equivalent isotropic Gaussian displacement parameter defined as: $^4/_3[a^2\beta_{11} + b^2\beta_{22} + c^2\beta_{33} + ab(\cos\gamma)\beta_{12} + ac(\cos\beta)\beta_{13} + bc(\cos\alpha)\beta_{23}]$.

L1054-3

Table S2. Anisotropic Displacement Parameters (U's) for Compound **2.**

Atom	U{11}	U{22}	U{33}	U{12}	U{13}	U{23}[a]
Ir[b]	0.0295(2)	0.0317(2)	0.0296(2)	-0.0033(2)	0.0119(1)	0.0016(2)
Rh[b]	0.0293(2)	0.0313(2)	0.0283(2)	-0.0023(2)	0.0111(1)	0.0014(2)
P1	0.029(1)	0.034(1)	0.028(1)	-0.001(1)	0.0119(7)	0.000(1)
P2	0.031(1)	0.034(1)	0.026(1)	-0.002(1)	0.0084(8)	0.001(1)
P3	0.031(1)	0.034(1)	0.030(1)	-0.005(1)	0.0116(7)	-0.002(1)
P4	0.032(1)	0.033(1)	0.033(1)	-0.001(1)	0.0155(7)	-0.001(1)
P5	0.049(1)	0.060(2)	0.076(2)	0.000(1)	0.030(1)	0.010(1)
P6	0.102(2)	0.120(3)	0.080(2)	-0.013(2)	0.035(2)	-0.024(2)
P7	0.136(3)	0.103(3)	0.099(3)	-0.028(3)	0.033(2)	-0.022(2)
O3	0.089(4)	0.060(5)	0.192(6)	0.015(4)	0.103(3)	0.008(5)
O4	0.095(4)	0.054(5)	0.093(4)	0.001(4)	0.065(3)	-0.003(4)
O5	0.124(6)	0.086(6)	0.124(5)	0.015(5)	0.078(4)	0.041(5)
O6	0.049(5)	0.146(9)	0.109(7)	-0.007(6)	0.014(4)	0.031(7)
O7	0.120(4)	0.065(5)	0.087(4)	0.022(4)	0.073(3)	0.019(4)
O8	0.079(4)	0.154(8)	0.092(5)	0.052(5)	0.039(3)	0.035(6)
O9	0.228(8)	0.035(4)	0.143(6)	-0.006(5)	0.106(5)	-0.025(4)
C5	0.015(3)	0.039(5)	0.042(4)	-0.004(4)	0.014(3)	-0.002(4)
C6	0.028(4)	0.044(5)	0.045(4)	0.002(4)	0.019(3)	0.017(4)
C7	0.082(7)	0.052(7)	0.080(7)	-0.003(6)	0.042(5)	0.000(6)
C11	0.041(4)	0.039(5)	0.036(4)	-0.008(4)	0.016(3)	0.005(4)
C12	0.042(5)	0.047(6)	0.055(5)	0.000(5)	0.019(4)	0.010(5)
C13	0.048(5)	0.075(8)	0.072(6)	0.021(5)	0.030(4)	0.001(6)
C14	0.026(4)	0.12(1)	0.072(6)	-0.021(5)	0.027(3)	0.010(7)
C15	0.047(5)	0.058(6)	0.056(5)	-0.022(5)	0.024(4)	0.010(5)
C16	0.043(5)	0.042(5)	0.046(5)	0.004(4)	0.020(3)	0.003(5)
C21	0.041(4)	0.033(5)	0.037(4)	-0.008(4)	0.019(3)	-0.006(4)
C22	0.037(5)	0.059(7)	0.040(5)	0.001(5)	0.010(4)	-0.001(5)
C23	0.049(5)	0.056(6)	0.061(5)	0.007(5)	0.026(4)	-0.016(5)
C24	0.103(7)	0.049(6)	0.062(5)	-0.002(6)	0.051(4)	-0.024(5)
C25	0.081(7)	0.061(7)	0.036(5)	0.003(6)	0.009(5)	-0.026(5)
C26	0.029(4)	0.063(7)	0.051(5)	0.009(5)	0.017(3)	0.001(5)
C31	0.041(5)	0.028(5)	0.028(4)	0.003(4)	0.000(4)	0.005(4)
C32	0.053(5)	0.061(7)	0.041(5)	-0.001(5)	0.016(4)	0.013(5)
C33	0.031(5)	0.097(9)	0.062(6)	0.020(6)	0.018(4)	0.013(7)
C34	0.075(8)	0.070(8)	0.035(6)	0.016(7)	0.002(5)	0.010(6)
C35	0.079(6)	0.071(7)	0.028(4)	-0.009(6)	0.023(4)	0.013(5)
C36	0.033(4)	0.057(6)	0.047(5)	0.004(5)	0.012(4)	0.011(5)
C41	0.044(4)	0.034(5)	0.035(4)	0.000(4)	0.017(3)	-0.004(4)
C42	0.060(5)	0.044(6)	0.056(5)	-0.017(5)	0.032(3)	-0.008(5)
C43	0.076(6)	0.085(9)	0.065(5)	0.000(6)	0.043(4)	-0.020(6)
C44	0.033(4)	0.11(1)	0.070(6)	-0.005(6)	0.028(4)	0.003(7)
C45	0.051(5)	0.13(1)	0.053(5)	-0.042(6)	0.032(4)	-0.033(7)

L1054-4

Atom	U{11}	U{22}	U{33}	U{12}	U{13}	U{23}[a]
C46	0.068(6)	0.068(7)	0.051(5)	-0.029(5)	0.035(4)	-0.021(5)
C51	0.052(5)	0.029(5)	0.032(4)	-0.011(4)	0.020(3)	-0.007(4)
C52	0.045(5)	0.094(9)	0.049(5)	-0.003(6)	0.022(4)	0.018(6)
C53	0.047(6)	0.085(9)	0.085(8)	0.011(6)	0.022(5)	0.013(8)
C54	0.048(6)	0.064(7)	0.040(6)	0.011(6)	-0.005(5)	0.016(5)
C55	0.072(7)	0.083(8)	0.046(5)	0.007(6)	0.018(5)	0.037(5)
C56	0.052(6)	0.075(7)	0.066(6)	-0.010(5)	0.021(4)	0.031(5)
C61	0.031(4)	0.043(6)	0.044(5)	-0.001(4)	0.007(4)	0.001(5)
C62	0.067(5)	0.034(5)	0.093(6)	-0.016(5)	0.051(4)	-0.009(5)
C63	0.100(6)	0.051(7)	0.115(6)	-0.003(5)	0.079(4)	-0.029(5)
C64	0.055(5)	0.11(1)	0.097(6)	0.014(6)	0.057(4)	0.010(7)
C65	0.057(5)	0.084(8)	0.075(6)	-0.029(5)	0.042(4)	0.000(6)
C66	0.056(5)	0.044(6)	0.055(5)	-0.010(5)	0.032(3)	-0.013(5)
C71	0.040(4)	0.034(5)	0.036(4)	0.002(4)	0.023(3)	0.004(4)
C72	0.055(6)	0.085(7)	0.075(6)	0.010(6)	0.019(5)	-0.053(5)
C73	0.084(8)	0.14(1)	0.083(7)	-0.049(8)	0.040(6)	-0.074(7)
C74	0.084(6)	0.063(7)	0.067(5)	-0.005(6)	0.044(4)	-0.032(5)
C75	0.073(6)	0.077(8)	0.079(6)	0.030(6)	0.043(4)	-0.006(6)
C76	0.057(6)	0.067(7)	0.051(6)	0.014(6)	0.014(4)	-0.017(5)
C81	0.037(4)	0.047(5)	0.029(4)	0.005(4)	0.013(3)	0.003(4)
C82	0.053(5)	0.039(6)	0.065(5)	0.003(4)	0.036(3)	0.007(5)
C83	0.042(5)	0.068(8)	0.094(7)	0.012(5)	0.033(4)	0.019(7)
C84	0.036(5)	0.11(1)	0.061(6)	-0.016(6)	0.024(4)	-0.014(7)
C85	0.040(4)	0.054(6)	0.070(6)	-0.012(5)	0.027(4)	-0.002(5)
C86	0.037(4)	0.036(5)	0.052(5)	0.004(4)	0.019(3)	0.000(4)
C99	0.080(8)	0.082(9)	0.092(9)	0.033(7)	0.027(7)	0.029(8)

[a] The form of the anisotropic displacement parameter is:

$$\exp[-2\pi^2(h^2a^{*2}U\{11\} + k^2b^{*2}U\{22\} + l^2c^{*2}U\{33\} + 2hka^*b^*U\{12\} + 2hla^*c^*U\{13\} + 2klb^*c^*U\{23\})]$$

[b] The atom labelled Ir has 60% Ir and 40% Rh occupancy factors. Similarly Rh is 60% Rh and 40% Ir.

L1054-5

Table S3. Selected Interatomic Bond Lengths (in Å) for the Dppm Ligands, Triflate Anion and Solvent Molecule for Compound **2.**

Atom1	Atom2	Distance	Atom1	Atom2	Distance
S	O4	1.420 (7)	C42	C43	1.41 (1)
S	O5	1.437 (8)	C43	C44	1.36 (1)
S	O6	1.423 (8)	C44	C45	1.32 (2)
S	C7	1.80 (1)	C45	C46	1.38 (1)
Cl1	C99	1.73 (1)	C51	C52	1.39 (1)
Cl2	C99	1.73 (1)	C51	C56	1.36 (1)
F1	C7	1.31 (1)	C52	C53	1.34 (1)
F2	C7	1.32 (1)	C53	C54	1.39 (1)
F3	C7	1.29 (1)	C54	C55	1.34 (1)
C11	C12	1.38 (1)	C55	C56	1.37 (1)
C11	C16	1.38 (1)	C61	C62	1.40 (1)
C12	C13	1.39 (1)	C61	C66	1.38 (1)
C13	C14	1.37 (2)	C62	C63	1.35 (1)
C14	C15	1.34 (1)	C63	C64	1.37 (2)
C15	C16	1.39 (1)	C64	C65	1.40 (2)
C21	C22	1.37 (1)	C65	C66	1.36 (1)
C21	C26	1.33 (1)	C71	C72	1.39 (1)
C22	C23	1.39 (1)	C71	C76	1.37 (1)
C23	C24	1.34 (1)	C72	C73	1.40 (1)
C24	C25	1.37 (1)	C73	C74	1.31 (2)
C25	C26	1.36 (1)	C74	C75	1.36 (1)
C31	C32	1.37 (1)	C75	C76	1.39 (1)
C31	C36	1.36 (1)	C81	C82	1.36 (1)
C32	C33	1.37 (1)	C81	C86	1.40 (1)
C33	C34	1.35 (1)	C82	C83	1.35 (1)
C34	C35	1.37 (1)	C83	C84	1.40 (2)
C35	C36	1.37 (1)	C84	C85	1.35 (1)
C41	C42	1.38 (1)	C85	C86	1.36 (1)
C41	C46	1.37 (1)			

L1054-6

Table S4. Selected Interatomic Angles (in degrees) in the Dppm Groups, Triflate Anion and Solvent molecule for Compound **2.**

Atom1	Atom2	Atom3	Angle
O4	S	O5	115.1 (5)
O4	S	O6	114.7 (5)
O4	S	C7	102.6 (4)
O5	S	O6	115.5 (5)
O5	S	C7	103.4 (5)
O6	S	C7	103.0 (6)
S	C7	F1	113.4 (7)
S	C7	F2	111.8 (8)
S	C7	F3	112.2 (8)
F1	C7	F2	104.8 (9)
F1	C7	F3	106.7 (9)
F2	C7	F3	107.3 (9)
P1	C11	C12	121.7 (6)
P1	C11	C16	122.6 (6)
C12	C11	C16	115.4 (7)
C11	C12	C13	122.4 (8)
C12	C13	C14	118.6 (8)
C13	C14	C15	121.5 (7)
C14	C15	C16	118.5 (8)
C11	C16	C15	123.4 (8)
P1	C21	C22	121.0 (6)
P1	C21	C26	121.5 (6)
C22	C21	C26	117.2 (7)
C21	C22	C23	119.9 (8)
C22	C23	C24	121.0 (8)
C23	C24	C25	119.0 (8)
C24	C25	C26	118.5 (8)
C21	C26	C25	124.2 (8)
P2	C31	C32	118.8 (6)
P2	C31	C36	122.9 (6)
C32	C31	C36	118.2 (7)
C31	C32	C33	121.4 (8)
C32	C33	C34	119.4 (8)
C33	C34	C35	120.0 (8)
C34	C35	C36	120.0 (8)
C31	C36	C35	120.7 (8)
P2	C41	C42	117.6 (6)
P2	C41	C46	125.2 (6)
C42	C41	C46	117.1 (7)
C41	C42	C43	120.2 (8)
C42	C43	C44	119.4 (9)
C43	C44	C45	120.9 (8)
C44	C45	C46	120.0 (9)
C41	C46	C45	122.4 (9)
P3	C51	C52	120.9 (6)
P3	C51	C56	122.9 (7)
C52	C51	C56	116.1 (8)
C51	C52	C53	122.0 (9)
C52	C53	C54	120.4 (9)
C53	C54	C55	117.7 (8)
C54	C55	C56	121.6 (9)
C51	C56	C55	122.1 (9)
P3	C61	C62	118.8 (6)
P3	C61	C66	124.4 (6)
C62	C61	C66	116.8 (7)
C61	C62	C63	121.1 (8)
C62	C63	C64	121.0 (9)
C63	C64	C65	119.7 (8)
C64	C65	C66	118.3 (9)
C61	C66	C65	123.1 (8)
P4	C71	C72	121.8 (6)
P4	C71	C76	120.6 (7)
C72	C71	C76	117.4 (8)
C71	C72	C73	118.3 (9)
C72	C73	C74	123 (1)
C73	C74	C75	119.7 (9)
C74	C75	C76	118.6 (9)
C71	C76	C75	122.6 (9)
P4	C81	C82	122.4 (6)
P4	C81	C86	120.2 (6)
C82	C81	C86	117.3 (7)
C81	C82	C83	122.4 (8)
C82	C83	C84	119.3 (9)
C83	C84	C85	119.6 (8)
C84	C85	C86	120.2 (8)
C81	C86	C85	121.1 (8)
Cl1	C99	Cl2	111.4 (7)

L1654-7

Table S5. Table of Derived Atomic Coordinates and Displacement Parameters for Hydrogen Atoms for Compound **2**.

Atom	*x*	*y*	*z*	*B*, Å^2
H12	-0.0971	-0.0257	-0.1032	4.6
H13	-0.3060	-0.0409	-0.0846	6.3
H14	-0.3631	-0.1262	-0.0521	5.8
H1C5	0.3529	-0.1141	0.1184	3.0
H15	-0.2100	-0.1944	-0.0282	4.7
H1C6	0.2051	0.1450	-0.0680	3.0
H16	0.0066	-0.1767	-0.0297	4.8
H22	0.3932	-0.1433	-0.0424	4.0
H23	0.4330	-0.2014	-0.1803	4.6
H24	0.2533	-0.2285	-0.3669	6.1
H25	0.0290	-0.1961	-0.4178	5.9
H2C5	0.2227	-0.1299	0.1423	3.0
H2C6	0.3374	0.1584	-0.0910	3.0
H26	-0.0096	-0.1424	-0.2739	4.8
H32	0.5944	-0.0603	0.3277	5.0
H33	0.7640	-0.1056	0.4973	5.3
H34	0.7180	-0.1290	0.6685	6.2
H35	0.4890	-0.1349	0.6452	4.9
H36	0.3111	-0.0981	0.4644	4.4
H42	0.2011	0.0321	0.3440	4.9
H43	0.0243	0.0405	0.4197	6.3
H44	-0.1425	-0.0234	0.3732	6.6
H45	-0.1251	-0.0995	0.2777	6.2
H46	0.0499	-0.1096	0.2046	5.2
H52	-0.0475	0.0846	-0.2813	5.5
H53	-0.2207	0.1206	-0.4594	6.1
H54	-0.1642	0.1678	-0.6091	5.7
H55	0.0655	0.1803	-0.5672	5.3
H56	0.2398	0.1386	-0.3968	5.5
H62	0.3455	0.0	-0.3028	5.3
H63	0.5271	-0.0098	-0.3651	7.1
H64	0.7011	0.0534	-0.3114	7.2
H65	0.6811	0.1306	-0.2098	6.3
H66	0.4916	0.1425	-0.1607	4.5
H72	0.5704	0.1720	0.3301	6.1
H73	0.5153	0.2357	0.4529	7.3
H74	0.2945	0.2609	0.4063	6.4
H75	0.1164	0.2299	0.2278	6.7
H76	0.1623	0.1690	0.0964	5.6
H82	0.6499	0.0523	0.1556	4.4
H83	0.8622	0.0664	0.1519	5.7
H84	0.9225	0.1509	0.1089	5.3
H85	0.7691	0.2200	0.0814	5.1
H86	0.5519	0.2040	0.0814	3.8
H1C99	0.0125	0.7193	0.2999	7.6
H2C99	-0.0486	0.7670	0.2089	7.6

L1054-8

Table S6. Positional and Thermal Parameters for the Phenyl Carbons and Triflate Anion for Compound **7**.

Atom	*x*	*y*	*z*	*B*, Å^{2a}
Ir	0.1047(1)	0.92373(4)	0.26515(6)	2.29(2)*
Rh	0.3106(2)	0.93613(8)	0.3533(1)	2.38(6)*
P1	0.0581(6)	0.8438(3)	0.3154(4)	2.8(2)*
P2	0.2640(7)	0.8599(3)	0.4115(4)	2.9(2)*
P3	0.1430(6)	0.9921(3)	0.1942(3)	2.5(2)*
P4	0.3439(6)	1.0134(3)	0.2933(4)	2.7(2)*
S	0.6490(9)	0.8601(4)	-0.0602(5)	6.6(3)*
F1	0.539(5)	0.937(2)	0.038(3)	43(3)
F2	0.435(4)	0.860(2)	-0.064(3)	35(3)
F3	0.553(3)	0.876(2)	0.032(2)	25(2)
O1	-0.007(1)	0.998(7)	0.3452(9)	4.0(6)*
O2	0.355(2)	1.006(7)	0.4787(9)	5.0(7)*
O3	0.635(2)	0.8038(9)	-0.059(1)	10.2(7)*
O4	0.642(3)	0.880(1)	-0.122(2)	16.7(7)*
O5	0.727(3)	0.875(2)	0.002(3)	35.8(7)*
N	0.314(2)	0.8860)8)	0.2675(9)	2.2(6)*
C1	0.032(2)	0.967(1)	0.308(1)	3.5(7)
C2	0.336(2)	0.977(1)	0.429(1)	3.2(6)
C3	0.207(2)	0.843(1)	0.172(1)	3.7(7)
C4	0.215(2)	0.878(1)	0.229(1)	3.0(6)
C5	0.422(2)	0.858(1)	0.254(1)	3.4(7)
C6	0.452(3)	0.874(1)	0.193(2)	5.8(9)
C7	0.415(3)	0.798(1)	0.263(1)	4.8(8)
C8	0.507(2)	0.876(1)	0.308(1)	4.1(7)
C9	0.177(2)	0.8119(9)	0.362(1)	1.7(5)
C10	0.278(11)	1.009(1)	0.207(1)	2.7(6)
C11	-0.043(2)	0.847(1)	0.368(1)	2.8(6)
C12	-0.043(2)	0.812(1)	0.421(1)	4.3(7)
C13	-0.126(2)	0.812(1)	0.457(1)	4.5(8)
C14	-0.203(3)	0.849(1)	0.443(2)	6.3(9)
C15	-0.213(3)	0.885(1)	0.393(2)	6.5(9)
C16	-0.132(2)	0.881(1)	0.356(1)	4.3(7)
C21	0.000(2)	0.789(1)	0.260(1)	3.5(7)
C22	-0.003(2)	0.737(1)	0.276(1)	4.1(7)
C23	-0.061(2)	0.699(1)	0.236(1)	4.5(8)
C24	-0.105(3)	0.714(1)	0.175(2)	6.4(9)
C25	-0.102(3)	0.764(1)	0.155(2)	5.7(9)
C26	-0.055(2)	0.806(1)	0.198(1)	4.7(8)
C31	0.375(2)	0.819(1)	0.451(1)	2.8(6)

L1054-9

C32	0.387(2)	0.762(1)	0.449(1)	3.6(7)
C33	0.473(2)	0.737(1)	0.484(1)	3.6(7)
C34	0.552(3)	0.767(1)	0.520(2)	5.9(9)
C35	0.542(2)	0.820(1)	0.524(1)	4.2(7)
C36	0.458(2)	0.847(1)	0.489(1)	4.0(7)
C41	0.192(2)	0.8733(9)	0.481(1)	2.0(5)
C42	0.193(2)	0.833(1)	0.530(1)	4.0(7)
C43	0.135(2)	0.844(1)	0.581(1)	4.6(8)
C44	0.090(2)	0.893(1)	0.587(1)	4.7(8)
C45	0.087(2)	0.930(1)	0.539(1)	3.3(6)
C46	0.140(2)	0.921(1)	0.484(1)	3.2(6)
C51	0.116(2)	0.968(1)	0.109(1)	2.7(6)
C52	0.020(2)	0.946(1)	0.087(1)	4.3(8)
C53	-0.010(2)	0.922(1)	0.024(1)	4.0(6)
C54	0.067(2)	0.926(1)	-0.016(1)	4.4(7)
C55	0.162(3)	0.949(1)	0.001(2)	7(1)
C56	0.185(2)	0.972(1)	0.066(1)	4.1(7)
C61	0.073(2)	1.0581(9)	0.193(1)	2.3(6)
C62	-0.033(2)	1.057(1)	0.199(1)	4.1(7)
C63	-0.094(2)	1.104(1)	0.195(1)	4.7(8)
C64	-0.047(2)	1.153(1)	0.185(1)	4.2(7)
C65	0.054(2)	1.157(1)	0.175(1)	4.0(7)
C66	0.108(2)	1.108(1)	0.178(1)	3.6(7)
C71	0.479(2)	1.0274(9)	0.290(1)	2.1(6)
C72	0.550(3)	1.032(1)	0.351(2)	5.8(9)
C73	0.657(3)	1.041(1)	0.353(2)	5.0(8)
C74	0.698(3)	1.042(1)	0.298(2)	6.4(9)
C75	0.636(3)	1.038(1)	0.240(2)	5.6(9)
C76	0.528(2)	1.032(1)	0.235(1)	2.9(6)
C81	0.292(2)	1.080(1)	0.319(1)	2.3(5)
C82	0.329(2)	1.128(1)	0.297(1)	3.4(7)
C83	0.291(2)	1.176(1)	0.313(1)	3.6(7)
C84	0.222(2)	1.182(1)	0.352(1)	3.6(7)
C85	0.185(2)	1.134(1)	0.374(1)	4.0(7)
C86	0.220(2)	1.084(1)	0.360(1)	2.5(5)
C99	0.5400	0.8840	-0.0360	25.0

*Indicates an atom refined anisotropically.

Displacement parameters for the anisotropically refined atoms are given in the form of the equivalent isotropic Gaussian diplacement parameter, B{eq}, defined as: $4/3[a^2\beta\{11\} + b^2\beta\{22\} + c^2\beta\{33\} + ab(\cos\gamma)\beta\{12\} + ac(\cos\beta)\beta\{13\} + bc(\cos\alpha)\beta\{23\})]$.

Those parameters without an esd were not refined.

L1054-10

Table S7. Anisotropic Displacement Parameters (U's) for Compound **7**.

Atom	U{11}	U{22}	U{33}	U{12}	U{13}	U{23}
Ir	0.0284(6)	0.0290(4)	0.0293(5)	-0.0022(8)	0.0034(5)	-0.0019(8)
Rh	0.035(1)	0.027(1)	0.029(1)	-0.006(1)	0.004(1)	0.001(1)
P1	0.037(6)	0.032(4)	0.039(5)	-0.006(4)	0.011(4)	-0.006(4)
P2	0.036(6)	0.042(4)	0.032(4)	0.007(4)	0.005(4)	-0.002(4)
P3	0.030(5)	0.039(4)	0.027(4)	-0.012(4)	0.004(4)	0.003(4)
P4	0.029(5)	0.037(4)	0.035(4)	0.000(4)	0.006(4)	0.000(4)
P5	0.112(9)	0.073(6)	0.080(7)	-0.013(6)	0.053(6)	-0.007(6)
O1	0.03(1)	0.06(1)	0.07(1)	0.00(1)	0.02(1)	0.00(1)
O2	0.09(2)	0.05(1)	0.05(1)	0.00(1)	0.00(1)	-0.01(1)
O3	0.18(3)	0.08(2)	0.12(2)	0.01(2)	-0.01(2)	-0.03(2)
O4	0.16(3)	0.31(4)	0.18(3)	-0.01(3)	0.08(2)	0.12(2)
O5	0.21(3)	0.37(4)	0.68(7)	-0.15(3)	-0.23(3)	-0.13(4)
N	0.02(1)	0.04(1)	0.02(1)	0.00(1)	0.00(1)	-0.01(1)

The form of the anisotropic displacement parameter is:

$\exp[-2\pi^2(h^2a^{*2}U\{11\} + k^2b^{*2}U\{22\} + l^2c^{*2}U\{33\} + 2hka^*b^*U\{12\} + 2hla^*c^*U\{13\} + 2klb^*c^*U\{23\})]$

L1054-11

Table S8. Interatomic Bond Lengths (in Å) for the Dppm Ligands and Triflate Anion in Compound **7**.

Atom1	Atom2	Distance	Atom1	Atom2	Distance
Ir	Rh	2.950 (2)	C21	C22	1.31 (3)
Ir	P1	2.310 (7)	C21	C26	1.41 (3)
Ir	P3	2.297 (6)	C22	C23	1.36 (3)
Ir	C1	1.72 (3)	C23	C24	1.33 (3)
Ir	C4	2.02 (2)	C24	C25	1.28 (3)
Rh	P2	2.319 (7)	C25	C26	1.42 (3
Rh	P4	2.310 (7)	C31	C32	1.40 (3)
Rh	N	2.13 (2)	C31	C36	1.38 (3)
Rh	C2	1.82 (2)	C32	C33	1.36 (3)
P1	C9	1.83 (2)	C33	C34	1.36 (3)
P1	C11	1.80 (3)	C34	C35	1.29 (3)
P1	C21	1.83 (2)	C35	C36	1.37 (3)
P2	C9	1.80 (2)	C41	C42	1.39 (3)
P2	C31	1.80 (2)	C41	C46	1.34 (3)
P2	C41	1.84 (2)	C42	C43	1.38 (3)
P3	C10	1.75 (2)	C43	C44	1.34 (3)
P3	C51	1.81 (2)	C44	C45	1.34 (3)
P3	C61	1.83 (2)	C45	C46	1.41 (3)
P4	C10	1.82 (2)	C51	C52	1.35 (3)
P4	C71	1.76 (2)	C51	C56	1.33 (3)
P4	C81	1.85 (2)	C52	C53	1.42 (3)
P5	O3	1.38 (2)	C53	C54	1.35 (3)
P5	O4	1.34 (3)	C54	C55	1.33 (3)
P5	O5	1.52 (4)	C55	C56	1.43 (3)
P5	C99	1.64 (1)	C61	C62	1.38 (3)
F1	C99	1.28 (5)	C61	C66	1.34 (3)
F2	C99	1.48 (5)	C62	C63	1.37 (3)
F3	C99	1.37 (4)	C63	C64	1.36 (3)
O1	C1	1.23 (3)	C64	C65	1.34 (3)
O2	C2	1.15 (2)	C65	C66	1.37 (3)
N	C4	1.39 (2)	C71	C72	1.41 (3)
N	C5	1.59 (3)	C71	C76	1.37 (3)
C3	C4	1.43 (3)	C72	C73	1.37 (3)
C5	C6	1.42 (3)	C73	C74	1.31 (4)
C5	C7	1.47 (3)	C74	C75	1.33 (3)
C5	C8	1.47 (3)	C75	C76	1.37 (3)
C11	C12	1.37 (3)	C81	C82	1.36 (3)
C11	C16	1.40 (3)	C81	C86	1.33 (3)
C12	C13	1.37 (3)	C82	C83	1.32 (3)
C13	C14	1.33 (3)	C83	C84	1.27 (3)
C14	C15	1.33 (3)	C84	C85	1.37 (3)
C15	C16	1.36 (4)	C85	C86	1.33 (3)

L1054-12

Table S9. Interatomic Angles (in degrees) for the Dppm Ligands and the Triflate Anion in Compound **7**.

Atom1	Atom2	Atom3	Angle	Atom1	Atom2	Atom3	Angle
Rh	Ir	P1	94.6 (2)	O3	P5	C99	103 (1)
Rh	Ir	P3	93.1 (2)	O4	P5	O5	129 (3)
Rh	Ir	C1	97.4 (8)	O4	P5	C99	102 (2)
Rh	Ir	C4	71.0 (6)	O5	P5	C99	98 (2)
P1	Ir	P3	167.4 (2)	Rh	N	C4	114 (1)
P1	Ir	C1	95.1 (8)	Rh	N	C5	120 (1)
P1	Ir	C4	86.6 (6)	C4	N	C5	125 (2)
P3	Ir	C1	93.7 (8)	Ir	C1	O1	170 (2)
P3	Ir	C4	86.6 (6)	Rh	C2	O2	177 (2)
C1	Ir	C4	168 (1)	Ir	C4	N	110 (1)
Ir	Rh	P2	87.5 (2)	Ir	C4	C3	131 (2)
Ir	Rh	P4	88.8 (2)	N	C4	C3	119 (2)
Ir	Rh	N	64.8 (5)	N	C5	C6	113 (2)
Ir	Rh	C2	126.6 (8)	N	C5	C7	109 (2)
P2	Rh	P4	175.8 (3)	N	C5	C8	108 (2)
P2	Rh	N	90.1 (5)	C6	C5	C7	114 (2)
P2	Rh	C2	91.5 (7)	C6	C5	C8	108 (2)
P4	Rh	N	90.1 (5)	C7	C5	C8	104 (2)
P4	Rh	C2	89.1 (7)	P1	C9	P2	114 (1)
N	Rh	C2	168.6 (9)	P3	C10	P4	117 (1)
Ir	P1	C9	109.6 (7)	P1	C11	C12	122 (2)
Ir	P1	C11	118.9 (8)	P1	C11	C16	124 (2)
Ir	P1	C21	116.5 (8)	C12	C11	C16	114 (3)
C9	P1	C11	108 (1)	C11	C12	C13	121 (3)
C9	P1	C21	104 (1)	C12	C13	C14	119 (3)
C11	P1	C21	98 (1)	C13	C14	C15	126 (3)
Rh	P2	C9	114.5 (7)	C14	C15	C16	113 (3)
Rh	P2	C31	114.7 (8)	C11	C16	C15	127 (3)
Rh	P2	C41	116.9 (7)	P1	C21	C22	125 (2)
C9	P2	C31	105 (1)	P1	C21	C26	115 (2)
C9	P2	C41	102 (1)	C22	C21	C26	119 (2)
C31	P2	C41	102 (1)	C21	C22	C23	122 (2)
Ir	P3	C10	111.9 (7)	C22	C23	C24	119 (3)
Ir	P3	C51	110.3 (7)	C23	C24	C25	121 (3)
Ir	P3	C61	119.4 (8)	C24	C25	C26	122 (3)
C10	P3	C51	105 (1)	C21	C26	C25	116 (2)
C10	P3	C61	105 (1)	P2	C31	C32	127 (2)
C51	P3	C61	104 (1)	P2	C31	C36	117 (2)
Rh	P4	C10	111.5 (7)	C32	C31	C36	115 (2)
Rh	P4	C71	115.7 (7)	C31	C32	C33	121 (2)
Rh	P4	C81	117.0 (8)	C32	C33	C34	121 (2)
C10	P4	C71	106 (1)	C33	C34	C35	119 (3)
C10	P4	C81	101.1 (9)	C34	C35	C36	122 (3)
C71	P4	C81	104 (1)	C31	C36	C35	121 (2)
O3	P5	O4	113 (2)	P2	C41	C42	118 (2)
O3	P5	O5	107 (2)	P2	C41	C46	120 (2)

L1054-13

Atom1	Atom2	Atom3	Angle
C42	C41	C46	122 (2)
C41	C42	C43	117 (2)
C42	C43	C44	122 (3)
C43	C44	C45	120 (3)
C44	C45	C46	121 (2)
C41	C46	C45	118 (2)
P3	C51	C52	118 (2)
P3	C51	C56	125 (2)
C52	C51	C56	118 (2)
C51	C52	C53	124 (3)
C52	C53	C54	114 (2)
C53	C54	C55	126 (3)
C54	C55	C56	117 (3)
C51	C56	C55	122 (3)
P3	C61	C62	118 (2)
P3	C61	C66	128 (2)
C62	C61	C66	114 (2)
C61	C62	C63	122 (2)
C62	C63	C64	119 (3)
C63	C64	C65	123 (3)
C64	C65	C66	115 (2)
C61	C66	C65	128 (3)
P4	C71	C72	119 (2)
P4	C71	C76	128 (2)
C72	C71	C76	113 (2)
C71	C72	C73	123 (3)
C72	C73	C74	119 (3)
C73	C74	C75	121 (3)
C74	C75	C76	121 (3)
C71	C76	C75	122 (2)
P4	C81	C82	120 (2)
P4	C81	C86	124 (2)
C82	C81	C86	117 (2)
C81	C82	C83	121 (3)
C82	C83	C84	123 (3)
C83	C84	C85	116 (2)
C84	C85	C86	123 (3)
C81	C86	C85	120 (2)
P5	C99	F1	110 (3)
P5	C99	F2	120 (2)
P5	C99	F3	106 (2)
F1	C99	F2	112 (3)
F1	C99	F3	99 (3)
F2	C99	F3	107 (2)

L1054-14

Table S10. Derived Atomic Coordinates and Displacement Parameters for Hydrogen Atoms for Compound **7**.

Atom	*x*	*y*	*z*	*B*, Å^2
H1C3	0.2767	0.8265	0.1684	3.5
H2C3	0.1586	0.8128	0.1725	3.5
H3C3	0.1863	0.8627	0.1304	3.5
H1C6	0.5189	0.8587	0.1814	5.6
H2C6	0.3990	0.8633	0.1524	5.6
H3C6	0.4595	0.9142	0.1853	5.6
H1C7	0.4801	0.7768	0.2585	4.6
H2C7	0.4029	0.7864	0.3095	4.6
H3C7	0.3583	0.7795	0.2345	4.6
H1C8	0.5793	0.8595	0.3026	3.7
H2C8	0.5209	0.9147	0.3108	3.7
H3C8	0.4987	0.8636	0.3525	3.7
H1C9	0.2202	0.7902	0.3340	1.7
H2C9	0.1593	0.7816	0.3938	1.7
H1C10	0.2905	1.0446	0.1825	2.3
H2C10	0.3194	0.9825	0.1813	2.3
H12	0.0159	0.7878	0.4333	4.8
H13	-0.1287	0.7858	0.4918	5.2
H14	-0.2585	0.8506	0.4700	7.4
H15	-0.2688	0.9110	0.3838	8.0
H16	-0.1378	0.9046	0.3174	5.0
H22	0.0381	0.7245	0.3170	4.8
H23	-0.0695	0.6622	0.2510	5.3
H24	-0.1425	0.6869	0.1462	7.7
H25	-0.1306	0.7720	0.1103	6.7
H26	-0.0597	0.8444	0.1851	5.4
H32	0.3316	0.7404	0.4241	4.2
H33	0.4794	0.6978	0.4819	4.4
H34	0.6122	0.7486	0.5442	6.6
H35	0.5955	0.8403	0.5513	5.0
H36	0.4547	0.8864	0.4907	4.6
H42	0.2312	0.7991	0.5285	4.8
H43	0.1280	0.8153	0.6127	5.3
H44	0.0611	0.9011	0.6266	5.6
H45	0.0474	0.9635	0.5419	3.9
H46	0.1399	0.9486	0.4502	3.8
H52	-0.0312	0.9461	0.1169	5.1
H53	-0.0771	0.9051	0.0094	4.7
H54	0.0500	0.9107	-0.0595	5.2
H55	0.2121	0.9481	-0.0295	7.6
H56	0.2504	0.9913	0.0779	4.6
H62	-0.0662	1.0229	0.2073	4.9
H63	-0.1670	1.1031	0.1992	5.6
H64	-0.0868	1.1865	0.1839	4.8
H65	0.0881	1.1910	0.1679	4.9
H66	0.1789	1.1090	0.1663	3.9
H72	0.5227	1.0269	0.3912	7.0
H73	0.6997	1.0488	0.3955	6.0
H74	0.7729	1.0452	0.3014	7.6

L1054-15

Atom	*x*	*y*	*z*	*B*, Å^2
H75	0.6679	1.0386	0.2000	6.4
H76	0.4861	1.0300	0.1921	3.5
H82	0.3832	1.1268	0.2702	4.0
H83	0.3164	1.2087	0.2933	4.3
H84	0.1989	1.2169	0.3647	4.2
H85	0.1293	1.1358	0.4013	4.7
H86	0.1934	1.0518	0.3794	2.8