Supporting Information

for

Diastereoselective *ortho*-Metalation of ~~Scalemic~~ STEREOGENIC Ferrocenylphosphine Oxides. Asymmetric Synthesis of the First Enantiopure Phosphorus-Chiral 2,2'-Bis(diarylphosphino)-1,1'-biferrocenyls.

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(R_P,R_m)-1-Iodo-2-(1-naphthylphenylphosphinoxy)ferrocene, 5a (Minor isomer).

^{1}H-NMR (400.13 MHz): δ 4.08 (m, 1H); 4.28 (s, 5H); 4.33 (m, 1H); 4.78 (m, 1H); 7.35-7.52 (m, 6H); 7.66-7.74 (m, 2H); 7.79-7.89 (m, 2H); 8.03 (d, 1H, J = 8.3Hz); 8.68 (d, 1H, J = 8.2Hz) ppm.
^{13}C-NMR (100.62 MHz): δ 41.51 (d, C, J_{CP} = 11.3Hz); 71.78 (d, CH, J_{CP} = 9.9Hz); 72.71 (5CH); 74.71 (d, CH, J_{CP} = 14.3Hz); 75.31 (d, C, J_{CP} = 117.2Hz); 79.85 (d, CH, J_{CP} = 8.7Hz); 124.21 (d, CH, J_{CP} = 14.1Hz); 136.03 (CH); 126.52 (CH); 127.24 (d, CH, J_{CP} = 4.0Hz); 128.08 (d, CH, J_{CP} = 12.1Hz); 128.58 (br, CH); 129.06 (d, C, J_{CP} = 103.6Hz); 131.45 (d, CH, J_{CP} = 3.0Hz); 132.31 (d, CH, J_{CP} = 11.1Hz); 132.76 (d, CH, J_{CP} = 3.0Hz); 133.44 (d, C, J_{CP} = 10.1Hz); 133.52 (d, C, J_{CP} = 9.0Hz); 133.76 (d, CH, J_{CP} = 10.1Hz); 133.92 (d, C, J_{CP} = 107.4Hz) ppm.
^{31}P-NMR (121.50 MHz): δ 31.54 (s) ppm.
HRMS (FAB$^+$): *m/z* calcd. for $C_{26}H_{21}FeIOP$: 562.9724; obsd.: 562.9720.

(R_P,R_m,S_m,S_P)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl, meso-6b.

^{1}H-NMR (400.13 MHz; CD_2Cl_2): δ 3.71 (s, 10H); 3.87 (m, 2H); 4.36 (m, 2H); 5.93 (m, 2H); 6.97-7.01 (m, 4H); 7.11-7.16 (m, 4H); 7.19-7.24 (m, 2H); 7.28 (ddd, 2H, J = 1.2; 4.0; 7.5Hz); 7.35-7.41 (m, 4H); 7.42-7.57 (m, 10H); 7.70 (ddd, 2H, J = 1.0; 7.5; 14.0Hz) ppm.
^{13}C-NMR (100.62 MHz; CD_2Cl_2): δ 70.46 (d, C, J_{CP} = 114.7Hz); 70.95 (5CH); 71.18 (d, CH, J_{CP} = 11.5Hz); 75.25 (d, CH, J_{CP} = 15.3Hz); 77.70 (d, CH, J_{CP} = 9.2Hz); 87.58 (d, C, J_{CP} = 9.2Hz); 126.73 (d, CH, J_{CP} = 12.2Hz); 127.02 (CH); 127.07 (CH); 127.89 (d, CH, J_{CP} = 12.2Hz); 130.10 (CH); 131.08 (d, CH, J_{CP} = 2.3Hz); 131.56 (d, CH, J_{CP} = 2.3Hz); 132.05 (d, CH, J_{CP} = 9.2Hz); 132.51 (d, CH, J_{CP} = 9.9Hz); 134.31 (d, C, J_{CP} = 100.2Hz); 134.35 (d, CH, J_{CP} = 12.2Hz); 136.47 (d, C, J_{CP} = 106.3Hz); 141.58 (d, C, J_{CP} = 3.8Hz); 147.52 (d, C, J_{CP} = 7.6Hz) ppm.
^{31}P-NMR (161.98 MHz; CD_2Cl_2): δ 32.53 (s) ppm.
HRMS (FAB$^+$): *m/z* calcd. for $C_{56}H_{45}Fe_2O_2P_2$ (MH^+): 923.1594; obsd.: 923.1601.

Table S1. Crystal data and structure refinement for (R_P,R_m,R_m,R_P)-(−)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl bisdichloromethane solvate, (R_P,R_m,R_m,R_P)-**6b**·2CH_2Cl_2, $C_{56}H_{44}Fe_2O_2P_2$·2CH_2Cl_2.

Identification code	widkj3fr
Empirical formula	$C_{58}H_{48}Cl_4Fe_2O_2P_2$ (idealized, including solvent)
Formula weight	1092.40
Temperature	213(2) K
Wavelength	0.71073 Å
Crystal system, space group	orthorhombic, $P2_12_12_1$
Unit cell dimensions	a = 9.620(4) Å α = 90° b = 12.430(5) Å β = 90° c = 43.31(2) Å γ = 90°
Volume	5179(4) $Å^3$
Z, Calculated density	4, 1.401 Mg/m^3
Absorption coefficient	0.871 mm^{-1}
F(000)	2248
Crystal size	0.70 x 0.65 x 0.45 mm, orange block
Diffractometer	Siemens SMART 3-circle with CCD area detector (sealed X-ray tube, Mo Kα radiation, graphite monochr., det.dist. 44.50 mm, 512x512 pixels)
Scan type / width / speed	ω-scan frames / Δω = 0.3° / 8 sec. per frame full sphere, 4 x 606 frames
Theta range for data collection	1.89° to 27.00°
Index ranges	$-12 \le h \le 12$, $-15 \le h \le 15$, $-55 \le h \le 55$
Reflections collected / unique	62021 / 11206 [R(int)= 0.036, R(sigma)= 0.025]
Completeness to theta = 27.00	99.3%
Absorption correction	Empirical (program SADABS; Sheldrick, 1996)
Transmission factors	0.746 - 0.626
Structure solution	Direct methods (program SHELXS97)
Refinement method	Full-matrix least-squares on F^2 (prg SHELXL97)
Data / restraints / parameters	11206 / 0 / 649
Goodness-of-fit on F^2	1.185
Final R indices [I>2sigma(I)]	R1 = 0.0414, wR2 = 0.0846 (10846 data)
R indices (all data)	R1 = 0.0434, wR2 = 0.0854 (11206 data)
Absolute structure parameter	0.019(12)
Extinction coefficient	0.00047(9)
Largest diff. peak and hole	0.427 and -0.405 e $Å^{-3}$

$R1 = \Sigma||F_o|-|F_c||/\Sigma|F_o|$, $wR2 = [\Sigma(w(F_o^2-F_c^2)^2)/\Sigma(w(F_o^2)^2)]^{1/2}$

Table 2. Atomic coordinates and equivalent isotropic displacement parameters ($Å^2$ x 10^3) of (R_P,R_m,R_m,R_P)-(−)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl bisdichloromethane solvate, (R_P,R_m,R_m,R_P)-**6b**·2CH_2Cl_2, $C_{56}H_{44}Fe_2O_2P_2$·2CH_2Cl_2. U_{eq} is defined as one third of the trace of the orthogonalized U_{ij} tensor.

	x	y	z	U_{eq}
Fe(1)	0.46244(4)	0.42405(3)	0.12143(1)	26(1)
Fe(2)	0.46865(5)	0.71626(3)	0.05969(1)	29(1)
P(1)	0.26792(7)	0.58838(6)	0.16970(2)	23(1)
P(2)	0.63469(7)	0.84085(6)	0.11938(2)	23(1)
O(1)	0.1785(2)	0.65276(17)	0.14875(5)	30(1)
O(2)	0.7291(2)	0.75602(16)	0.13172(5)	33(1)
C(1)	0.3770(4)	0.3826(3)	0.07970(8)	42(1)
C(2)	0.2786(4)	0.3665(3)	0.10344(8)	40(1)
C(3)	0.3353(4)	0.2912(3)	0.12470(9)	43(1)
C(4)	0.4690(4)	0.2609(2)	0.11384(9)	48(1)
C(5)	0.4941(4)	0.3177(3)	0.08602(9)	48(1)
C(6)	0.4897(3)	0.5890(2)	0.12422(6)	24(1)
C(7)	0.4285(3)	0.5457(2)	0.15215(6)	24(1)
C(8)	0.5242(3)	0.4682(2)	0.16459(7)	32(1)
C(9)	0.6415(3)	0.4636(3)	0.14463(8)	36(1)

C(10)	0.6207(3)	0.5366(2)	0.12012(8)	30(1)
C(11)	0.1859(3)	0.4654(2)	0.18282(7)	27(1)
C(12)	0.2398(3)	0.4010(3)	0.20625(7)	37(1)
C(13)	0.1800(4)	0.3017(3)	0.21299(8)	45(1)
C(14)	0.0649(4)	0.2669(3)	0.19596(9)	47(1)
C(15)	0.0061(3)	0.3331(3)	0.17411(9)	42(1)
C(16)	0.0663(3)	0.4327(2)	0.16715(7)	32(1)
C(17)	0.3202(3)	0.6647(2)	0.20372(6)	26(1)
C(18)	0.4548(3)	0.7079(2)	0.20450(7)	34(1)
C(19)	0.4948(3)	0.7757(3)	0.22881(8)	40(1)
C(20)	0.4013(4)	0.7999(3)	0.25188(8)	43(1)
C(21)	0.2682(4)	0.7569(3)	0.25160(7)	37(1)
C(22)	0.2248(3)	0.6892(2)	0.22729(6)	28(1)
C(23)	0.0789(3)	0.6464(2)	0.22746(7)	32(1)
C(24)	0.0383(4)	0.5699(3)	0.24914(7)	41(1)
C(25)	-0.0969(4)	0.5293(3)	0.24871(9)	52(1)
C(26)	-0.1909(4)	0.5639(4)	0.22687(10)	57(1)
C(27)	-0.1524(4)	0.6397(3)	0.20532(10)	50(1)
C(28)	-0.0184(3)	0.6808(3)	0.20575(8)	39(1)
C(29)	0.5798(4)	0.5952(3)	0.03891(8)	45(1)
C(30)	0.6644(4)	0.6878(3)	0.04251(7)	39(1)
C(31)	0.6008(4)	0.7739(3)	0.02615(7)	45(1)
C(32)	0.4765(5)	0.7340(4)	0.01248(7)	56(1)
C(33)	0.4635(5)	0.6230(3)	0.02060(8)	56(1)
C(34)	0.4297(3)	0.6759(2)	0.10487(6)	24(1)
C(35)	0.4794(3)	0.7864(2)	0.10228(6)	25(1)
C(36)	0.3827(3)	0.8432(3)	0.08293(7)	33(1)
C(37)	0.2765(3)	0.7709(3)	0.07391(8)	36(1)
C(38)	0.3046(3)	0.6693(3)	0.08725(7)	31(1)
C(39)	0.7138(3)	0.9249(2)	0.08979(6)	27(1)
C(40)	0.6467(3)	1.0171(2)	0.07894(7)	32(1)
C(41)	0.7071(4)	1.0784(3)	0.05548(8)	45(1)
C(42)	0.8339(4)	1.0484(3)	0.04391(8)	49(1)
C(43)	0.9028(4)	0.9589(3)	0.05463(8)	45(1)
C(44)	0.8434(3)	0.8961(3)	0.07806(7)	33(1)
C(45)	0.5776(3)	0.9361(2)	0.14872(7)	28(1)
C(46)	0.4399(3)	0.9352(3)	0.15881(7)	37(1)
C(47)	0.3931(4)	1.0075(3)	0.18124(9)	50(1)
C(48)	0.4846(4)	1.0816(4)	0.19349(9)	59(1)
C(49)	0.6222(4)	1.0852(3)	0.18316(9)	50(1)
C(50)	0.6716(3)	1.0124(3)	0.16136(7)	33(1)
C(51)	0.8202(3)	1.0183(3)	0.15150(8)	36(1)
C(52)	0.8693(4)	1.1067(3)	0.13487(8)	40(1)
C(53)	1.0059(4)	1.1100(3)	0.12454(9)	48(1)
C(54)	1.0956(4)	1.0256(3)	0.13067(10)	53(1)
C(55)	1.0496(4)	0.9376(3)	0.14741(10)	51(1)
C(56)	0.9121(3)	0.9347(3)	0.15804(9)	41(1)
C(1S) *	-0.0697(5)	0.4728(4)	0.05144(11)	65(2)
Cl(1S)	0.08213(15)	0.48052(12)	0.02922(4)	81(1)
Cl(2S)	-0.09223(14)	0.34510(12)	0.06837(4)	85(1)
C(2SA)	0.7056(12)	0.3167(9)	-0.0326(2)	128(6)
C(2SB)	0.705(7)	0.291(3)	-0.0080(15)	420(3)
Cl(3S)	0.61587(19)	0.31560(14)	0.00370(3)	66(1)
Cl(4S)	0.8261(12)	0.4120(7)	-0.0344(2)	106(3)
Cl(4T)	0.7776(12)	0.4562(12)	-0.0310(3)	97(4)
Cl(4U)	0.7567(13)	0.3984(8)	-0.0541(3)	105(5)

* Subsequent atoms belonging to two partly disordered CH_2Cl_2 solvent molecules. Refined site occupation factors: C(1S) 0.99(1), Cl(1S) 0.936(5), Cl(2S) 0.962(5), C2(SA) 0.95(4), C2(SB) 0.82(6), Cl(3S) 0.81(1), Cl(4S) 0.50(2), Cl(4T) 0.25(1), Cl(4U) 0.25(1).

Table 3. Hydrogen coordinates and isotropic displacement parameters ($Å^2$ x 10^3) for (R_P,R_m,R_m,R_P)-(−)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl bisdichloromethane solvate, (R_P,R_m,R_m,R_P)-**6b**·$2CH_2Cl_2$, $C_{56}H_{44}Fe_2O_2P_2·2CH_2Cl_2$.

	x	y	z	U_{iso}
H(1)	0.3664	0.4285	0.0626	50
H(2)	0.1911	0.3998	0.1049	48
H(3)	0.2920	0.2658	0.1427	51
H(4)	0.5299	0.2121	0.1234	57
H(5)	0.5748	0.3130	0.0739	58
H(8)	0.5115	0.4277	0.1827	39
H(9)	0.7197	0.4194	0.1473	44
H(10)	0.6829	0.5488	0.1038	36
H(12)	0.3173	0.4247	0.2176	44
H(13)	0.2166	0.2585	0.2288	54
H(14)	0.0276	0.1980	0.1995	57
H(15)	-0.0751	0.3113	0.1638	50
H(16)	0.0265	0.4773	0.1520	39
H(18)	0.5183	0.6913	0.1887	41
H(19)	0.5851	0.8046	0.2293	47
H(20)	0.4280	0.8461	0.2680	52
H(21)	0.2063	0.7730	0.2678	45
H(24)	0.1019	0.5457	0.2641	49
H(25)	-0.1241	0.4779	0.2634	63
H(26)	-0.2816	0.5357	0.2267	68
H(27)	-0.2165	0.6634	0.1904	59
H(28)	0.0074	0.7329	0.1911	47
H(29)	0.5980	0.5268	0.0473	54
H(30)	0.7479	0.6916	0.0537	47
H(31)	0.6349	0.8446	0.0246	53
H(32)	0.4140	0.7737	0.0003	67
H(33)	0.3907	0.5767	0.0148	67
H(36)	0.3889	0.9160	0.0772	40
H(37)	0.2002	0.7876	0.0612	43
H(38)	0.2497	0.6073	0.0849	37
H(40)	0.5609	1.0379	0.0874	39
H(41)	0.6613	1.1394	0.0477	54
H(42)	0.8749	1.0901	0.0282	59
H(43)	0.9895	0.9398	0.0463	54
H(44)	0.8904	0.8354	0.0857	39
H(46)	0.3774	0.8851	0.1504	44
H(47)	0.3001	1.0056	0.1879	60
H(48)	0.4543	1.1297	0.2088	71
H(49)	0.6826	1.1378	0.1911	60
H(52)	0.8093	1.1645	0.1306	48
H(53)	1.0376	1.1699	0.1133	57
H(54)	1.1877	1.0280	0.1235	63
H(55)	1.1102	0.8802	0.1516	62
H(56)	0.8814	0.8756	0.1697	50
H(1SA)	-0.1500	0.4889	0.0383	78
H(1SB)	-0.0659	0.5274	0.0678	78

Hydrogen atoms were inserted in idealized positions and were refined riding with the atoms to which they were bonded. All hydrogen atoms had $U_{iso} = U_{eq}$ x 1.2 of their carrier atoms.

Table 4. Anisotropic displacement parameters ($Å^2$ x 10^3) for (R_P,R_m,R_m,R_P)-(−)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl bisdichloromethanesolvate, (R_P,R_m,R_m,R_P)-**6b**·$2CH_2Cl_2$, $C_{56}H_{44}Fe_2O_2P_2 \cdot 2CH_2Cl_2$. The anisotropic displacement factor exponent takes the form: $-2\pi^2 [h^2 a^{*2} U_{11} + ... + 2 h k a^* b^* U_{12}]$

	U_{11}	U_{22}	U_{33}	U_{23}	U_{13}	U_{12}
Fe(1)	24(1)	24(1)	32(1)	-3(1)	2(1)	1(1)
Fe(2)	30(1)	35(1)	21(1)	0(1)	-2(1)	-5(1)
P(1)	21(1)	25(1)	23(1)	0(1)	0(1)	-1(1)
P(2)	20(1)	24(1)	26(1)	-1(1)	0(1)	0(1)
O(1)	25(1)	36(1)	29(1)	3(1)	0(1)	3(1)
O(2)	26(1)	28(1)	45(1)	2(1)	-5(1)	1(1)
C(1)	54(2)	39(2)	32(2)	-10(1)	-3(2)	-14(2)
C(2)	33(2)	36(2)	51(2)	-11(2)	-6(2)	-9(1)
C(3)	51(2)	31(2)	47(2)	-4(2)	7(2)	-12(1)
C(4)	55(2)	23(1)	65(2)	-9(1)	-3(2)	7(2)
C(5)	51(2)	39(2)	55(2)	-20(2)	17(2)	-6(2)
C(6)	21(1)	23(1)	29(1)	-4(1)	-4(1)	-3(1)
C(7)	20(1)	26(1)	24(1)	-4(1)	-2(1)	1(1)
C(8)	30(1)	33(1)	34(2)	3(1)	-7(1)	2(1)
C(9)	23(1)	37(2)	49(2)	3(2)	-7(1)	6(1)
C(10)	19(1)	31(1)	40(2)	-3(1)	3(1)	-2(1)
C(11)	24(1)	29(1)	28(1)	-3(1)	7(1)	-1(1)
C(12)	37(2)	41(2)	32(2)	3(1)	3(1)	-2(1)
C(13)	55(2)	39(2)	42(2)	13(2)	10(2)	4(2)
C(14)	48(2)	31(2)	63(2)	1(2)	21(2)	-8(2)
C(15)	28(2)	36(2)	62(2)	-4(2)	5(1)	-5(1)
C(16)	25(1)	30(1)	41(2)	1(1)	2(1)	0(1)
C(17)	29(1)	26(1)	24(1)	0(1)	1(1)	-1(1)
C(18)	30(2)	38(2)	35(2)	-3(1)	-3(1)	-2(1)
C(19)	32(2)	45(2)	42(2)	-7(2)	-7(1)	-10(1)
C(20)	51(2)	42(2)	38(2)	-13(2)	-15(2)	-2(2)
C(21)	45(2)	38(2)	29(2)	-5(1)	4(1)	7(1)
C(22)	30(1)	26(1)	27(1)	1(1)	0(1)	4(1)
C(23)	31(2)	31(2)	34(2)	-5(1)	10(1)	2(1)
C(24)	51(2)	38(2)	34(2)	-4(1)	11(2)	-1(2)
C(25)	62(2)	40(2)	54(2)	-5(2)	27(2)	-14(2)
C(26)	36(2)	62(3)	73(3)	-22(2)	12(2)	-11(2)
C(27)	33(2)	54(2)	62(2)	-12(2)	5(2)	3(2)
C(28)	32(2)	42(2)	45(2)	-2(1)	8(1)	7(1)
C(29)	59(2)	40(2)	37(2)	-16(2)	17(2)	-8(2)
C(30)	39(2)	47(2)	30(2)	-5(1)	9(1)	-6(2)
C(31)	56(2)	52(2)	26(2)	2(2)	7(2)	-13(2)
C(32)	64(2)	83(3)	21(1)	3(2)	-4(2)	-9(2)
C(33)	61(2)	76(3)	30(2)	-22(2)	7(2)	-31(2)
C(34)	20(1)	28(1)	22(1)	-2(1)	3(1)	-1(1)
C(35)	24(1)	25(1)	25(1)	-2(1)	-2(1)	-1(1)
C(36)	31(2)	30(2)	39(2)	5(1)	-4(1)	2(1)
C(37)	23(1)	44(2)	42(2)	4(1)	-8(1)	0(1)
C(38)	24(1)	37(2)	31(2)	0(1)	-1(1)	-5(1)
C(39)	29(1)	24(1)	29(1)	-4(1)	1(1)	-5(1)
C(40)	37(2)	28(2)	32(2)	-4(1)	0(1)	1(1)
C(41)	64(2)	30(2)	41(2)	6(2)	-1(2)	-3(2)
C(42)	68(2)	46(2)	33(2)	3(2)	12(2)	-17(2)
C(43)	39(2)	52(2)	43(2)	-8(2)	16(2)	-12(2)
C(44)	31(2)	32(2)	36(2)	-6(1)	4(1)	-5(1)
C(45)	28(1)	29(2)	26(1)	-3(1)	-2(1)	2(1)
C(46)	29(2)	48(2)	33(2)	-7(1)	2(1)	1(1)
C(47)	34(2)	72(3)	45(2)	-9(2)	5(2)	7(2)
C(48)	54(2)	72(3)	51(2)	-31(2)	3(2)	9(2)
C(49)	45(2)	54(2)	51(2)	-25(2)	-10(2)	2(2)
C(50)	31(2)	37(2)	32(2)	-2(1)	-6(1)	1(1)
C(51)	30(2)	38(2)	40(2)	-11(1)	-10(1)	-6(1)
C(52)	38(2)	32(2)	49(2)	-8(1)	-11(2)	-2(1)
C(53)	41(2)	43(2)	58(2)	2(2)	-5(2)	-12(1)
C(54)	28(2)	67(3)	62(3)	-4(2)	-2(2)	-6(2)

C(55)	29(2)	51(2)	75(3)	4(2)	-14(2)	1(2)
C(56)	31(2)	42(2)	51(2)	4(2)	-12(1)	-4(1)
C(1S)	63(3)	61(3)	71(3)	-14(2)	-21(2)	17(2)
Cl(1S)	70(1)	82(1)	90(1)	19(1)	2(1)	-2(1)
Cl(2S)	66(1)	79(1)	109(1)	17(1)	-2(1)	-11(1)
C(2SA)	166(10)	122(8)	97(7)	-31(5)	71(6)	-35(6)
C(2SB)	560(7)	270(3)	440(6)	130(3)	-160(5)	-20(4)
Cl(3S)	85(1)	66(1)	46(1)	11(1)	2(1)	7(1)
Cl(4S)	102(5)	113(5)	104(4)	11(3)	19(4)	-41(3)
Cl(4T)	75(5)	123(8)	93(7)	63(7)	4(4)	-5(5)
Cl(4U)	116(8)	101(6)	100(8)	39(5)	38(6)	9(5)

Table 5. Complete bond lengths [Å] and angles [deg] for (R_P,R_m,R_m,R_P)-(−)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl bisdichloromethane solvate, (R_P,R_m,R_m,R_P)-**6b**·2CH_2Cl_2, $C_{56}H_{44}Fe_2O_2P_2$·2CH_2Cl_2).

Bond lengths			
		C(9)-C(10)	1.410(4)
		C(9)-H(9)	0.94
Fe(1)-C(8)	2.037(3)	C(10)-H(10)	0.94
Fe(1)-C(7)	2.041(3)	C(11)-C(12)	1.393(4)
Fe(1)-C(5)	2.047(3)	C(11)-C(16)	1.396(4)
Fe(1)-C(1)	2.051(3)	C(12)-C(13)	1.392(5)
Fe(1)-C(9)	2.054(3)	C(12)-H(12)	0.94
Fe(1)-C(4)	2.055(3)	C(13)-C(14)	1.399(5)
Fe(1)-C(3)	2.060(3)	C(13)-H(13)	0.94
Fe(1)-C(2)	2.061(3)	C(14)-C(15)	1.376(5)
Fe(1)-C(10)	2.068(3)	C(14)-H(14)	0.94
Fe(1)-C(6)	2.071(3)	C(15)-C(16)	1.399(4)
		C(15)-H(15)	0.94
Fe(2)-C(35)	2.043(3)	C(16)-H(16)	0.94
Fe(2)-C(36)	2.046(3)	C(17)-C(18)	1.402(4)
Fe(2)-C(33)	2.053(3)	C(17)-C(22)	1.406(4)
Fe(2)-C(29)	2.054(3)	C(18)-C(19)	1.403(4)
Fe(2)-C(34)	2.054(3)	C(18)-H(18)	0.94
Fe(2)-C(30)	2.055(3)	C(19)-C(20)	1.377(5)
Fe(2)-C(32)	2.058(3)	C(19)-H(19)	0.94
Fe(2)-C(31)	2.059(3)	C(20)-C(21)	1.388(5)
Fe(2)-C(38)	2.063(3)	C(20)-H(20)	0.94
Fe(2)-C(37)	2.063(3)	C(21)-C(22)	1.411(4)
		C(21)-H(21)	0.94
P(1)-O(1)	1.484(2)	C(22)-C(23)	1.501(4)
P(1)-C(7)	1.801(3)	C(23)-C(24)	1.392(4)
P(1)-C(11)	1.812(3)	C(23)-C(28)	1.394(5)
P(1)-C(17)	1.824(3)	C(24)-C(25)	1.396(5)
P(2)-O(2)	1.491(2)	C(24)-H(24)	0.94
P(2)-C(35)	1.799(3)	C(25)-C(26)	1.377(6)
P(2)-C(39)	1.820(3)	C(25)-H(25)	0.94
P(2)-C(45)	1.821(3)	C(26)-C(27)	1.377(6)
		C(26)-H(26)	0.94
C(1)-C(5)	1.412(5)	C(27)-C(28)	1.387(5)
C(1)-C(2)	1.412(5)	C(27)-H(27)	0.94
C(1)-H(1)	0.94	C(28)-H(28)	0.94
C(2)-C(3)	1.422(5)		
C(2)-H(2)	0.94	C(29)-C(33)	1.414(6)
C(3)-C(4)	1.420(5)	C(29)-C(30)	1.419(5)
C(3)-H(3)	0.94	C(29)-H(29)	0.94
C(4)-C(5)	1.417(5)	C(30)-C(31)	1.422(5)
C(4)-H(4)	0.94	C(30)-H(30)	0.94
C(5)-H(5)	0.94	C(31)-C(32)	1.424(5)
C(6)-C(10)	1.430(4)	C(31)-H(31)	0.94
C(6)-C(7)	1.449(4)	C(32)-C(33)	1.430(6)
C(6)-C(34)	1.484(4)	C(32)-H(32)	0.94
C(7)-C(8)	1.437(4)	C(33)-H(33)	0.94
C(8)-C(9)	1.422(5)	C(34)-C(38)	1.427(4)
C(8)-H(8)	0.94	C(34)-C(35)	1.458(4)

C(35)-C(36)	1.438(4)
C(36)-C(37)	1.416(4)
C(36)-H(36)	0.94
C(37)-C(38)	1.415(4)
C(37)-H(37)	0.94
C(38)-H(38)	0.94
C(39)-C(44)	1.393(4)
C(39)-C(40)	1.398(4)
C(40)-C(41)	1.396(5)
C(40)-H(40)	0.94
C(41)-C(42)	1.371(5)
C(41)-H(41)	0.94
C(42)-C(43)	1.376(5)
C(42)-H(42)	0.94
C(43)-C(44)	1.402(5)
C(43)-H(43)	0.94
C(44)-H(44)	0.94
C(45)-C(46)	1.395(4)
C(45)-C(50)	1.420(4)
C(46)-C(47)	1.397(5)
C(46)-H(46)	0.94
C(47)-C(48)	1.381(6)
C(47)-H(47)	0.94
C(48)-C(49)	1.398(5)
C(48)-H(48)	0.94
C(49)-C(50)	1.391(5)
C(49)-H(49)	0.94
C(50)-C(51)	1.495(4)
C(51)-C(56)	1.393(5)
C(51)-C(52)	1.395(5)
C(52)-C(53)	1.389(5)
C(52)-H(52)	0.94
C(53)-C(54)	1.384(5)
C(53)-H(53)	0.94
C(54)-C(55)	1.384(6)
C(54)-H(54)	0.94
C(55)-C(56)	1.401(5)
C(55)-H(55)	0.94
C(56)-H(56)	0.94
C(1S)-Cl(1S)	1.751(5)
C(1S)-Cl(2S)	1.762(5)
C(1S)-H(1SA)	0.98
C(1S)-H(1SB)	0.98
C(2SA)-C(2SB)	1.11(5)
C(2SA)-Cl(4U)	1.462(12)
C(2SA)-Cl(4S)	1.659(11)
C(2SA)-Cl(3S)	1.796(8)
C(2SA)-Cl(4T)	1.869(17)
C(2SB)-Cl(3S)	1.04(8)
C(2SB)-Cl(4S)	2.21(6)
Cl(4S)-Cl(4T)	0.737(10)
Cl(4S)-Cl(4U)	1.096(11)
Cl(4T)-Cl(4U)	1.25(3)

Bond angles [deg.]

C(8)-Fe(1)-C(7)	41.28(11)
C(8)-Fe(1)-C(5)	144.89(14)
C(7)-Fe(1)-C(5)	172.17(14)
C(8)-Fe(1)-C(1)	173.33(14)
C(7)-Fe(1)-C(1)	134.16(13)
C(5)-Fe(1)-C(1)	40.30(15)
C(8)-Fe(1)-C(9)	40.69(13)
C(7)-Fe(1)-C(9)	68.74(12)
C(5)-Fe(1)-C(9)	113.37(15)
C(1)-Fe(1)-C(9)	145.82(14)
C(8)-Fe(1)-C(4)	113.81(14)
C(7)-Fe(1)-C(4)	147.19(14)
C(5)-Fe(1)-C(4)	40.41(15)
C(1)-Fe(1)-C(4)	67.88(15)
C(9)-Fe(1)-C(4)	106.79(15)
C(8)-Fe(1)-C(3)	109.03(14)
C(7)-Fe(1)-C(3)	117.03(13)
C(5)-Fe(1)-C(3)	67.79(14)
C(1)-Fe(1)-C(3)	67.74(14)
C(9)-Fe(1)-C(3)	131.02(14)
C(4)-Fe(1)-C(3)	40.37(15)
C(8)-Fe(1)-C(2)	133.69(14)
C(7)-Fe(1)-C(2)	111.49(12)
C(5)-Fe(1)-C(2)	67.69(15)
C(1)-Fe(1)-C(2)	40.16(14)
C(9)-Fe(1)-C(2)	171.06(14)
C(4)-Fe(1)-C(2)	67.89(15)
C(3)-Fe(1)-C(2)	40.39(14)
C(8)-Fe(1)-C(10)	68.17(13)
C(7)-Fe(1)-C(10)	68.55(11)
C(5)-Fe(1)-C(10)	107.87(13)
C(1)-Fe(1)-C(10)	116.15(14)
C(9)-Fe(1)-C(10)	40.01(13)
C(4)-Fe(1)-C(10)	129.82(14)
C(3)-Fe(1)-C(10)	168.85(13)
C(2)-Fe(1)-C(10)	148.88(14)
C(8)-Fe(1)-C(6)	69.06(11)
C(7)-Fe(1)-C(6)	41.26(11)
C(5)-Fe(1)-C(6)	131.62(13)
C(1)-Fe(1)-C(6)	110.55(13)
C(9)-Fe(1)-C(6)	68.16(11)
C(4)-Fe(1)-C(6)	169.25(13)
C(3)-Fe(1)-C(6)	149.90(12)
C(2)-Fe(1)-C(6)	118.31(12)
C(10)-Fe(1)-C(6)	40.42(10)
C(35)-Fe(2)-C(36)	41.16(11)
C(35)-Fe(2)-C(33)	170.77(15)
C(36)-Fe(2)-C(33)	146.27(17)
C(35)-Fe(2)-C(29)	133.01(14)
C(36)-Fe(2)-C(29)	172.33(14)
C(33)-Fe(2)-C(29)	40.28(17)
C(35)-Fe(2)-C(34)	41.70(11)
C(36)-Fe(2)-C(34)	69.26(12)
C(33)-Fe(2)-C(34)	130.03(14)
C(29)-Fe(2)-C(34)	109.48(13)
C(35)-Fe(2)-C(30)	110.73(12)
C(36)-Fe(2)-C(30)	132.93(13)
C(33)-Fe(2)-C(30)	68.06(16)
C(29)-Fe(2)-C(30)	40.38(13)
C(34)-Fe(2)-C(30)	118.03(12)
C(35)-Fe(2)-C(32)	148.15(15)
C(36)-Fe(2)-C(32)	114.89(16)
C(33)-Fe(2)-C(32)	40.72(17)
C(29)-Fe(2)-C(32)	67.92(17)
C(34)-Fe(2)-C(32)	168.29(15)
C(30)-Fe(2)-C(32)	67.99(16)
C(35)-Fe(2)-C(31)	117.21(13)
C(36)-Fe(2)-C(31)	109.16(14)
C(33)-Fe(2)-C(31)	68.27(15)
C(29)-Fe(2)-C(31)	67.94(15)
C(34)-Fe(2)-C(31)	150.39(13)
C(30)-Fe(2)-C(31)	40.43(14)
C(32)-Fe(2)-C(31)	40.46(15)
C(35)-Fe(2)-C(38)	68.74(12)
C(36)-Fe(2)-C(38)	67.96(13)
C(33)-Fe(2)-C(38)	107.37(14)

C(29)-Fe(2)-C(38)	116.37(14)
C(34)-Fe(2)-C(38)	40.57(11)
C(30)-Fe(2)-C(38)	149.48(13)
C(32)-Fe(2)-C(38)	129.28(15)
C(31)-Fe(2)-C(38)	168.23(13)
C(35)-Fe(2)-C(37)	68.61(12)
C(36)-Fe(2)-C(37)	40.30(12)
C(33)-Fe(2)-C(37)	114.24(16)
C(29)-Fe(2)-C(37)	146.97(14)
C(34)-Fe(2)-C(37)	68.44(12)
C(30)-Fe(2)-C(37)	170.22(14)
C(32)-Fe(2)-C(37)	107.11(16)
C(31)-Fe(2)-C(37)	130.49(15)
C(38)-Fe(2)-C(37)	40.11(12)
O(1)-P(1)-C(7)	113.46(13)
O(1)-P(1)-C(11)	113.20(13)
C(7)-P(1)-C(11)	104.92(13)
O(1)-P(1)-C(17)	111.92(13)
C(7)-P(1)-C(17)	104.91(13)
C(11)-P(1)-C(17)	107.80(13)
O(2)-P(2)-C(35)	112.79(13)
O(2)-P(2)-C(39)	113.78(13)
C(35)-P(2)-C(39)	105.86(13)
O(2)-P(2)-C(45)	113.15(13)
C(35)-P(2)-C(45)	106.35(13)
C(39)-P(2)-C(45)	104.15(14)
C(5)-C(1)-C(2)	108.2(3)
C(5)-C(1)-Fe(1)	69.7(2)
C(2)-C(1)-Fe(1)	70.28(19)
C(5)-C(1)-H(1)	125.9
C(2)-C(1)-H(1)	125.9
Fe(1)-C(1)-H(1)	125.7
C(1)-C(2)-C(3)	107.9(3)
C(1)-C(2)-Fe(1)	69.56(19)
C(3)-C(2)-Fe(1)	69.79(19)
C(1)-C(2)-H(2)	126.1
C(3)-C(2)-H(2)	126.1
Fe(1)-C(2)-H(2)	126.2
C(4)-C(3)-C(2)	107.9(3)
C(4)-C(3)-Fe(1)	69.61(19)
C(2)-C(3)-Fe(1)	69.82(18)
C(4)-C(3)-H(3)	126.1
C(2)-C(3)-H(3)	126.1
Fe(1)-C(3)-H(3)	126.1
C(5)-C(4)-C(3)	107.7(3)
C(5)-C(4)-Fe(1)	69.52(18)
C(3)-C(4)-Fe(1)	70.02(18)
C(5)-C(4)-H(4)	126.1
C(3)-C(4)-H(4)	126.1
Fe(1)-C(4)-H(4)	125.9
C(1)-C(5)-C(4)	108.3(3)
C(1)-C(5)-Fe(1)	69.99(18)
C(4)-C(5)-Fe(1)	70.07(19)
C(1)-C(5)-H(5)	125.9
C(4)-C(5)-H(5)	125.9
Fe(1)-C(5)-H(5)	125.7
C(10)-C(6)-C(7)	107.0(2)
C(10)-C(6)-C(34)	127.2(2)
C(7)-C(6)-C(34)	125.7(2)
C(10)-C(6)-Fe(1)	69.70(15)
C(7)-C(6)-Fe(1)	68.25(15)
C(34)-C(6)-Fe(1)	129.69(18)
C(8)-C(7)-C(6)	107.6(2)
C(8)-C(7)-P(1)	126.1(2)
C(6)-C(7)-P(1)	126.2(2)
C(8)-C(7)-Fe(1)	69.21(16)
C(6)-C(7)-Fe(1)	70.48(15)
P(1)-C(7)-Fe(1)	129.07(14)
C(9)-C(8)-C(7)	107.9(3)
C(9)-C(8)-Fe(1)	70.30(18)
C(7)-C(8)-Fe(1)	69.51(16)
C(9)-C(8)-H(8)	126.1
C(7)-C(8)-H(8)	126.1
Fe(1)-C(8)-H(8)	125.7
C(10)-C(9)-C(8)	108.6(3)
C(10)-C(9)-Fe(1)	70.56(17)
C(8)-C(9)-Fe(1)	69.01(17)
C(10)-C(9)-H(9)	125.7
C(8)-C(9)-H(9)	125.7
Fe(1)-C(9)-H(9)	126.3
C(9)-C(10)-C(6)	108.9(3)
C(9)-C(10)-Fe(1)	69.43(17)
C(6)-C(10)-Fe(1)	69.88(15)
C(9)-C(10)-H(10)	125.5
C(6)-C(10)-H(10)	125.5
Fe(1)-C(10)-H(10)	126.7
C(12)-C(11)-C(16)	119.6(3)
C(12)-C(11)-P(1)	123.4(2)
C(16)-C(11)-P(1)	116.9(2)
C(13)-C(12)-C(11)	120.5(3)
C(13)-C(12)-H(12)	119.7
C(11)-C(12)-H(12)	119.7
C(12)-C(13)-C(14)	119.4(3)
C(12)-C(13)-H(13)	120.3
C(14)-C(13)-H(13)	120.3
C(15)-C(14)-C(13)	120.2(3)
C(15)-C(14)-H(14)	119.9
C(13)-C(14)-H(14)	119.9
C(14)-C(15)-C(16)	120.5(3)
C(14)-C(15)-H(15)	119.8
C(16)-C(15)-H(15)	119.8
C(11)-C(16)-C(15)	119.6(3)
C(11)-C(16)-H(16)	120.2
C(15)-C(16)-H(16)	120.2
C(18)-C(17)-C(22)	120.2(3)
C(18)-C(17)-P(1)	118.3(2)
C(22)-C(17)-P(1)	121.3(2)
C(17)-C(18)-C(19)	120.1(3)
C(17)-C(18)-H(18)	120.0
C(19)-C(18)-H(18)	120.0
C(20)-C(19)-C(18)	119.8(3)
C(20)-C(19)-H(19)	120.1
C(18)-C(19)-H(19)	120.1
C(19)-C(20)-C(21)	120.8(3)
C(19)-C(20)-H(20)	119.6
C(21)-C(20)-H(20)	119.6
C(20)-C(21)-C(22)	120.6(3)
C(20)-C(21)-H(21)	119.7
C(22)-C(21)-H(21)	119.7
C(17)-C(22)-C(21)	118.5(3)
C(17)-C(22)-C(23)	122.5(3)
C(21)-C(22)-C(23)	118.9(3)
C(24)-C(23)-C(28)	118.4(3)
C(24)-C(23)-C(22)	120.5(3)
C(28)-C(23)-C(22)	121.1(3)
C(23)-C(24)-C(25)	120.0(4)
C(23)-C(24)-H(24)	120.0
C(25)-C(24)-H(24)	120.0
C(26)-C(25)-C(24)	120.5(4)
C(26)-C(25)-H(25)	119.7
C(24)-C(25)-H(25)	119.7
C(27)-C(26)-C(25)	120.2(4)
C(27)-C(26)-H(26)	119.9
C(25)-C(26)-H(26)	119.9

C(26)-C(27)-C(28)	119.5(4)
C(26)-C(27)-H(27)	120.2
C(28)-C(27)-H(27)	120.2
C(27)-C(28)-C(23)	121.4(3)
C(27)-C(28)-H(28)	119.3
C(23)-C(28)-H(28)	119.3
C(33)-C(29)-C(30)	108.5(3)
C(33)-C(29)-Fe(2)	69.8(2)
C(30)-C(29)-Fe(2)	69.86(19)
C(33)-C(29)-H(29)	125.7
C(30)-C(29)-H(29)	125.7
Fe(2)-C(29)-H(29)	126.2
C(29)-C(30)-C(31)	108.0(3)
C(29)-C(30)-Fe(2)	69.76(19)
C(31)-C(30)-Fe(2)	69.9(2)
C(29)-C(30)-H(30)	126.0
C(31)-C(30)-H(30)	126.0
Fe(2)-C(30)-H(30)	125.9
C(30)-C(31)-C(32)	107.8(3)
C(30)-C(31)-Fe(2)	69.64(19)
C(32)-C(31)-Fe(2)	69.7(2)
C(30)-C(31)-H(31)	126.1
C(32)-C(31)-H(31)	126.1
Fe(2)-C(31)-H(31)	126.1
C(31)-C(32)-C(33)	107.9(4)
C(31)-C(32)-Fe(2)	69.83(18)
C(33)-C(32)-Fe(2)	69.44(19)
C(31)-C(32)-H(32)	126.1
C(33)-C(32)-H(32)	126.1
Fe(2)-C(32)-H(32)	126.3
C(29)-C(33)-C(32)	107.7(3)
C(29)-C(33)-Fe(2)	69.92(19)
C(32)-C(33)-Fe(2)	69.8(2)
C(29)-C(33)-H(33)	126.1
C(32)-C(33)-H(33)	126.1
Fe(2)-C(33)-H(33)	125.7
C(38)-C(34)-C(35)	106.9(2)
C(38)-C(34)-C(6)	126.0(2)
C(35)-C(34)-C(6)	127.0(2)
C(38)-C(34)-Fe(2)	70.05(16)
C(35)-C(34)-Fe(2)	68.73(15)
C(6)-C(34)-Fe(2)	130.13(19)
C(36)-C(35)-C(34)	107.2(2)
C(36)-C(35)-P(2)	126.3(2)
C(34)-C(35)-P(2)	126.5(2)
C(36)-C(35)-Fe(2)	69.54(17)
C(34)-C(35)-Fe(2)	69.56(15)
P(2)-C(35)-Fe(2)	125.05(15)
C(37)-C(36)-C(35)	108.4(3)
C(37)-C(36)-Fe(2)	70.51(19)
C(35)-C(36)-Fe(2)	69.30(16)
C(37)-C(36)-H(36)	125.8
C(35)-C(36)-H(36)	125.8
Fe(2)-C(36)-H(36)	126.0
C(38)-C(37)-C(36)	108.5(3)
C(38)-C(37)-Fe(2)	69.94(18)
C(36)-C(37)-Fe(2)	69.20(18)
C(38)-C(37)-H(37)	125.8
C(36)-C(37)-H(37)	125.8
Fe(2)-C(37)-H(37)	126.7
C(37)-C(38)-C(34)	109.1(3)
C(37)-C(38)-Fe(2)	69.95(18)
C(34)-C(38)-Fe(2)	69.38(16)
C(37)-C(38)-H(38)	125.5
C(34)-C(38)-H(38)	125.5
Fe(2)-C(38)-H(38)	126.8
C(44)-C(39)-C(40)	120.1(3)
C(44)-C(39)-P(2)	118.9(2)
C(40)-C(39)-P(2)	120.9(2)
C(41)-C(40)-C(39)	120.0(3)
C(41)-C(40)-H(40)	120.0
C(39)-C(40)-H(40)	120.0
C(42)-C(41)-C(40)	119.3(3)
C(42)-C(41)-H(41)	120.4
C(40)-C(41)-H(41)	120.4
C(41)-C(42)-C(43)	121.7(3)
C(41)-C(42)-H(42)	119.2
C(43)-C(42)-H(42)	119.2
C(42)-C(43)-C(44)	119.9(3)
C(42)-C(43)-H(43)	120.1
C(44)-C(43)-H(43)	120.1
C(39)-C(44)-C(43)	119.0(3)
C(39)-C(44)-H(44)	120.5
C(43)-C(44)-H(44)	120.5
C(46)-C(45)-C(50)	119.2(3)
C(46)-C(45)-P(2)	120.0(2)
C(50)-C(45)-P(2)	120.8(2)
C(45)-C(46)-C(47)	121.3(3)
C(45)-C(46)-H(46)	119.4
C(47)-C(46)-H(46)	119.4
C(48)-C(47)-C(46)	119.3(3)
C(48)-C(47)-H(47)	120.3
C(46)-C(47)-H(47)	120.3
C(47)-C(48)-C(49)	120.2(3)
C(47)-C(48)-H(48)	119.9
C(49)-C(48)-H(48)	119.9
C(50)-C(49)-C(48)	121.3(4)
C(50)-C(49)-H(49)	119.4
C(48)-C(49)-H(49)	119.4
C(49)-C(50)-C(45)	118.6(3)
C(49)-C(50)-C(51)	119.3(3)
C(45)-C(50)-C(51)	122.1(3)
C(56)-C(51)-C(52)	118.5(3)
C(56)-C(51)-C(50)	120.8(3)
C(52)-C(51)-C(50)	120.7(3)
C(53)-C(52)-C(51)	120.7(3)
C(53)-C(52)-H(52)	119.7
C(51)-C(52)-H(52)	119.7
C(54)-C(53)-C(52)	120.3(3)
C(54)-C(53)-H(53)	119.8
C(52)-C(53)-H(53)	119.8
C(53)-C(54)-C(55)	120.0(3)
C(53)-C(54)-H(54)	120.0
C(55)-C(54)-H(54)	120.0
C(54)-C(55)-C(56)	119.6(4)
C(54)-C(55)-H(55)	120.2
C(56)-C(55)-H(55)	120.2
C(51)-C(56)-C(55)	120.8(4)
C(51)-C(56)-H(56)	119.6
C(55)-C(56)-H(56)	119.6
Cl(1S)-C(1S)-Cl(2S)	112.4(2)
Cl(1S)-C(1S)-H(1SA)	109.1
Cl(2S)-C(1S)-H(1SA)	109.1
Cl(1S)-C(1S)-H(1SB)	109.1
Cl(2S)-C(1S)-H(1SB)	109.1
H(1SA)-C(1S)-H(1SB)	107.9
Cl(3S)-C(2SA)-Cl(4S)	112.4(5)
Cl(3S)-C(2SA)-Cl(4T)	98.7(6)
Cl(3S)-C(2SA)-Cl(4U)	136.4(8)
Cl(4S)-C(2SA)-Cl(4T)	23.1(3)
Cl(4S)-C(2SA)-Cl(4U)	40.5(5)
Cl(4T)-C(2SA)-Cl(4U)	41.9(9)

Torsion angles [deg]

C8-Fe1-C1-C5	-143.7(11)
C7-Fe1-C1-C5	171.9(2)
C9-Fe1-C1-C5	49.8(3)
C4-Fe1-C1-C5	-37.7(2)
C3-Fe1-C1-C5	-81.4(2)
C2-Fe1-C1-C5	-119.2(3)
C10-Fe1-C1-C5	87.1(2)
C6-Fe1-C1-C5	130.9(2)
C8-Fe1-C1-C2	-24.5(12)
C7-Fe1-C1-C2	-69.0(3)
C5-Fe1-C1-C2	119.2(3)
C9-Fe1-C1-C2	169.0(2)
C4-Fe1-C1-C2	81.5(2)
C3-Fe1-C1-C2	37.7(2)
C10-Fe1-C1-C2	-153.75(19)
C6-Fe1-C1-C2	-109.9(2)
C5-C1-C2-C3	0.1(4)
Fe1-C1-C2-C3	-59.5(2)
C5-C1-C2-Fe1	59.6(2)
C8-Fe1-C2-C1	176.2(2)
C7-Fe1-C2-C1	134.0(2)
C5-Fe1-C2-C1	-37.6(2)
C9-Fe1-C2-C1	-136.3(8)
C4-Fe1-C2-C1	-81.4(2)
C3-Fe1-C2-C1	-119.1(3)
C10-Fe1-C2-C1	50.2(3)
C6-Fe1-C2-C1	88.8(2)
C8-Fe1-C2-C3	-64.7(3)
C7-Fe1-C2-C3	-106.9(2)
C5-Fe1-C2-C3	81.5(2)
C1-Fe1-C2-C3	119.1(3)
C9-Fe1-C2-C3	-17.2(10)
C4-Fe1-C2-C3	37.7(2)
C10-Fe1-C2-C3	169.3(2)
C6-Fe1-C2-C3	-152.05(19)
C1-C2-C3-C4	-0.1(4)
Fe1-C2-C3-C4	-59.4(2)
C1-C2-C3-Fe1	59.3(2)
C8-Fe1-C3-C4	-104.7(2)
C7-Fe1-C3-C4	-148.9(2)
C5-Fe1-C3-C4	37.9(2)
C1-Fe1-C3-C4	81.6(2)
C9-Fe1-C3-C4	-64.4(3)
C2-Fe1-C3-C4	119.1(3)
C10-Fe1-C3-C4	-31.2(8)
C6-Fe1-C3-C4	174.4(2)
C8-Fe1-C3-C2	136.2(2)
C7-Fe1-C3-C2	92.0(2)
C5-Fe1-C3-C2	-81.2(2)
C1-Fe1-C3-C2	-37.5(2)
C9-Fe1-C3-C2	176.5(2)
C4-Fe1-C3-C2	-119.1(3)
C10-Fe1-C3-C2	-150.2(7)
C6-Fe1-C3-C2	55.4(3)
C2-C3-C4-C5	0.0(4)
Fe1-C3-C4-C5	-59.5(2)
C2-C3-C4-Fe1	59.6(2)
C8-Fe1-C4-C5	-149.4(2)
C7-Fe1-C4-C5	176.8(2)
C1-Fe1-C4-C5	37.6(2)
C9-Fe1-C4-C5	-106.5(2)
C3-Fe1-C4-C5	118.8(3)
C2-Fe1-C4-C5	81.1(2)
C10-Fe1-C4-C5	-68.7(3)
C6-Fe1-C4-C5	-46.1(8)
C8-Fe1-C4-C3	91.8(2)
C7-Fe1-C4-C3	58.0(3)
C5-Fe1-C4-C3	-118.8(3)
C1-Fe1-C4-C3	-81.2(2)
C9-Fe1-C4-C3	134.7(2)
C2-Fe1-C4-C3	-37.7(2)
C10-Fe1-C4-C3	172.5(2)
C6-Fe1-C4-C3	-164.9(7)
C2-C1-C5-C4	-0.1(4)
Fe1-C1-C5-C4	59.9(2)
C2-C1-C5-Fe1	-60.0(2)
C3-C4-C5-C1	0.0(4)
Fe1-C4-C5-C1	-59.8(2)
C3-C4-C5-Fe1	59.9(2)
C8-Fe1-C5-C1	173.1(2)
C7-Fe1-C5-C1	-48.1(10)
C9-Fe1-C5-C1	-152.1(2)
C4-Fe1-C5-C1	119.1(3)
C3-Fe1-C5-C1	81.3(2)
C2-Fe1-C5-C1	37.5(2)
C10-Fe1-C5-C1	-109.6(2)
C6-Fe1-C5-C1	-71.2(3)
C8-Fe1-C5-C4	54.0(3)
C7-Fe1-C5-C4	-167.2(9)
C1-Fe1-C5-C4	-119.1(3)
C9-Fe1-C5-C4	88.7(2)
C3-Fe1-C5-C4	-37.8(2)
C2-Fe1-C5-C4	-81.6(2)
C10-Fe1-C5-C4	131.2(2)
C6-Fe1-C5-C4	169.6(2)
C8-Fe1-C6-C10	80.52(19)
C7-Fe1-C6-C10	118.9(2)
C5-Fe1-C6-C10	-65.8(2)
C1-Fe1-C6-C10	-106.6(2)
C9-Fe1-C6-C10	36.68(19)
C4-Fe1-C6-C10	-27.1(8)
C3-Fe1-C6-C10	172.6(3)
C2-Fe1-C6-C10	-150.13(19)
C8-Fe1-C6-C7	-38.37(16)
C5-Fe1-C6-C7	175.34(19)
C1-Fe1-C6-C7	134.50(17)
C9-Fe1-C6-C7	-82.22(17)
C4-Fe1-C6-C7	-146.0(7)
C3-Fe1-C6-C7	53.7(3)
C2-Fe1-C6-C7	90.97(19)
C10-Fe1-C6-C7	-118.9(2)
C8-Fe1-C6-C34	-157.4(3)
C7-Fe1-C6-C34	-119.1(3)
C5-Fe1-C6-C34	56.3(3)
C1-Fe1-C6-C34	15.4(3)
C9-Fe1-C6-C34	158.7(3)
C4-Fe1-C6-C34	95.0(8)
C3-Fe1-C6-C34	-65.4(4)
C2-Fe1-C6-C34	-28.1(3)
C10-Fe1-C6-C34	122.0(3)
C10-C6-C7-C8	0.4(3)
C34-C6-C7-C8	-176.4(2)
Fe1-C6-C7-C8	59.52(19)
C10-C6-C7-P1	176.1(2)
C34-C6-C7-P1	-0.6(4)
Fe1-C6-C7-P1	-124.7(2)
C10-C6-C7-Fe1	-59.17(18)
C34-C6-C7-Fe1	124.1(3)
O1-P1-C7-C8	-168.7(2)
C11-P1-C7-C8	-44.6(3)
C17-P1-C7-C8	68.8(3)
O1-P1-C7-C6	16.3(3)
C11-P1-C7-C6	140.3(2)

C17-P1-C7-C6	-106.2(2)	C6-Fe1-C9-C8	82.86(18)
O1-P1-C7-Fe1	-77.3(2)	C8-C9-C10-C6	0.2(3)
C11-P1-C7-Fe1	46.8(2)	Fe1-C9-C10-C6	58.9(2)
C17-P1-C7-Fe1	160.29(17)	C8-C9-C10-Fe1	-58.7(2)
C5-Fe1-C7-C8	-145.0(9)	C7-C6-C10-C9	-0.3(3)
C1-Fe1-C7-C8	172.9(2)	C34-C6-C10-C9	176.4(3)
C9-Fe1-C7-C8	-37.81(18)	Fe1-C6-C10-C9	-58.6(2)
C4-Fe1-C7-C8	50.4(3)	C7-C6-C10-Fe1	58.25(18)
C3-Fe1-C7-C8	88.5(2)	C34-C6-C10-Fe1	-125.0(3)
C2-Fe1-C7-C8	132.60(19)	C8-Fe1-C10-C9	37.51(19)
C10-Fe1-C7-C8	-80.91(19)	C7-Fe1-C10-C9	82.1(2)
C6-Fe1-C7-C8	-118.5(2)	C5-Fe1-C10-C9	-105.3(2)
C8-Fe1-C7-C6	118.5(2)	C1-Fe1-C10-C9	-148.1(2)
C5-Fe1-C7-C6	-26.5(10)	C4-Fe1-C10-C9	-65.9(3)
C1-Fe1-C7-C6	-68.6(2)	C3-Fe1-C10-C9	-40.0(8)
C9-Fe1-C7-C6	80.68(17)	C2-Fe1-C10-C9	178.4(2)
C4-Fe1-C7-C6	168.9(2)	C6-Fe1-C10-C9	120.4(3)
C3-Fe1-C7-C6	-153.01(17)	C8-Fe1-C10-C6	-82.91(18)
C2-Fe1-C7-C6	-108.91(17)	C7-Fe1-C10-C6	-38.35(17)
C10-Fe1-C7-C6	37.58(15)	C5-Fe1-C10-C6	134.26(19)
C8-Fe1-C7-P1	-120.2(3)	C1-Fe1-C10-C6	91.5(2)
C5-Fe1-C7-P1	94.9(10)	C9-Fe1-C10-C6	-120.4(3)
C1-Fe1-C7-P1	52.7(3)	C4-Fe1-C10-C6	173.65(19)
C9-Fe1-C7-P1	-158.0(2)	C3-Fe1-C10-C6	-160.5(7)
C4-Fe1-C7-P1	-69.8(3)	C2-Fe1-C10-C6	58.0(3)
C3-Fe1-C7-P1	-31.7(2)	O1-P1-C11-C12	-169.4(2)
C2-Fe1-C7-P1	12.4(2)	C7-P1-C11-C12	66.4(3)
C10-Fe1-C7-P1	158.9(2)	C17-P1-C11-C12	-45.1(3)
C6-Fe1-C7-P1	121.3(3)	O1-P1-C11-C16	13.9(3)
C6-C7-C8-C9	-0.2(3)	C7-P1-C11-C16	-110.3(2)
P1-C7-C8-C9	-176.0(2)	C17-P1-C11-C16	138.2(2)
Fe1-C7-C8-C9	60.1(2)	C16-C11-C12-C13	3.5(5)
C6-C7-C8-Fe1	-60.33(18)	P1-C11-C12-C13	-173.1(2)
P1-C7-C8-Fe1	123.9(2)	C11-C12-C13-C14	0.1(5)
C7-Fe1-C8-C9	-118.8(2)	C12-C13-C14-C15	-4.1(5)
C5-Fe1-C8-C9	53.4(3)	C13-C14-C15-C16	4.5(5)
C1-Fe1-C8-C9	-168.4(11)	C12-C11-C16-C15	-3.2(4)
C4-Fe1-C8-C9	88.3(2)	P1-C11-C16-C15	173.6(2)
C3-Fe1-C8-C9	131.57(19)	C14-C15-C16-C11	-0.8(5)
C2-Fe1-C8-C9	169.9(2)	O1-P1-C17-C18	-101.8(2)
C10-Fe1-C8-C9	-36.90(18)	C7-P1-C17-C18	21.7(3)
C6-Fe1-C8-C9	-80.45(19)	C11-P1-C17-C18	133.1(2)
C5-Fe1-C8-C7	172.2(2)	O1-P1-C17-C22	72.0(3)
C1-Fe1-C8-C7	-49.6(12)	C7-P1-C17-C22	-164.6(2)
C9-Fe1-C8-C7	118.8(2)	C11-P1-C17-C22	-53.1(3)
C4-Fe1-C8-C7	-152.84(18)	C22-C17-C18-C19	0.0(5)
C3-Fe1-C8-C7	-109.62(18)	P1-C17-C18-C19	173.8(2)
C2-Fe1-C8-C7	-71.3(2)	C17-C18-C19-C20	-0.1(5)
C10-Fe1-C8-C7	81.90(18)	C18-C19-C20-C21	0.7(5)
C6-Fe1-C8-C7	38.36(16)	C19-C20-C21-C22	-1.3(5)
C7-C8-C9-C10	0.0(3)	C18-C17-C22-C21	-0.5(4)
Fe1-C8-C9-C10	59.6(2)	P1-C17-C22-C21	-174.2(2)
C7-C8-C9-Fe1	-59.6(2)	C18-C17-C22-C23	179.2(3)
C8-Fe1-C9-C10	-119.9(3)	P1-C17-C22-C23	5.6(4)
C7-Fe1-C9-C10	-81.55(19)	C20-C21-C22-C17	1.2(5)
C5-Fe1-C9-C10	90.3(2)	C20-C21-C22-C23	-178.6(3)
C1-Fe1-C9-C10	57.7(3)	C17-C22-C23-C24	110.3(3)
C4-Fe1-C9-C10	132.9(2)	C21-C22-C23-C24	-69.9(4)
C3-Fe1-C9-C10	170.51(19)	C17-C22-C23-C28	-68.7(4)
C2-Fe1-C9-C10	-174.8(8)	C21-C22-C23-C28	111.1(3)
C6-Fe1-C9-C10	-37.03(17)	C28-C23-C24-C25	0.2(5)
C7-Fe1-C9-C8	38.34(17)	C22-C23-C24-C25	-178.8(3)
C5-Fe1-C9-C8	-149.81(19)	C23-C24-C25-C26	0.3(5)
C1-Fe1-C9-C8	177.6(2)	C24-C25-C26-C27	-0.4(6)
C4-Fe1-C9-C8	-107.2(2)	C25-C26-C27-C28	0.0(6)
C3-Fe1-C9-C8	-69.6(2)	C26-C27-C28-C23	0.5(5)
C2-Fe1-C9-C8	-54.9(9)	C24-C23-C28-C27	-0.6(5)
C10-Fe1-C9-C8	119.9(3)	C22-C23-C28-C27	178.4(3)

C35-Fe2-C29-C33	170.8(2)
C36-Fe2-C29-C33	-151.1(10)
C34-Fe2-C29-C33	129.6(2)
C30-Fe2-C29-C33	-119.7(3)
C32-Fe2-C29-C33	-38.2(2)
C31-Fe2-C29-C33	-82.0(2)
C38-Fe2-C29-C33	86.0(2)
C37-Fe2-C29-C33	49.5(4)
C35-Fe2-C29-C30	-69.5(3)
C36-Fe2-C29-C30	-31.5(11)
C33-Fe2-C29-C30	119.7(3)
C34-Fe2-C29-C30	-110.7(2)
C32-Fe2-C29-C30	81.5(2)
C31-Fe2-C29-C30	37.7(2)
C38-Fe2-C29-C30	-154.31(19)
C37-Fe2-C29-C30	169.2(2)
C33-C29-C30-C31	-0.4(4)
Fe2-C29-C30-C31	-59.7(2)
C33-C29-C30-Fe2	59.3(2)
C35-Fe2-C30-C29	132.9(2)
C36-Fe2-C30-C29	174.5(2)
C33-Fe2-C30-C29	-37.3(2)
C34-Fe2-C30-C29	87.6(2)
C32-Fe2-C30-C29	-81.3(2)
C31-Fe2-C30-C29	-119.1(3)
C38-Fe2-C30-C29	49.9(3)
C37-Fe2-C30-C29	-142.8(7)
C35-Fe2-C30-C31	-108.0(2)
C36-Fe2-C30-C31	-66.4(3)
C33-Fe2-C30-C31	81.8(2)
C29-Fe2-C30-C31	119.1(3)
C34-Fe2-C30-C31	-153.38(19)
C32-Fe2-C30-C31	37.7(2)
C38-Fe2-C30-C31	169.0(2)
C37-Fe2-C30-C31	-23.8(9)
C29-C30-C31-C32	0.1(4)
Fe2-C30-C31-C32	-59.5(2)
C29-C30-C31-Fe2	59.6(2)
C35-Fe2-C31-C30	90.6(2)
C36-Fe2-C31-C30	134.7(2)
C33-Fe2-C31-C30	-81.2(2)
C29-Fe2-C31-C30	-37.7(2)
C34-Fe2-C31-C30	53.2(4)
C32-Fe2-C31-C30	-119.1(3)
C38-Fe2-C31-C30	-151.5(6)
C37-Fe2-C31-C30	174.83(19)
C35-Fe2-C31-C32	-150.4(2)
C36-Fe2-C31-C32	-106.2(3)
C33-Fe2-C31-C32	37.8(3)
C29-Fe2-C31-C32	81.4(3)
C34-Fe2-C31-C32	172.3(3)
C30-Fe2-C31-C32	119.1(3)
C38-Fe2-C31-C32	-32.4(8)
C37-Fe2-C31-C32	-66.1(3)
C30-C31-C32-C33	0.2(4)
Fe2-C31-C32-C33	-59.2(3)
C30-C31-C32-Fe2	59.4(2)
C35-Fe2-C32-C31	56.5(4)
C36-Fe2-C32-C31	90.8(3)
C33-Fe2-C32-C31	-119.2(4)
C29-Fe2-C32-C31	-81.4(3)
C34-Fe2-C32-C31	-160.9(7)
C30-Fe2-C32-C31	-37.7(2)
C38-Fe2-C32-C31	171.9(2)
C37-Fe2-C32-C31	133.3(2)
C35-Fe2-C32-C33	175.7(3)
C36-Fe2-C32-C33	-150.0(3)
C29-Fe2-C32-C33	37.8(3)
C34-Fe2-C32-C33	-41.7(9)
C30-Fe2-C32-C33	81.5(3)
C31-Fe2-C32-C33	119.2(4)
C38-Fe2-C32-C33	-69.0(3)
C37-Fe2-C32-C33	-107.5(3)
C30-C29-C33-C32	0.5(4)
Fe2-C29-C33-C32	59.9(3)
C30-C29-C33-Fe2	-59.3(2)
C31-C32-C33-C29	-0.4(4)
Fe2-C32-C33-C29	-59.9(2)
C31-C32-C33-Fe2	59.5(2)
C35-Fe2-C33-C29	-46.9(10)
C36-Fe2-C33-C29	173.3(2)
C34-Fe2-C33-C29	-71.5(3)
C30-Fe2-C33-C29	37.4(2)
C32-Fe2-C33-C29	118.7(4)
C31-Fe2-C33-C29	81.1(2)
C38-Fe2-C33-C29	-110.5(2)
C37-Fe2-C33-C29	-153.0(2)
C35-Fe2-C33-C32	-165.6(8)
C36-Fe2-C33-C32	54.7(4)
C29-Fe2-C33-C32	-118.7(4)
C34-Fe2-C33-C32	169.8(2)
C30-Fe2-C33-C32	-81.3(3)
C31-Fe2-C33-C32	-37.6(3)
C38-Fe2-C33-C32	130.8(3)
C37-Fe2-C33-C32	88.4(3)
C10-C6-C34-C38	117.3(3)
C7-C6-C34-C38	-66.6(4)
Fe1-C6-C34-C38	23.6(4)
C10-C6-C34-C35	-68.5(4)
C7-C6-C34-C35	107.6(3)
Fe1-C6-C34-C35	-162.2(2)
C10-C6-C34-Fe2	23.8(4)
C7-C6-C34-Fe2	-160.1(2)
Fe1-C6-C34-Fe2	-69.9(3)
C35-Fe2-C34-C38	118.2(2)
C36-Fe2-C34-C38	79.93(19)
C33-Fe2-C34-C38	-67.6(3)
C29-Fe2-C34-C38	-108.1(2)
C30-Fe2-C34-C38	-151.50(18)
C32-Fe2-C34-C38	-33.0(8)
C31-Fe2-C34-C38	172.5(3)
C37-Fe2-C34-C38	36.59(18)
C36-Fe2-C34-C35	-38.27(16)
C33-Fe2-C34-C35	174.2(2)
C29-Fe2-C34-C35	133.67(17)
C30-Fe2-C34-C35	90.30(18)
C32-Fe2-C34-C35	-151.2(7)
C31-Fe2-C34-C35	54.3(3)
C38-Fe2-C34-C35	-118.2(2)
C37-Fe2-C34-C35	-81.61(17)
C35-Fe2-C34-C6	-121.0(3)
C36-Fe2-C34-C6	-159.3(3)
C33-Fe2-C34-C6	53.2(3)
C29-Fe2-C34-C6	12.6(3)
C30-Fe2-C34-C6	-30.7(3)
C32-Fe2-C34-C6	87.7(8)
C31-Fe2-C34-C6	-66.8(4)
C38-Fe2-C34-C6	120.8(3)
C37-Fe2-C34-C6	157.4(3)
C38-C34-C35-C36	-0.3(3)
C6-C34-C35-C36	-175.4(3)
Fe2-C34-C35-C36	59.64(19)
C38-C34-C35-P2	-179.1(2)
C6-C34-C35-P2	5.8(4)
Fe2-C34-C35-P2	-119.1(2)
C38-C34-C35-Fe2	-59.96(19)

C6-C34-C35-Fe2	124.9(3)
O2-P2-C35-C36	-166.2(2)
C39-P2-C35-C36	-41.1(3)
C45-P2-C35-C36	69.2(3)
O2-P2-C35-C34	12.3(3)
C39-P2-C35-C34	137.4(2)
C45-P2-C35-C34	-112.3(2)
O2-P2-C35-Fe2	-77.0(2)
C39-P2-C35-Fe2	48.0(2)
C45-P2-C35-Fe2	158.41(16)
C33-Fe2-C35-C36	-147.0(9)
C29-Fe2-C35-C36	172.81(19)
C34-Fe2-C35-C36	-118.4(2)
C30-Fe2-C35-C36	132.34(19)
C32-Fe2-C35-C36	51.0(3)
C31-Fe2-C35-C36	88.4(2)
C38-Fe2-C35-C36	-80.40(19)
C37-Fe2-C35-C36	-37.20(18)
C36-Fe2-C35-C34	118.4(2)
C33-Fe2-C35-C34	-28.6(10)
C29-Fe2-C35-C34	-68.8(2)
C30-Fe2-C35-C34	-109.30(17)
C32-Fe2-C35-C34	169.3(3)
C31-Fe2-C35-C34	-153.20(18)
C38-Fe2-C35-C34	37.95(16)
C37-Fe2-C35-C34	81.16(17)
C36-Fe2-C35-P2	-120.7(3)
C33-Fe2-C35-P2	92.3(9)
C29-Fe2-C35-P2	52.1(3)
C34-Fe2-C35-P2	120.9(2)
C30-Fe2-C35-P2	11.6(2)
C32-Fe2-C35-P2	-69.7(3)
C31-Fe2-C35-P2	-32.3(2)
C38-Fe2-C35-P2	158.9(2)
C37-Fe2-C35-P2	-157.9(2)
C34-C35-C36-C37	0.2(3)
P2-C35-C36-C37	179.0(2)
Fe2-C35-C36-C37	59.9(2)
C34-C35-C36-Fe2	-59.65(18)
P2-C35-C36-Fe2	119.1(2)
C35-Fe2-C36-C37	-119.5(3)
C33-Fe2-C36-C37	51.5(3)
C29-Fe2-C36-C37	-162.7(10)
C34-Fe2-C36-C37	-80.73(19)
C30-Fe2-C36-C37	169.8(2)
C32-Fe2-C36-C37	87.4(2)
C31-Fe2-C36-C37	130.8(2)
C38-Fe2-C36-C37	-37.04(18)
C33-Fe2-C36-C35	170.9(2)
C29-Fe2-C36-C35	-43.3(11)
C34-Fe2-C36-C35	38.76(16)
C30-Fe2-C36-C35	-70.8(2)
C32-Fe2-C36-C35	-153.13(19)
C31-Fe2-C36-C35	-109.74(19)
C38-Fe2-C36-C35	82.45(18)
C37-Fe2-C36-C35	119.5(3)
C35-C36-C37-C38	0.0(4)
Fe2-C36-C37-C38	59.1(2)
C35-C36-C37-Fe2	-59.1(2)
C35-Fe2-C37-C38	-81.97(18)
C36-Fe2-C37-C38	-119.9(3)
C33-Fe2-C37-C38	88.5(2)
C29-Fe2-C37-C38	55.9(3)
C34-Fe2-C37-C38	-36.99(17)
C30-Fe2-C37-C38	-170.0(7)
C32-Fe2-C37-C38	131.5(2)
C31-Fe2-C37-C38	169.89(19)
C35-Fe2-C37-C36	37.98(18)
C33-Fe2-C37-C36	-151.6(2)
C29-Fe2-C37-C36	175.8(2)
C34-Fe2-C37-C36	82.95(19)
C30-Fe2-C37-C36	-50.1(8)
C32-Fe2-C37-C36	-108.5(2)
C31-Fe2-C37-C36	-70.2(2)
C38-Fe2-C37-C36	119.9(3)
C36-C37-C38-C34	-0.2(4)
Fe2-C37-C38-C34	58.5(2)
C36-C37-C38-Fe2	-58.6(2)
C35-C34-C38-C37	0.3(3)
C6-C34-C38-C37	175.5(3)
Fe2-C34-C38-C37	-58.8(2)
C35-C34-C38-Fe2	59.12(18)
C6-C34-C38-Fe2	-125.7(3)
C35-Fe2-C38-C37	81.64(19)
C36-Fe2-C38-C37	37.20(18)
C33-Fe2-C38-C37	-107.2(2)
C29-Fe2-C38-C37	-149.8(2)
C34-Fe2-C38-C37	120.6(3)
C30-Fe2-C38-C37	176.7(2)
C32-Fe2-C38-C37	-67.6(3)
C31-Fe2-C38-C37	-40.9(7)
C35-Fe2-C38-C34	-38.99(16)
C36-Fe2-C38-C34	-83.43(18)
C33-Fe2-C38-C34	132.1(2)
C29-Fe2-C38-C34	89.6(2)
C30-Fe2-C38-C34	56.0(3)
C32-Fe2-C38-C34	171.8(2)
C31-Fe2-C38-C34	-161.5(6)
C37-Fe2-C38-C34	-120.6(3)
O2-P2-C39-C44	8.8(3)
C35-P2-C39-C44	-115.6(2)
C45-P2-C39-C44	132.5(2)
O2-P2-C39-C40	-171.0(2)
C35-P2-C39-C40	64.6(3)
C45-P2-C39-C40	-47.3(3)
C44-C39-C40-C41	2.4(4)
P2-C39-C40-C41	-177.8(2)
C39-C40-C41-C42	-1.7(5)
C40-C41-C42-C43	0.6(6)
C41-C42-C43-C44	-0.3(6)
C40-C39-C44-C43	-2.0(4)
P2-C39-C44-C43	178.2(2)
C42-C43-C44-C39	1.0(5)
O2-P2-C45-C46	-109.4(3)
C35-P2-C45-C46	15.0(3)
C39-P2-C45-C46	126.5(3)
O2-P2-C45-C50	71.2(3)
C35-P2-C45-C50	-164.4(2)
C39-P2-C45-C50	-52.8(3)
C50-C45-C46-C47	-0.5(5)
P2-C45-C46-C47	-179.9(3)
C45-C46-C47-C48	0.5(6)
C46-C47-C48-C49	1.0(7)
C47-C48-C49-C50	-2.4(7)
C48-C49-C50-C45	2.4(6)
C48-C49-C50-C51	-178.9(4)
C46-C45-C50-C49	-0.9(5)
P2-C45-C50-C49	178.4(3)
C46-C45-C50-C51	-179.6(3)
P2-C45-C50-C51	-0.3(4)
C49-C50-C51-C56	114.7(4)
C45-C50-C51-C56	-66.6(4)
C49-C50-C51-C52	-66.9(4)
C45-C50-C51-C52	111.8(4)
C56-C51-C52-C53	1.3(5)
C50-C51-C52-C53	-177.2(3)

C51-C52-C53-C54	-0.1(5)	C52-C51-C56-C55	-1.8(5)
C52-C53-C54-C55	-0.5(6)	C50-C51-C56-C55	176.6(3)
C53-C54-C55-C56	0.0(6)	C54-C55-C56-C51	1.2(6)

Table S6. Crystal data and structure refinement for (R_P,R_m,S_m,S_P)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl, meso-**6b**, $C_{56}H_{44}Fe_2O_2P_2$.

Identification code	widlj3fr
Empirical formula	$C_{56}H_{44}Fe_2O_2P_2$
Formula weight	922.55
Temperature	296(2) K
Wavelength	0.71073 Å
Crystal system, space group	triclinic, P $\bar{1}$ (No. 2)
Unit cell dimensions	a = 8.289(4) Å α = 108.55(1)°
	b = 9.607(5) Å β = 90.84(1)°
	c = 14.485(7) Å γ = 96.99(1)°
Volume	1083.7(9) Å^3
Z, Calculated density	1, 1.414 Mg/m^3
Absorption coefficient	0.788 mm^{-1}
F(000)	478
Crystal size	0.22 × 0.10 × 0.07 mm, orange prism
Diffractometer	Siemens SMART 3-circle with CCD area detector (sealed X-ray tube, Mo Kα radiation, graphite monochr., det.dist. 44.50 mm, 512x512 pixels)
Scan type / width / speed	ω-scan frames / Δω = 0.3° / 30 sec. per frame full sphere, 4 x 606 frames
Theta range for data collection	2.26° to 25.00°
Index ranges	-9 ≤ h ≤ 9, -11 ≤ k ≤ 10, 0 ≤ l ≤ 17
Reflections collected / unique	11063 / 3801 [R(int)= 0.094, R(sigma)= 0.081]
Completeness to theta = 25.00°	99.7%
Absorption correction	Empirical (program XABS2)
Correction factors	0.78 - 1.37 (reflection profile anisotropy!)
Structure solution	Patterson method (program SHELXS97)
Refinement method	Full-matrix least-squares on F^2 (prg SHELXL97)
Data / restraints / parameters	3801 / 0 / 280
Goodness-of-fit on F^2	1.092
Final R indices [I>2sigma(I)]	R1 = 0.0499, wR2 = 0.0906 (2654 data)
R indices (all data)	R1 = 0.0889, wR2 = 0.1077 (3801 data)
Largest diff. peak and hole	0.351 and -0.326 e Å^{-3}

$R1 = \Sigma||F_o|-|F_c||/\Sigma|F_o|$, $wR2 = [\Sigma(w(F_o^2-F_c^2)^2)/\Sigma(w(F_o^2)^2)]^{1/2}$

Table S7. Atomic coordinates and equivalent isotropic displacement parameters (Å^2 × 10^3) of (R_P,R_m,S_m,S_P)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl, meso-**6b**, $C_{56}H_{44}Fe_2O_2P_2$. U_{eq} is defined as one third of the trace of the orthogonalized U_{ij} tensor.

	x	y	z	U_{eq}
Fe	0.63956(7)	0.22775(6)	0.46204(4)	37(1)
P	0.59089(12)	0.26950(11)	0.70494(7)	33(1)
O	0.7297(3)	0.1983(3)	0.7247(2)	41(1)
C(1)	0.8509(5)	0.1395(5)	0.4232(3)	52(1)
C(2)	0.8830(5)	0.2737(5)	0.5015(3)	56(1)
C(3)	0.8313(5)	0.3877(5)	0.4726(4)	58(1)
C(4)	0.7698(6)	0.3239(5)	0.3748(4)	61(1)
C(5)	0.7795(6)	0.1709(5)	0.3447(3)	57(1)
C(6)	0.4845(4)	0.0744(4)	0.5004(3)	31(1)
C(7)	0.5161(4)	0.2168(4)	0.5793(3)	31(1)
C(8)	0.4620(5)	0.3258(4)	0.5424(3)	38(1)
C(9)	0.4010(5)	0.2564(4)	0.4451(3)	41(1)
C(10)	0.4146(5)	0.1052(4)	0.4193(3)	35(1)

C(11)	0.6416(5)	0.4704(4)	0.7419(3)	35(1)
C(12)	0.5297(5)	0.5670(5)	0.7814(3)	46(1)
C(13)	0.5756(6)	0.7187(5)	0.8071(3)	57(1)
C(14)	0.7302(6)	0.7749(5)	0.7958(3)	58(1)
C(15)	0.8432(6)	0.6820(5)	0.7581(3)	54(1)
C(16)	0.7993(5)	0.5299(5)	0.7326(3)	47(1)
C(17)	0.4111(4)	0.2385(4)	0.7697(3)	34(1)
C(18)	0.2570(5)	0.2234(4)	0.7243(3)	45(1)
C(19)	0.1153(5)	0.1941(5)	0.7676(4)	56(1)
C(20)	0.1263(6)	0.1758(5)	0.8581(4)	60(1)
C(21)	0.2763(6)	0.1925(5)	0.9049(3)	55(1)
C(22)	0.4202(5)	0.2261(4)	0.8641(3)	40(1)
C(23)	0.5753(5)	0.2515(4)	0.9243(3)	38(1)
C(24)	0.6644(5)	0.3905(5)	0.9596(3)	48(1)
C(25)	0.7996(6)	0.4164(6)	1.0227(3)	59(1)
C(26)	0.8476(6)	0.3039(6)	1.0514(3)	65(1)
C(27)	0.7604(7)	0.1661(6)	1.0170(4)	67(1)
C(28)	0.6244(6)	0.1389(5)	0.9544(3)	54(1)

Table S8. Hydrogen coordinates and isotropic displacement parameters ($Å^2 \times 10^3$) for (R_P,R_m,S_m,S_P)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl, meso-**6b**, $C_{56}H_{44}Fe_2O_2P_2$.

	x	y	z	U_{iso}
H(1)	0.8730	0.0471	0.4236	62
H(2)	0.9306	0.2846	0.5624	67
H(3)	0.8365	0.4867	0.5106	69
H(4)	0.7294	0.3748	0.3365	73
H(5)	0.7451	0.1029	0.2839	68
H(8)	0.4664	0.4261	0.5770	45
H(9)	0.3589	0.3033	0.4048	49
H(10)	0.3830	0.0353	0.3587	43
H(12)	0.4244	0.5298	0.7905	55
H(13)	0.4999	0.7829	0.8323	68
H(14)	0.7593	0.8770	0.8137	70
H(15)	0.9483	0.7206	0.7497	64
H(16)	0.8768	0.4670	0.7089	57
H(18)	0.2497	0.2334	0.6626	54
H(19)	0.0143	0.1869	0.7363	67
H(20)	0.0323	0.1521	0.8873	71
H(21)	0.2816	0.1810	0.9662	66
H(24)	0.6332	0.4676	0.9407	58
H(25)	0.8584	0.5107	1.0459	71
H(26)	0.9387	0.3215	1.0938	78
H(27)	0.7930	0.0894	1.0359	81
H(28)	0.5653	0.0447	0.9324	65

Hydrogen atoms were inserted in idealized positions and were refined riding with the atoms to which they were bonded. All hydrogen atoms had $U_{iso} = U_{eq} \times 1.2$ of their carrier atoms.

Table S9. Anisotropic displacement parameters ($Å^2 \times 10^3$) for (R_P,R_m,S_m,S_P)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl, meso-**6b**, $C_{56}H_{44}Fe_2O_2P_2$. The anisotropic displacement factor exponent takes the form: $-2\pi^2 [h^2 a^{*2} U_{11} + ... + 2 h k a^* b^* U_{12}]$

	U_{11}	U_{22}	U_{33}	U_{23}	U_{13}	U_{12}
Fe	39(1)	36(1)	33(1)	10(1)	7(1)	1(1)
P	30(1)	39(1)	27(1)	6(1)	2(1)	2(1)
O	33(2)	52(2)	32(2)	6(1)	-4(1)	10(1)
C(1)	45(3)	54(3)	58(3)	18(2)	16(2)	7(2)
C(2)	37(2)	69(3)	54(3)	13(3)	4(2)	-3(2)

C(3)	50(3)	42(3)	74(4)	12(3)	18(2)	-5(2)
C(4)	59(3)	63(3)	73(4)	40(3)	28(3)	7(3)
C(5)	60(3)	64(3)	42(3)	12(2)	21(2)	4(2)
C(6)	27(2)	36(2)	30(2)	10(2)	3(2)	0(2)
C(7)	29(2)	35(2)	28(2)	11(2)	2(2)	3(2)
C(8)	44(2)	37(2)	31(2)	10(2)	4(2)	4(2)
C(9)	43(2)	45(2)	37(2)	18(2)	0(2)	4(2)
C(10)	42(2)	37(2)	26(2)	9(2)	0(2)	3(2)
C(11)	37(2)	39(2)	25(2)	7(2)	4(2)	-2(2)
C(12)	51(3)	48(3)	34(2)	7(2)	10(2)	5(2)
C(13)	70(3)	45(3)	48(3)	2(2)	14(2)	10(2)
C(14)	80(4)	46(3)	37(3)	1(2)	4(2)	-4(3)
C(15)	56(3)	56(3)	39(3)	8(2)	1(2)	-13(2)
C(16)	42(2)	49(3)	42(2)	5(2)	2(2)	1(2)
C(17)	33(2)	31(2)	33(2)	3(2)	4(2)	3(2)
C(18)	33(2)	52(3)	45(3)	10(2)	4(2)	4(2)
C(19)	32(2)	60(3)	62(3)	1(2)	6(2)	5(2)
C(20)	48(3)	59(3)	57(3)	2(2)	23(2)	-7(2)
C(21)	60(3)	57(3)	40(3)	10(2)	18(2)	-4(2)
C(22)	46(2)	33(2)	31(2)	1(2)	11(2)	1(2)
C(23)	46(2)	43(2)	22(2)	7(2)	10(2)	4(2)
C(24)	53(3)	44(3)	44(3)	12(2)	-2(2)	1(2)
C(25)	55(3)	63(3)	47(3)	7(2)	-6(2)	-2(2)
C(26)	62(3)	92(4)	40(3)	16(3)	-1(2)	20(3)
C(27)	81(4)	74(4)	58(3)	31(3)	4(3)	29(3)
C(28)	72(3)	46(3)	48(3)	19(2)	15(2)	8(2)

Table S10. Complete bond lengths [Å] and angles [deg] for (R_P,R_m,S_m,S_P)-2,2'-Bis(2-biphenylylphenylphosphinoxy)-1,1'-biferrocenyl, meso-**6b**, $C_{56}H_{44}Fe_2O_2P_2$.

Bond lengths			
		C(9)-H(9)	0.93
		C(10)-H(10)	0.93
Fe-C(7)	2.020(4)		
Fe-C(8)	2.025(4)	C(11)-C(16)	1.388(5)
Fe-C(4)	2.038(4)	C(11)-C(12)	1.391(5)
Fe-C(5)	2.039(4)	C(12)-C(13)	1.388(6)
Fe-C(3)	2.040(4)	C(12)-H(12)	0.93
Fe-C(2)	2.045(4)	C(13)-C(14)	1.362(6)
Fe-C(1)	2.047(4)	C(13)-H(13)	0.93
Fe-C(9)	2.051(4)	C(14)-C(15)	1.371(6)
Fe-C(6)	2.052(4)	C(14)-H(14)	0.93
Fe-C(10)	2.053(4)	C(15)-C(16)	1.388(6)
		C(15)-H(15)	0.93
P-O	1.477(3)	C(16)-H(16)	0.93
P-C(7)	1.805(4)		
P-C(17)	1.816(4)	C(17)-C(18)	1.398(5)
P-C(11)	1.824(4)	C(17)-C(22)	1.411(5)
		C(18)-C(19)	1.381(6)
C(1)-C(5)	1.406(6)	C(18)-H(18)	0.93
C(1)-C(2)	1.413(6)	C(19)-C(20)	1.380(6)
C(1)-H(1)	0.93	C(19)-H(19)	0.93
C(2)-C(3)	1.400(6)	C(20)-C(21)	1.375(6)
C(2)-H(2)	0.93	C(20)-H(20)	0.93
C(3)-C(4)	1.411(6)	C(21)-C(22)	1.387(6)
C(3)-H(3)	0.93	C(21)-H(21)	0.93
C(4)-C(5)	1.407(6)	C(22)-C(23)	1.493(6)
C(4)-H(4)	0.93	C(23)-C(24)	1.380(6)
C(5)-H(5)	0.93	C(23)-C(28)	1.389(5)
		C(24)-C(25)	1.382(6)
C(6)-C(10)	1.430(5)	C(24)-H(24)	0.93
C(6)-C(7)	1.468(5)	C(25)-C(26)	1.372(6)
C(6)-C(6)#1	1.480(7)	C(25)-H(25)	0.93
C(7)-C(8)	1.430(5)	C(26)-C(27)	1.364(7)
C(8)-C(9)	1.409(5)	C(26)-H(26)	0.93
C(8)-H(8)	0.93	C(27)-C(28)	1.381(7)
C(9)-C(10)	1.400(5)	C(27)-H(27)	0.93

C(28)-H(28)	0.93
C(7)-Fe-C(8)	41.41(14)
C(7)-Fe-C(4)	157.54(17)
C(8)-Fe-C(4)	121.50(18)
C(7)-Fe-C(5)	160.69(17)
C(8)-Fe-C(5)	156.22(17)
C(4)-Fe-C(5)	40.39(18)
C(7)-Fe-C(3)	121.93(18)
C(8)-Fe-C(3)	107.75(18)
C(4)-Fe-C(3)	40.49(19)
C(5)-Fe-C(3)	68.44(19)
C(7)-Fe-C(2)	108.64(17)
C(8)-Fe-C(2)	125.37(17)
C(4)-Fe-C(2)	67.2(2)
C(5)-Fe-C(2)	67.76(19)
C(3)-Fe-C(2)	40.09(18)
C(7)-Fe-C(1)	124.71(16)
C(8)-Fe-C(1)	162.09(17)
C(4)-Fe-C(1)	67.48(19)
C(5)-Fe-C(1)	40.26(17)
C(3)-Fe-C(1)	68.11(19)
C(2)-Fe-C(1)	40.41(17)
C(7)-Fe-C(9)	69.13(15)
C(8)-Fe-C(9)	40.45(15)
C(4)-Fe-C(9)	107.16(18)
C(5)-Fe-C(9)	120.73(18)
C(3)-Fe-C(9)	123.73(18)
C(2)-Fe-C(9)	160.80(17)
C(1)-Fe-C(9)	156.45(17)
C(7)-Fe-C(6)	42.25(14)
C(8)-Fe-C(6)	69.62(15)
C(4)-Fe-C(6)	158.81(18)
C(5)-Fe-C(6)	122.54(17)
C(3)-Fe-C(6)	158.96(18)
C(2)-Fe-C(6)	123.42(17)
C(1)-Fe-C(6)	107.63(16)
C(9)-Fe-C(6)	68.60(15)
C(7)-Fe-C(10)	69.33(15)
C(8)-Fe-C(10)	68.00(15)
C(4)-Fe-C(10)	122.87(19)
C(5)-Fe-C(10)	106.75(18)
C(3)-Fe-C(10)	159.15(17)
C(2)-Fe-C(10)	158.71(17)
C(1)-Fe-C(10)	122.19(17)
C(9)-Fe-C(10)	39.89(14)
C(6)-Fe-C(10)	40.76(14)
O-P-C(7)	116.42(16)
O-P-C(17)	114.28(17)
C(7)-P-C(17)	104.12(17)
O-P-C(11)	111.52(17)
C(7)-P-C(11)	104.40(17)
C(17)-P-C(11)	104.95(17)
C(5)-C(1)-C(2)	107.7(4)
C(5)-C(1)-Fe	69.6(2)
C(2)-C(1)-Fe	69.7(2)
C(5)-C(1)-H(1)	126.1
C(2)-C(1)-H(1)	126.1
Fe-C(1)-H(1)	126.1
C(3)-C(2)-C(1)	108.9(4)
C(3)-C(2)-Fe	69.8(3)
C(1)-C(2)-Fe	69.9(2)
C(3)-C(2)-H(2)	125.6
C(1)-C(2)-H(2)	125.6
Fe-C(2)-H(2)	126.4
C(2)-C(3)-C(4)	107.0(4)
C(2)-C(3)-Fe	70.2(3)
C(4)-C(3)-Fe	69.7(3)
C(2)-C(3)-H(3)	126.5
C(4)-C(3)-H(3)	126.5
Fe-C(3)-H(3)	125.2
C(5)-C(4)-C(3)	108.9(4)
C(5)-C(4)-Fe	69.8(2)
C(3)-C(4)-Fe	69.8(3)
C(5)-C(4)-H(4)	125.5
C(3)-C(4)-H(4)	125.5
Fe-C(4)-H(4)	126.4
C(1)-C(5)-C(4)	107.5(4)
C(1)-C(5)-Fe	70.2(2)
C(4)-C(5)-Fe	69.8(2)
C(1)-C(5)-H(5)	126.2
C(4)-C(5)-H(5)	126.2
Fe-C(5)-H(5)	125.4
C(10)-C(6)-C(7)	106.2(3)
C(10)-C(6)-C(6)#1	124.4(4)
C(7)-C(6)-C(6)#1	129.4(4)
C(10)-C(6)-Fe	69.6(2)
C(7)-C(6)-Fe	67.7(2)
C(6)#1-C(6)-Fe	127.2(3)
C(8)-C(7)-C(6)	106.8(3)
C(8)-C(7)-P	119.6(3)
C(6)-C(7)-P	133.4(3)
C(8)-C(7)-Fe	69.5(2)
C(6)-C(7)-Fe	70.05(19)
P-C(7)-Fe	128.57(19)
C(9)-C(8)-C(7)	108.9(3)
C(9)-C(8)-Fe	70.8(2)
C(7)-C(8)-Fe	69.1(2)
C(9)-C(8)-H(8)	125.6
C(7)-C(8)-H(8)	125.6
Fe-C(8)-H(8)	126.1
C(10)-C(9)-C(8)	108.5(3)
C(10)-C(9)-Fe	70.1(2)
C(8)-C(9)-Fe	68.8(2)
C(10)-C(9)-H(9)	125.7
C(8)-C(9)-H(9)	125.7
Fe-C(9)-H(9)	126.9
C(9)-C(10)-C(6)	109.6(3)
C(9)-C(10)-Fe	70.0(2)
C(6)-C(10)-Fe	69.6(2)
C(9)-C(10)-H(10)	125.2
C(6)-C(10)-H(10)	125.2
Fe-C(10)-H(10)	126.8
C(16)-C(11)-C(12)	118.4(4)
C(16)-C(11)-P	118.9(3)
C(12)-C(11)-P	122.7(3)
C(13)-C(12)-C(11)	119.9(4)
C(13)-C(12)-H(12)	120.1
C(11)-C(12)-H(12)	120.1
C(14)-C(13)-C(12)	120.8(4)
C(14)-C(13)-H(13)	119.6
C(12)-C(13)-H(13)	119.6
C(13)-C(14)-C(15)	120.4(4)
C(13)-C(14)-H(14)	119.8
C(15)-C(14)-H(14)	119.8
C(14)-C(15)-C(16)	119.5(4)
C(14)-C(15)-H(15)	120.3
C(16)-C(15)-H(15)	120.3
C(11)-C(16)-C(15)	121.0(4)
C(11)-C(16)-H(16)	119.5
C(15)-C(16)-H(16)	119.5

C(18)-C(17)-C(22)	118.1(4)
C(18)-C(17)-P	119.2(3)
C(22)-C(17)-P	122.6(3)
C(19)-C(18)-C(17)	122.4(4)
C(19)-C(18)-H(18)	118.8
C(17)-C(18)-H(18)	118.8
C(20)-C(19)-C(18)	118.8(4)
C(20)-C(19)-H(19)	120.6
C(18)-C(19)-H(19)	120.6
C(21)-C(20)-C(19)	119.9(4)
C(21)-C(20)-H(20)	120.1
C(19)-C(20)-H(20)	120.1
C(20)-C(21)-C(22)	122.4(4)
C(20)-C(21)-H(21)	118.8
C(22)-C(21)-H(21)	118.8
C(21)-C(22)-C(17)	118.3(4)
C(21)-C(22)-C(23)	117.7(4)
C(17)-C(22)-C(23)	124.0(3)
C(24)-C(23)-C(28)	118.2(4)
C(24)-C(23)-C(22)	121.0(4)
C(28)-C(23)-C(22)	120.4(4)
C(23)-C(24)-C(25)	120.8(4)
C(23)-C(24)-H(24)	119.6
C(25)-C(24)-H(24)	119.6
C(26)-C(25)-C(24)	120.4(5)
C(26)-C(25)-H(25)	119.8
C(24)-C(25)-H(25)	119.8
C(27)-C(26)-C(25)	119.3(5)
C(27)-C(26)-H(26)	120.4
C(25)-C(26)-H(26)	120.4
C(26)-C(27)-C(28)	120.9(5)
C(26)-C(27)-H(27)	119.6
C(28)-C(27)-H(27)	119.6
C(27)-C(28)-C(23)	120.4(5)
C(27)-C(28)-H(28)	119.8
C(23)-C(28)-H(28)	119.8

Selected torsion angles

C5-C1-C2-C3	0.4(5)
Fe-C1-C2-C3	-59.0(3)
C5-C1-C2-Fe	59.4(3)
C1-C2-C3-C4	-1.2(5)
Fe-C2-C3-C4	-60.3(3)
C1-C2-C3-Fe	59.1(3)
C2-C3-C4-C5	1.6(5)
Fe-C3-C4-C5	-59.0(3)
C2-C3-C4-Fe	60.6(3)
C2-C1-C5-C4	0.6(5)
Fe-C1-C5-C4	60.1(3)
C2-C1-C5-Fe	-59.5(3)
C3-C4-C5-C1	-1.3(5)
Fe-C4-C5-C1	-60.3(3)
C3-C4-C5-Fe	59.0(3)
C10-C6-C7-C8	0.7(4)
C6#1-C6-C7-C8	-179.4(4)
Fe-C6-C7-C8	60.0(2)
C10-C6-C7-P	176.0(3)
C6#1-C6-C7-P	-4.1(7)
Fe-C6-C7-P	-124.7(3)
C10-C6-C7-Fe	-59.3(2)
C6#1-C6-C7-Fe	120.6(5)
O-P-C7-C8	-142.5(3)
C17-P-C7-C8	90.7(3)
C11-P-C7-C8	-19.1(3)
O-P-C7-C6	42.7(4)
C17-P-C7-C6	-84.1(4)
C11-P-C7-C6	166.1(3)
O-P-C7-Fe	-56.1(3)
C17-P-C7-Fe	177.1(2)
C11-P-C7-Fe	67.3(3)
C6-C7-C8-C9	-0.6(4)
P-C7-C8-C9	-176.6(3)
Fe-C7-C8-C9	59.8(3)
C6-C7-C8-Fe	-60.4(2)
P-C7-C8-Fe	123.6(3)
C7-C8-C9-C10	0.2(4)
Fe-C8-C9-C10	59.0(3)
C7-C8-C9-Fe	-58.8(3)
C8-C9-C10-C6	0.2(4)
Fe-C9-C10-C6	58.4(3)
C8-C9-C10-Fe	-58.2(3)
C7-C6-C10-C9	-0.6(4)
C6#1-C6-C10-C9	179.5(4)
Fe-C6-C10-C9	-58.7(3)
C7-C6-C10-Fe	58.1(2)
C6#1-C6-C10-Fe	-121.8(4)
O-P-C11-C16	34.2(4)
C7-P-C11-C16	-92.4(3)
C17-P-C11-C16	158.4(3)
O-P-C11-C12	-144.2(3)
C7-P-C11-C12	89.3(3)
C17-P-C11-C12	-19.9(4)
C16-C11-C12-C13	2.3(6)
P-C11-C12-C13	-179.4(3)
C11-C12-C13-C14	-1.2(7)
C12-C13-C14-C15	0.4(7)
C13-C14-C15-C16	-0.8(7)
C12-C11-C16-C15	-2.7(6)
P-C11-C16-C15	178.9(3)
C14-C15-C16-C11	2.0(6)
O-P-C17-C18	-144.9(3)
C7-P-C17-C18	-16.8(3)
C11-P-C17-C18	92.6(3)
O-P-C17-C22	33.9(4)
C7-P-C17-C22	162.0(3)
C11-P-C17-C22	-88.6(3)
C22-C17-C18-C19	-1.3(6)
P-C17-C18-C19	177.5(3)
C17-C18-C19-C20	-1.5(7)
C18-C19-C20-C21	2.5(7)
C19-C20-C21-C22	-0.7(7)
C20-C21-C22-C17	-2.1(6)
C20-C21-C22-C23	176.1(4)
C18-C17-C22-C21	3.1(5)
P-C17-C22-C21	-175.7(3)
C18-C17-C22-C23	-175.0(4)
P-C17-C22-C23	6.2(5)
C21-C22-C23-C24	-111.2(4)
C17-C22-C23-C24	66.9(5)
C21-C22-C23-C28	62.2(5)
C17-C22-C23-C28	-119.7(4)
C28-C23-C24-C25	0.4(6)
C22-C23-C24-C25	174.0(4)
C23-C24-C25-C26	0.0(7)
C24-C25-C26-C27	0.0(7)
C25-C26-C27-C28	-0.4(7)
C26-C27-C28-C23	0.9(7)
C24-C23-C28-C27	-0.9(6)
C22-C23-C28-C27	-174.5(4)

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

Table S11. Crystal data and structure refinement for (±)-2,2'-Bis(1-naphthylphenylphosphinoxy)-1,1'-biferrocenyl, (±)-**6a**, $C_{52}H_{40}Fe_2O_2P_2$.

Identification code	widhj3fr
Empirical formula	C_{52} H_{40} Fe_2 O_2 P_2
Formula weight	870.48
Temperature	299(2) K
Wavelength	0.71073 Å
Crystal system, space group	monoclinic, $P2_1/c$ (No. 14)
Unit cell dimensions	a = 14.861(3) Å α = 90° b = 16.076(4) Å β = 90.17(1)° c = 17.451(5) Å γ = 90°.
Volume	4169.1(18) $Å^3$
Z, Calculated density	4, 1.387 Mg/m^3
Absorption coefficient	0.814 mm^{-1}
F(000)	1800
Crystal size	0.7 x 0.14 x 0.14 mm, orange prism from CH_3NO_2
Diffractometer	Siemens SMART 3-circle with CCD area detector (sealed X-ray tube, Mo Kα radiation, graphite monochr., det.dist. 44.50 mm, 512x512 pixels)
Scan type / width / speed	ω-scan frames / Δω = 0.3° / 25 sec. per frame full sphere, 4 x 606 frames
Theta range for data collection	2.20° to 25.00°
Index ranges	$-17 \le h \le 17$, $-19 \le k \le 19$, $-20 \le l \le 20$
Reflections collected / unique	41082 / 7301 [R(int)= 0.042, R(sigma)= 0.029]
Completeness to theta = 25.00	95.9%
Absorption correction	Empirical (program SADABS; Sheldrick, 1996)
Transmission factors	0.96 - 0.75
Structure solution	Direct methods (program SHELXS97)
Refinement method	Full-matrix least-squares on F^2 (prg SHELXL97)
Data / restraints / parameters	7301 / 0 / 524
Goodness-of-fit on F^2	1.059
Final R indices [I>2sigma(I)]	R1 = 0.0312, wR2 = 0.0684 (5868 data)
R indices (all data)	R1 = 0.0468, wR2 = 0.0771 (7301 data)
Extinction coefficient	0.00025(8)
Largest diff. peak and hole	0.298 and -0.258 e $Å^{-3}$

$R1 = \Sigma||F_o|-|F_c||/\Sigma|F_o|$, $wR2 = [\Sigma(w(F_o^2-F_c^2)^2)/\Sigma(w(F_o^2)^2)]^{1/2}$

Table S12. Atomic coordinates and equivalent isotropic displacement parameters ($Å^2$ x 10^3) for (±)-2,2'-Bis(1-naphthylphenylphosphinoxy)-1,1'-biferrocenyl, (±)-**6a**, $C_{52}H_{40}Fe_2O_2P_2$. U_{eq} is defined as one third of the trace of the orthogonalized U_{ij} tensor.

	x	y	z	U_{iso}
Fe(1)	0.33431(2)	0.26639(2)	0.54306(2)	36(1)
Fe(2)	0.09118(2)	0.25482(2)	0.39831(2)	40(1)
P(1)	0.45240(4)	0.32956(3)	0.38083(3)	32(1)
P(2)	0.12399(4)	0.46378(3)	0.36576(3)	34(1)
O(1)	0.43124(10)	0.26060(9)	0.32758(9)	43(1)
O(2)	0.13256(11)	0.49461(9)	0.44543(8)	45(1)
C(1)	0.2850(2)	0.1476(2)	0.5416(2)	55(1)
C(2)	0.3772(2)	0.1471(2)	0.5250(2)	56(1)
C(3)	0.4234(2)	0.1820(2)	0.5880(2)	57(1)
C(4)	0.3592(2)	0.2044(2)	0.6437(1)	58(1)
C(5)	0.2735(2)	0.1835(2)	0.6149(2)	56(1)
C(6)	0.2761(1)	0.3353(1)	0.4568(1)	32(1)

C(7)	0.3733(1)	0.3440(1)	0.4568(1)	32(1)
C(8)	0.3988(2)	0.3767(1)	0.5299(1)	38(1)
C(9)	0.3206(2)	0.3884(1)	0.5740(1)	42(1)
C(10)	0.2460(2)	0.3632(1)	0.5296(1)	37(1)
C(11)	0.5593(1)	0.3153(1)	0.4295(1)	37(1)
C(12)	0.5846(2)	0.2351(2)	0.4490(1)	49(1)
C(13)	0.6643(2)	0.2205(2)	0.4882(2)	66(1)
C(14)	0.7194(2)	0.2858(2)	0.5073(2)	71(1)
C(15)	0.6961(2)	0.3655(2)	0.4882(2)	66(1)
C(16)	0.6160(2)	0.3805(2)	0.4493(1)	50(1)
C(17)	0.4628(1)	0.4318(1)	0.3369(1)	36(1)
C(18)	0.4169(2)	0.4982(1)	0.3668(1)	41(1)
C(19)	0.4281(2)	0.5795(2)	0.3383(1)	49(1)
C(20)	0.4853(2)	0.5939(2)	0.2799(2)	53(1)
C(21)	0.5337(2)	0.5283(2)	0.2459(1)	47(1)
C(22)	0.5918(2)	0.5427(2)	0.1834(2)	61(1)
C(23)	0.6376(2)	0.4794(2)	0.1510(2)	68(1)
C(24)	0.6293(2)	0.3982(2)	0.1789(2)	61(1)
C(25)	0.5734(2)	0.3813(2)	0.2392(1)	48(1)
C(26)	0.5232(2)	0.4452(1)	0.2742(1)	39(1)
C(27)	0.0591(2)	0.2245(2)	0.5092(2)	64(1)
C(28)	0.0053(2)	0.2909(2)	0.4833(2)	62(1)
C(29)	-0.0439(2)	0.2644(2)	0.4194(2)	64(1)
C(30)	-0.0211(2)	0.1814(2)	0.4048(2)	71(1)
C(31)	0.0428(2)	0.1564(2)	0.4602(2)	72(1)
C(32)	0.2179(1)	0.3069(1)	0.3928(1)	32(1)
C(33)	0.1512(1)	0.3564(1)	0.3527(1)	34(1)
C(34)	0.1134(2)	0.3048(1)	0.2935(1)	42(1)
C(35)	0.1550(2)	0.2263(1)	0.2972(1)	46(1)
C(36)	0.2182(2)	0.2276(1)	0.3576(1)	39(1)
C(37)	0.0109(2)	0.4761(1)	0.3283(1)	40(1)
C(38)	-0.0593(2)	0.4792(1)	0.3796(2)	50(1)
C(39)	-0.1464(2)	0.4900(2)	0.3547(2)	63(1)
C(40)	-0.1640(2)	0.4996(2)	0.2784(2)	69(1)
C(41)	-0.0955(2)	0.4974(2)	0.2264(2)	64(1)
C(42)	-0.0070(2)	0.4853(2)	0.2504(1)	52(1)
C(43)	0.1919(2)	0.5182(1)	0.2959(1)	37(1)
C(44)	0.2480(2)	0.4748(2)	0.2482(1)	44(1)
C(45)	0.2971(2)	0.5143(2)	0.1904(2)	55(1)
C(46)	0.2896(2)	0.5977(2)	0.1816(2)	60(1)
C(47)	0.2335(2)	0.6459(2)	0.2287(1)	51(1)
C(48)	0.2251(2)	0.7330(2)	0.2197(2)	70(1)
C(49)	0.1697(2)	0.7774(2)	0.2643(2)	77(1)
C(50)	0.1190(2)	0.7392(2)	0.3221(2)	68(1)
C(51)	0.1260(2)	0.6554(2)	0.3339(2)	52(1)
C(52)	0.1831(2)	0.6064(1)	0.2876(1)	41(1)

Table S13. Hydrogen coordinates and isotropic displacement parameters ($Å^2$ x 10^3) for (±)-2,2'-Bis(1-naphthylphenylphosphinoxy)-1,1'-biferrocenyl, (±)-**6a**, $C_{52}H_{40}Fe_2O_2P_2$.

	x	y	z	U_{iso}
H(1)	0.2393	0.1278	0.5100	66
H(2)	0.4034	0.1272	0.4803	67
H(3)	0.4854	0.1890	0.5921	68
H(4)	0.3714	0.2286	0.6910	70
H(5)	0.2190	0.1918	0.6398	67
H(8)	0.4573	0.3883	0.5457	45
H(9)	0.3185	0.4091	0.6237	50
H(10)	0.1864	0.3647	0.5456	45
H(12)	0.5477	0.1906	0.4357	58
H(13)	0.6804	0.1665	0.5016	79
H(14)	0.7729	0.2759	0.5334	85
H(15)	0.7338	0.4095	0.5011	79
H(16)	0.6002	0.4347	0.4365	60
H(18)	0.3773	0.4894	0.4071	50

H(19)	0.3961	0.6233	0.3598	59
H(20)	0.4928	0.6478	0.2617	63
H(22)	0.5985	0.5964	0.1644	73
H(23)	0.6752	0.4899	0.1095	81
H(24)	0.6620	0.3554	0.1564	73
H(25)	0.5685	0.3270	0.2572	57
H(27)	0.0981	0.2254	0.5509	77
H(28)	0.0029	0.3437	0.5051	75
H(29)	-0.0846	0.2963	0.3915	76
H(30)	-0.0440	0.1485	0.3655	85
H(31)	0.0695	0.1042	0.4638	86
H(34)	0.0689	0.3205	0.2588	50
H(35)	0.1430	0.1814	0.2652	55
H(36)	0.2545	0.1831	0.3721	47
H(38)	-0.0476	0.4740	0.4318	59
H(39)	-0.1933	0.4907	0.3899	75
H(40)	-0.2228	0.5076	0.2617	82
H(41)	-0.1080	0.5041	0.1746	77
H(42)	0.0395	0.4835	0.2149	62
H(44)	0.2534	0.4175	0.2543	52
H(45)	0.3345	0.4837	0.1584	67
H(46)	0.3225	0.6238	0.1433	72
H(48)	0.2586	0.7599	0.1822	84
H(49)	0.1647	0.8345	0.2567	92
H(50)	0.0806	0.7709	0.3524	81
H(51)	0.0930	0.6304	0.3728	62

Hydrogen atoms were inserted in idealized positions and were refined riding with the atoms to which they were bonded. All hydrogen atoms had $U_{iso} = U_{eq}$ x 1.2 of their carrier atoms.

Table S14. Anisotropic displacement parameters ($Å^2$ x 10^3) for (±)-2,2'-Bis(1-naphthylphenylphosphinoxy)-1,1'-biferrocenyl, (±)-**6a,** $C_{52}H_{40}Fe_2O_2P_2$. The anisotropic displacement factor exponent takes the form: $-2\pi^2 [h^2 a^{*2} U_{11} + ... + 2 h k a^* b^* U_{12}]$

	U_{11}	U_{22}	U_{33}	U_{23}	U_{13}	U_{12}
Fe(1)	40(1)	40(1)	28(1)	4(1)	-1(1)	4(1)
Fe(2)	36(1)	37(1)	48(1)	2(1)	-3(1)	-6(1)
P(1)	34(1)	33(1)	29(1)	-1(1)	-1(1)	-1(1)
P(2)	37(1)	33(1)	33(1)	0(1)	-4(1)	1(1)
O(1)	49(1)	41(1)	38(1)	-9(1)	-1(1)	-4(1)
O(2)	55(1)	45(1)	35(1)	-5(1)	-5(1)	3(1)
C(1)	70(2)	42(1)	52(2)	14(1)	-8(1)	-6(1)
C(2)	74(2)	46(1)	47(2)	8(1)	4(1)	15(1)
C(3)	54(2)	61(2)	55(2)	19(1)	-7(1)	12(1)
C(4)	79(2)	62(2)	34(1)	14(1)	-11(1)	5(1)
C(5)	63(2)	58(2)	48(2)	21(1)	9(1)	4(1)
C(6)	36(1)	29(1)	32(1)	4(1)	-2(1)	2(1)
C(7)	34(1)	31(1)	31(1)	2(1)	-3(1)	0(1)
C(8)	37(1)	42(1)	35(1)	-3(1)	-7(1)	-1(1)
C(9)	49(1)	44(1)	32(1)	-8(1)	-2(1)	6(1)
C(10)	37(1)	40(1)	35(1)	-1(1)	1(1)	6(1)
C(11)	35(1)	47(1)	31(1)	-1(1)	2(1)	4(1)
C(12)	48(1)	54(2)	44(1)	-1(1)	1(1)	11(1)
C(13)	66(2)	80(2)	50(2)	5(1)	-4(1)	32(2)
C(14)	49(2)	116(3)	48(2)	-11(2)	-11(1)	22(2)
C(15)	45(2)	97(2)	55(2)	-15(2)	-7(1)	-8(2)
C(16)	44(1)	59(2)	47(1)	-3(1)	-5(1)	-5(1)
C(17)	39(1)	38(1)	32(1)	2(1)	-6(1)	-5(1)
C(18)	47(1)	40(1)	37(1)	1(1)	-5(1)	-1(1)
C(19)	60(2)	39(1)	49(2)	2(1)	-13(1)	2(1)
C(20)	63(2)	41(1)	55(2)	11(1)	-19(1)	-9(1)
C(21)	46(1)	56(2)	40(1)	14(1)	-12(1)	-15(1)
C(22)	58(2)	74(2)	51(2)	20(1)	-2(1)	-15(2)
C(23)	56(2)	101(2)	47(2)	22(2)	5(1)	-20(2)

C(24)	51(2)	89(2)	43(2)	-6(1)	4(1)	-3(1)
C(25)	46(1)	59(2)	38(1)	1(1)	-1(1)	-6(1)
C(26)	38(1)	48(1)	32(1)	2(1)	-8(1)	-7(1)
C(27)	53(2)	84(2)	56(2)	22(2)	4(1)	-11(2)
C(28)	53(2)	69(2)	65(2)	1(2)	16(1)	-7(1)
C(29)	36(1)	73(2)	83(2)	11(2)	2(1)	-4(1)
C(30)	53(2)	65(2)	95(2)	1(2)	-3(2)	-26(2)
C(31)	61(2)	51(2)	103(3)	25(2)	11(2)	-13(1)
C(32)	31(1)	33(1)	32(1)	2(1)	-1(1)	-3(1)
C(33)	36(1)	33(1)	34(1)	1(1)	-3(1)	-4(1)
C(34)	47(1)	42(1)	37(1)	-1(1)	-12(1)	-4(1)
C(35)	54(1)	37(1)	47(1)	-10(1)	-4(1)	-5(1)
C(36)	41(1)	33(1)	44(1)	-2(1)	0(1)	2(1)
C(37)	40(1)	32(1)	47(1)	0(1)	-6(1)	1(1)
C(38)	47(1)	42(1)	59(2)	-8(1)	-1(1)	7(1)
C(39)	45(2)	49(2)	93(2)	-16(2)	0(2)	9(1)
C(40)	47(2)	44(2)	116(3)	-10(2)	-27(2)	7(1)
C(41)	73(2)	51(2)	70(2)	6(1)	-32(2)	0(1)
C(42)	55(2)	49(1)	51(2)	7(1)	-14(1)	-3(1)
C(43)	41(1)	36(1)	35(1)	1(1)	-7(1)	-3(1)
C(44)	48(1)	41(1)	42(1)	-3(1)	-1(1)	-6(1)
C(45)	59(2)	61(2)	46(2)	-3(1)	6(1)	-10(1)
C(46)	63(2)	71(2)	45(2)	10(1)	4(1)	-18(1)
C(47)	57(2)	47(1)	49(2)	10(1)	-16(1)	-13(1)
C(48)	88(2)	49(2)	74(2)	21(2)	-14(2)	-15(2)
C(49)	100(3)	35(2)	94(3)	16(2)	-23(2)	-2(2)
C(50)	82(2)	39(2)	82(2)	-4(1)	-19(2)	11(1)
C(51)	60(2)	39(1)	56(2)	2(1)	-10(1)	2(1)
C(52)	45(1)	35(1)	42(1)	3(1)	-13(1)	-5(1)

Table S15. Complete bond lengths [Å] and angles [deg] for (±)-2,2'-Bis(1-naphthylphenylphosphinoxy)-1,1'-biferrocenyl, (±)-**6a**, $C_{52}H_{40}Fe_2O_2P_2$.

Bond lengths

Fe(1)-C(8)	2.029(2)	C(1)-C(2)	1.402(4)
Fe(1)-C(7)	2.041(2)	C(1)-C(5)	1.414(4)
Fe(1)-C(5)	2.043(2)	C(1)-H(1)	0.93
Fe(1)-C(9)	2.044(2)	C(2)-C(3)	1.411(4)
Fe(1)-C(1)	2.046(3)	C(2)-H(2)	0.93
Fe(1)-C(2)	2.046(3)	C(3)-C(4)	1.410(4)
Fe(1)-C(10)	2.049(2)	C(3)-H(3)	0.93
Fe(1)-C(3)	2.051(2)	C(4)-C(5)	1.408(4)
Fe(1)-C(4)	2.052(2)	C(4)-H(4)	0.93
Fe(1)-C(6)	2.057(2)	C(5)-H(5)	0.93
		C(6)-C(10)	1.422(3)
Fe(2)-C(33)	2.025(2)	C(6)-C(7)	1.451(3)
Fe(2)-C(34)	2.026(2)	C(6)-C(32)	1.484(3)
Fe(2)-C(28)	2.044(3)	C(7)-C(8)	1.429(3)
Fe(2)-C(31)	2.047(3)	C(8)-C(9)	1.408(3)
Fe(2)-C(30)	2.047(3)	C(8)-H(8)	0.93
Fe(2)-C(29)	2.048(3)	C(9)-C(10)	1.409(3)
Fe(2)-C(27)	2.053(3)	C(9)-H(9)	0.93
Fe(2)-C(35)	2.058(2)	C(10)-H(10)	0.93
Fe(2)-C(32)	2.063(2)		
Fe(2)-C(36)	2.066(2)	C(11)-C(12)	1.384(3)
		C(11)-C(16)	1.389(3)
P(1)-O(1)	1.4798(15)	C(12)-C(13)	1.386(4)
P(1)-C(7)	1.789(2)	C(12)-H(12)	0.93
P(1)-C(11)	1.814(2)	C(13)-C(14)	1.372(4)
P(1)-C(17)	1.820(2)	C(13)-H(13)	0.93
		C(14)-C(15)	1.368(4)
P(2)-O(2)	1.4811(16)	C(14)-H(14)	0.93
P(2)-C(33)	1.788(2)	C(15)-C(16)	1.389(4)
P(2)-C(43)	1.810(2)	C(15)-H(15)	0.93
P(2)-C(37)	1.812(2)	C(16)-H(16)	0.93

C(17)-C(18)	1.371(3)
C(17)-C(26)	1.435(3)
C(18)-C(19)	1.408(3)
C(18)-H(18)	0.93
C(19)-C(20)	1.350(4)
C(19)-H(19)	0.93
C(20)-C(21)	1.407(4)
C(20)-H(20)	0.93
C(21)-C(22)	1.412(4)
C(21)-C(26)	1.433(3)
C(22)-C(23)	1.351(4)
C(22)-H(22)	0.93
C(23)-C(24)	1.399(4)
C(23)-H(23)	0.93
C(24)-C(25)	1.369(3)
C(24)-H(24)	0.93
C(25)-C(26)	1.410(3)
C(25)-H(25)	0.93
C(27)-C(28)	1.407(4)
C(27)-C(31)	1.409(4)
C(27)-H(27)	0.93
C(28)-C(29)	1.399(4)
C(28)-H(28)	0.93
C(29)-C(30)	1.401(4)
C(29)-H(29)	0.93
C(30)-C(31)	1.412(4)
C(30)-H(30)	0.93
C(31)-H(31)	0.93
C(32)-C(36)	1.415(3)
C(32)-C(33)	1.450(3)
C(33)-C(34)	1.439(3)
C(34)-C(35)	1.406(3)
C(34)-H(34)	0.93
C(35)-C(36)	1.410(3)
C(35)-H(35)	0.93
C(36)-H(36)	0.93
C(37)-C(38)	1.378(3)
C(37)-C(42)	1.392(3)
C(38)-C(39)	1.375(4)
C(38)-H(38)	0.93
C(39)-C(40)	1.366(4)
C(39)-H(39)	0.93
C(40)-C(41)	1.366(4)
C(40)-H(40)	0.93
C(41)-C(42)	1.393(4)
C(41)-H(41)	0.93
C(42)-H(42)	0.93
C(43)-C(44)	1.372(3)
C(43)-C(52)	1.431(3)
C(44)-C(45)	1.399(3)
C(44)-H(44)	0.93
C(45)-C(46)	1.353(4)
C(45)-H(45)	0.93
C(46)-C(47)	1.405(4)
C(46)-H(46)	0.93
C(47)-C(48)	1.414(4)
C(47)-C(52)	1.423(3)
C(48)-C(49)	1.341(5)
C(48)-H(48)	0.93
C(49)-C(50)	1.403(5)
C(49)-H(49)	0.93
C(50)-C(51)	1.367(3)
C(50)-H(50)	0.93
C(51)-C(52)	1.414(3)
C(51)-H(51)	0.93

Bond angles

C(8)-Fe(1)-C(7)	41.10(8)
C(8)-Fe(1)-C(5)	148.20(10)
C(7)-Fe(1)-C(5)	168.25(10)
C(8)-Fe(1)-C(9)	40.46(9)
C(7)-Fe(1)-C(9)	68.68(9)
C(5)-Fe(1)-C(9)	114.80(10)
C(8)-Fe(1)-C(1)	169.65(10)
C(7)-Fe(1)-C(1)	131.64(9)
C(5)-Fe(1)-C(1)	40.47(10)
C(9)-Fe(1)-C(1)	149.64(10)
C(8)-Fe(1)-C(2)	130.85(10)
C(7)-Fe(1)-C(2)	111.75(9)
C(5)-Fe(1)-C(2)	67.76(11)
C(9)-Fe(1)-C(2)	166.25(10)
C(1)-Fe(1)-C(2)	40.07(11)
C(8)-Fe(1)-C(10)	68.02(9)
C(7)-Fe(1)-C(10)	68.54(8)
C(5)-Fe(1)-C(10)	106.36(10)
C(9)-Fe(1)-C(10)	40.26(9)
C(1)-Fe(1)-C(10)	118.59(10)
C(2)-Fe(1)-C(10)	153.44(10)
C(8)-Fe(1)-C(3)	108.48(10)
C(7)-Fe(1)-C(3)	120.16(10)
C(5)-Fe(1)-C(3)	67.64(11)
C(9)-Fe(1)-C(3)	126.79(11)
C(1)-Fe(1)-C(3)	67.53(11)
C(2)-Fe(1)-C(3)	40.29(11)
C(10)-Fe(1)-C(3)	163.58(10)
C(8)-Fe(1)-C(4)	115.96(10)
C(7)-Fe(1)-C(4)	151.33(10)
C(5)-Fe(1)-C(4)	40.24(11)
C(9)-Fe(1)-C(4)	104.98(10)
C(1)-Fe(1)-C(4)	67.70(11)
C(2)-Fe(1)-C(4)	67.70(11)
C(10)-Fe(1)-C(4)	125.52(10)
C(3)-Fe(1)-C(4)	40.21(10)
C(8)-Fe(1)-C(6)	69.14(8)
C(7)-Fe(1)-C(6)	41.46(8)
C(5)-Fe(1)-C(6)	127.95(10)
C(9)-Fe(1)-C(6)	68.55(8)
C(1)-Fe(1)-C(6)	110.12(9)
C(2)-Fe(1)-C(6)	121.51(9)
C(10)-Fe(1)-C(6)	40.51(8)
C(3)-Fe(1)-C(6)	154.92(10)
C(4)-Fe(1)-C(6)	164.19(10)
C(33)-Fe(2)-C(34)	41.60(8)
C(33)-Fe(2)-C(28)	109.47(10)
C(34)-Fe(2)-C(28)	130.29(11)
C(33)-Fe(2)-C(31)	170.56(12)
C(34)-Fe(2)-C(31)	147.25(12)
C(28)-Fe(2)-C(31)	67.39(12)
C(33)-Fe(2)-C(30)	147.85(11)
C(34)-Fe(2)-C(30)	114.40(12)
C(28)-Fe(2)-C(30)	67.24(13)
C(31)-Fe(2)-C(30)	40.34(12)
C(33)-Fe(2)-C(29)	116.31(10)
C(34)-Fe(2)-C(29)	107.15(11)
C(28)-Fe(2)-C(29)	39.97(12)
C(31)-Fe(2)-C(29)	67.51(12)
C(30)-Fe(2)-C(29)	40.01(12)
C(33)-Fe(2)-C(27)	131.77(11)

C(34)-Fe(2)-C(27)	169.79(11)
C(28)-Fe(2)-C(27)	40.16(11)
C(31)-Fe(2)-C(27)	40.21(12)
C(30)-Fe(2)-C(27)	67.63(13)
C(29)-Fe(2)-C(27)	67.51(12)
C(33)-Fe(2)-C(35)	68.73(9)
C(34)-Fe(2)-C(35)	40.27(9)
C(28)-Fe(2)-C(35)	167.48(11)
C(31)-Fe(2)-C(35)	116.36(12)
C(30)-Fe(2)-C(35)	107.27(12)
C(29)-Fe(2)-C(35)	128.74(12)
C(27)-Fe(2)-C(35)	149.83(11)
C(33)-Fe(2)-C(32)	41.52(8)
C(34)-Fe(2)-C(32)	69.28(9)
C(28)-Fe(2)-C(32)	119.37(10)
C(31)-Fe(2)-C(32)	131.30(11)
C(30)-Fe(2)-C(32)	168.69(11)
C(29)-Fe(2)-C(32)	150.83(10)
C(27)-Fe(2)-C(32)	110.80(10)
C(35)-Fe(2)-C(32)	68.09(9)
C(33)-Fe(2)-C(36)	68.40(8)
C(34)-Fe(2)-C(36)	67.81(9)
C(28)-Fe(2)-C(36)	151.98(11)
C(31)-Fe(2)-C(36)	109.88(11)
C(30)-Fe(2)-C(36)	129.96(11)
C(29)-Fe(2)-C(36)	167.17(11)
C(27)-Fe(2)-C(36)	119.27(11)
C(35)-Fe(2)-C(36)	39.98(9)
C(32)-Fe(2)-C(36)	40.09(8)
O(1)-P(1)-C(7)	115.08(9)
O(1)-P(1)-C(11)	112.52(10)
C(7)-P(1)-C(11)	104.26(10)
O(1)-P(1)-C(17)	115.47(10)
C(7)-P(1)-C(17)	104.54(10)
C(11)-P(1)-C(17)	103.69(10)
O(2)-P(2)-C(33)	115.10(9)
O(2)-P(2)-C(43)	115.07(10)
C(33)-P(2)-C(43)	104.70(10)
O(2)-P(2)-C(37)	112.27(10)
C(33)-P(2)-C(37)	105.63(10)
C(43)-P(2)-C(37)	102.87(10)
C(2)-C(1)-C(5)	108.0(2)
C(2)-C(1)-Fe(1)	69.97(15)
C(5)-C(1)-Fe(1)	69.63(15)
C(2)-C(1)-H(1)	126.0
C(5)-C(1)-H(1)	126.0
Fe(1)-C(1)-H(1)	126.0
C(1)-C(2)-C(3)	108.1(2)
C(1)-C(2)-Fe(1)	69.96(14)
C(3)-C(2)-Fe(1)	70.02(15)
C(1)-C(2)-H(2)	126.0
C(3)-C(2)-H(2)	126.0
Fe(1)-C(2)-H(2)	125.6
C(4)-C(3)-C(2)	108.0(2)
C(4)-C(3)-Fe(1)	69.94(14)
C(2)-C(3)-Fe(1)	69.69(14)
C(4)-C(3)-H(3)	126.0
C(2)-C(3)-H(3)	126.0
Fe(1)-C(3)-H(3)	126.0
C(5)-C(4)-C(3)	107.9(2)
C(5)-C(4)-Fe(1)	69.53(14)
C(3)-C(4)-Fe(1)	69.85(14)
C(5)-C(4)-H(4)	126.1
C(3)-C(4)-H(4)	126.1
Fe(1)-C(4)-H(4)	126.1

C(4)-C(5)-C(1)	107.9(2)
C(4)-C(5)-Fe(1)	70.23(14)
C(1)-C(5)-Fe(1)	69.90(14)
C(4)-C(5)-H(5)	126.0
C(1)-C(5)-H(5)	126.0
Fe(1)-C(5)-H(5)	125.4
C(10)-C(6)-C(7)	106.61(18)
C(10)-C(6)-C(32)	125.85(19)
C(7)-C(6)-C(32)	127.48(18)
C(10)-C(6)-Fe(1)	69.44(12)
C(7)-C(6)-Fe(1)	68.67(11)
C(32)-C(6)-Fe(1)	128.91(14)
C(8)-C(7)-C(6)	107.26(18)
C(8)-C(7)-P(1)	122.39(16)
C(6)-C(7)-P(1)	130.05(15)
C(8)-C(7)-Fe(1)	69.00(12)
C(6)-C(7)-Fe(1)	69.87(11)
P(1)-C(7)-Fe(1)	130.95(11)
C(9)-C(8)-C(7)	108.63(19)
C(9)-C(8)-Fe(1)	70.35(13)
C(7)-C(8)-Fe(1)	69.90(12)
C(9)-C(8)-H(8)	125.7
C(7)-C(8)-H(8)	125.7
Fe(1)-C(8)-H(8)	125.6
C(10)-C(9)-C(8)	108.12(19)
C(10)-C(9)-Fe(1)	70.06(12)
C(8)-C(9)-Fe(1)	69.19(12)
C(10)-C(9)-H(9)	125.9
C(8)-C(9)-H(9)	125.9
Fe(1)-C(9)-H(9)	126.4
C(9)-C(10)-C(6)	109.38(19)
C(9)-C(10)-Fe(1)	69.68(13)
C(6)-C(10)-Fe(1)	70.05(12)
C(9)-C(10)-H(10)	125.3
C(6)-C(10)-H(10)	125.3
Fe(1)-C(10)-H(10)	126.6
C(12)-C(11)-C(16)	118.6(2)
C(12)-C(11)-P(1)	118.01(18)
C(16)-C(11)-P(1)	123.42(18)
C(11)-C(12)-C(13)	120.6(3)
C(11)-C(12)-H(12)	119.7
C(13)-C(12)-H(12)	119.7
C(14)-C(13)-C(12)	119.9(3)
C(14)-C(13)-H(13)	120.0
C(12)-C(13)-H(13)	120.0
C(15)-C(14)-C(13)	120.5(3)
C(15)-C(14)-H(14)	119.8
C(13)-C(14)-H(14)	119.8
C(14)-C(15)-C(16)	119.8(3)
C(14)-C(15)-H(15)	120.1
C(16)-C(15)-H(15)	120.1
C(11)-C(16)-C(15)	120.6(3)
C(11)-C(16)-H(16)	119.7
C(15)-C(16)-H(16)	119.7
C(18)-C(17)-C(26)	119.1(2)
C(18)-C(17)-P(1)	120.04(17)
C(26)-C(17)-P(1)	120.71(16)
C(17)-C(18)-C(19)	122.0(2)
C(17)-C(18)-H(18)	119.0
C(19)-C(18)-H(18)	119.0
C(20)-C(19)-C(18)	120.0(2)
C(20)-C(19)-H(19)	120.0
C(18)-C(19)-H(19)	120.0
C(19)-C(20)-C(21)	120.9(2)
C(19)-C(20)-H(20)	119.5

C(21)-C(20)-H(20)	119.5
C(20)-C(21)-C(22)	121.1(2)
C(20)-C(21)-C(26)	119.8(2)
C(22)-C(21)-C(26)	119.1(2)
C(23)-C(22)-C(21)	120.7(3)
C(23)-C(22)-H(22)	119.6
C(21)-C(22)-H(22)	119.6
C(22)-C(23)-C(24)	120.8(3)
C(22)-C(23)-H(23)	119.6
C(24)-C(23)-H(23)	119.6
C(25)-C(24)-C(23)	120.5(3)
C(25)-C(24)-H(24)	119.7
C(23)-C(24)-H(24)	119.7
C(24)-C(25)-C(26)	120.7(2)
C(24)-C(25)-H(25)	119.6
C(26)-C(25)-H(25)	119.6
C(25)-C(26)-C(21)	118.2(2)
C(25)-C(26)-C(17)	123.7(2)
C(21)-C(26)-C(17)	118.1(2)
C(28)-C(27)-C(31)	107.4(3)
C(28)-C(27)-Fe(2)	69.58(16)
C(31)-C(27)-Fe(2)	69.68(17)
C(28)-C(27)-H(27)	126.3
C(31)-C(27)-H(27)	126.3
Fe(2)-C(27)-H(27)	126.0
C(29)-C(28)-C(27)	108.6(3)
C(29)-C(28)-Fe(2)	70.17(16)
C(27)-C(28)-Fe(2)	70.26(16)
C(29)-C(28)-H(28)	125.7
C(27)-C(28)-H(28)	125.7
Fe(2)-C(28)-H(28)	125.5
C(30)-C(29)-C(28)	108.0(3)
C(30)-C(29)-Fe(2)	69.98(15)
C(28)-C(29)-Fe(2)	69.86(15)
C(30)-C(29)-H(29)	126.0
C(28)-C(29)-H(29)	126.0
Fe(2)-C(29)-H(29)	125.8
C(29)-C(30)-C(31)	108.0(3)
C(29)-C(30)-Fe(2)	70.01(15)
C(31)-C(30)-Fe(2)	69.81(15)
C(29)-C(30)-H(30)	126.0
C(31)-C(30)-H(30)	126.0
Fe(2)-C(30)-H(30)	125.7
C(27)-C(31)-C(30)	108.0(3)
C(27)-C(31)-Fe(2)	70.12(15)
C(30)-C(31)-Fe(2)	69.85(16)
C(27)-C(31)-H(31)	126.0
C(30)-C(31)-H(31)	126.0
Fe(2)-C(31)-H(31)	125.6
C(36)-C(32)-C(33)	106.77(18)
C(36)-C(32)-C(6)	126.97(19)
C(33)-C(32)-C(6)	126.24(18)
C(36)-C(32)-Fe(2)	70.06(12)
C(33)-C(32)-Fe(2)	67.85(11)
C(6)-C(32)-Fe(2)	128.36(14)
C(34)-C(33)-C(32)	107.15(18)
C(34)-C(33)-P(2)	124.13(16)
C(32)-C(33)-P(2)	128.55(15)
C(34)-C(33)-Fe(2)	69.21(12)
C(32)-C(33)-Fe(2)	70.62(11)
P(2)-C(33)-Fe(2)	128.92(12)
C(35)-C(34)-C(33)	108.26(19)
C(35)-C(34)-Fe(2)	71.11(14)
C(33)-C(34)-Fe(2)	69.19(12)
C(35)-C(34)-H(34)	125.9
C(33)-C(34)-H(34)	125.9
Fe(2)-C(34)-H(34)	125.4
C(34)-C(35)-C(36)	108.30(19)
C(34)-C(35)-Fe(2)	68.62(13)
C(36)-C(35)-Fe(2)	70.29(13)
C(34)-C(35)-H(35)	125.9
C(36)-C(35)-H(35)	125.9
Fe(2)-C(35)-H(35)	126.8
C(35)-C(36)-C(32)	109.51(19)
C(35)-C(36)-Fe(2)	69.72(13)
C(32)-C(36)-Fe(2)	69.84(12)
C(35)-C(36)-H(36)	125.2
C(32)-C(36)-H(36)	125.2
Fe(2)-C(36)-H(36)	126.8
C(38)-C(37)-C(42)	119.2(2)
C(38)-C(37)-P(2)	118.20(18)
C(42)-C(37)-P(2)	122.53(18)
C(39)-C(38)-C(37)	120.9(3)
C(39)-C(38)-H(38)	119.6
C(37)-C(38)-H(38)	119.6
C(40)-C(39)-C(38)	120.0(3)
C(40)-C(39)-H(39)	120.0
C(38)-C(39)-H(39)	120.0
C(39)-C(40)-C(41)	120.3(3)
C(39)-C(40)-H(40)	119.9
C(41)-C(40)-H(40)	119.9
C(40)-C(41)-C(42)	120.6(3)
C(40)-C(41)-H(41)	119.7
C(42)-C(41)-H(41)	119.7
C(37)-C(42)-C(41)	119.1(3)
C(37)-C(42)-H(42)	120.5
C(41)-C(42)-H(42)	120.5
C(44)-C(43)-C(52)	119.8(2)
C(44)-C(43)-P(2)	120.28(17)
C(52)-C(43)-P(2)	119.77(17)
C(43)-C(44)-C(45)	121.7(2)
C(43)-C(44)-H(44)	119.1
C(45)-C(44)-H(44)	119.1
C(46)-C(45)-C(44)	119.3(2)
C(46)-C(45)-H(45)	120.4
C(44)-C(45)-H(45)	120.4
C(45)-C(46)-C(47)	121.9(2)
C(45)-C(46)-H(46)	119.0
C(47)-C(46)-H(46)	119.0
C(46)-C(47)-C(48)	122.3(3)
C(46)-C(47)-C(52)	119.3(2)
C(48)-C(47)-C(52)	118.4(3)
C(49)-C(48)-C(47)	121.1(3)
C(49)-C(48)-H(48)	119.4
C(47)-C(48)-H(48)	119.4
C(48)-C(49)-C(50)	121.1(3)
C(48)-C(49)-H(49)	119.5
C(50)-C(49)-H(49)	119.5
C(51)-C(50)-C(49)	120.0(3)
C(51)-C(50)-H(50)	120.0
C(49)-C(50)-H(50)	120.0
C(50)-C(51)-C(52)	120.6(3)
C(50)-C(51)-H(51)	119.7
C(52)-C(51)-H(51)	119.7
C(51)-C(52)-C(47)	118.8(2)
C(51)-C(52)-C(43)	123.3(2)
C(47)-C(52)-C(43)	117.9(2)

Selected torsion angles

C8-Fe1-C1-C2	31.4(6)

C7-Fe1-C1-C2	73.34(19)	C1-Fe1-C4-C3	81.10(18)
C5-Fe1-C1-C2	-119.2(2)	C2-Fe1-C4-C3	37.63(17)
C9-Fe1-C1-C2	-162.93(18)	C10-Fe1-C4-C3	-168.85(16)
C10-Fe1-C1-C2	159.16(14)	C6-Fe1-C4-C3	166.3(3)
C3-Fe1-C1-C2	-37.75(15)	C3-C4-C5-C1	0.4(3)
C4-Fe1-C1-C2	-81.39(17)	Fe1-C4-C5-C1	59.98(17)
C6-Fe1-C1-C2	115.42(15)	C3-C4-C5-Fe1	-59.55(18)
C8-Fe1-C1-C5	150.6(5)	C2-C1-C5-C4	-0.5(3)
C7-Fe1-C1-C5	-167.51(14)	Fe1-C1-C5-C4	-60.19(17)
C9-Fe1-C1-C5	-43.8(3)	C2-C1-C5-Fe1	59.65(17)
C2-Fe1-C1-C5	119.2(2)	C8-Fe1-C5-C4	-51.7(3)
C10-Fe1-C1-C5	-81.69(17)	C7-Fe1-C5-C4	171.3(4)
C3-Fe1-C1-C5	81.40(17)	C9-Fe1-C5-C4	-83.96(18)
C4-Fe1-C1-C5	37.76(16)	C1-Fe1-C5-C4	118.7(2)
C6-Fe1-C1-C5	-125.43(16)	C2-Fe1-C5-C4	81.29(18)
C5-C1-C2-C3	0.4(3)	C10-Fe1-C5-C4	-126.19(16)
Fe1-C1-C2-C3	59.88(17)	C3-Fe1-C5-C4	37.59(17)
C5-C1-C2-Fe1	-59.44(17)	C6-Fe1-C5-C4	-165.31(15)
C8-Fe1-C2-C1	-172.88(14)	C8-Fe1-C5-C1	-170.37(17)
C7-Fe1-C2-C1	-129.57(15)	C7-Fe1-C5-C1	52.6(5)
C5-Fe1-C2-C1	37.77(15)	C9-Fe1-C5-C1	157.34(15)
C9-Fe1-C2-C1	141.4(4)	C2-Fe1-C5-C1	-37.41(16)
C10-Fe1-C2-C1	-44.3(3)	C10-Fe1-C5-C1	115.11(16)
C3-Fe1-C2-C1	119.0(2)	C3-Fe1-C5-C1	-81.11(17)
C4-Fe1-C2-C1	81.41(17)	C4-Fe1-C5-C1	-118.7(2)
C6-Fe1-C2-C1	-84.15(17)	C6-Fe1-C5-C1	75.99(18)
C8-Fe1-C2-C3	68.15(19)	C8-Fe1-C6-C10	-80.17(13)
C7-Fe1-C2-C3	111.47(16)	C7-Fe1-C6-C10	-118.30(17)
C5-Fe1-C2-C3	-81.20(17)	C5-Fe1-C6-C10	68.72(17)
C9-Fe1-C2-C3	22.4(5)	C9-Fe1-C6-C10	-36.65(13)
C1-Fe1-C2-C3	-119.0(2)	C1-Fe1-C6-C10	110.85(14)
C10-Fe1-C2-C3	-163.29(19)	C2-Fe1-C6-C10	153.85(14)
C4-Fe1-C2-C3	-37.56(16)	C3-Fe1-C6-C10	-169.4(2)
C6-Fe1-C2-C3	156.89(14)	C4-Fe1-C6-C10	31.8(4)
C1-C2-C3-C4	-0.2(3)	C8-Fe1-C6-C7	38.13(12)
Fe1-C2-C3-C4	59.66(18)	C5-Fe1-C6-C7	-172.97(14)
C1-C2-C3-Fe1	-59.84(17)	C9-Fe1-C6-C7	81.65(13)
C8-Fe1-C3-C4	108.63(17)	C1-Fe1-C6-C7	-130.85(13)
C7-Fe1-C3-C4	152.19(16)	C2-Fe1-C6-C7	-87.85(15)
C5-Fe1-C3-C4	-37.62(17)	C10-Fe1-C6-C7	118.30(17)
C9-Fe1-C3-C4	67.4(2)	C3-Fe1-C6-C7	-51.1(3)
C1-Fe1-C3-C4	-81.56(18)	C4-Fe1-C6-C7	150.1(3)
C2-Fe1-C3-C4	-119.1(2)	C8-Fe1-C6-C32	159.8(2)
C10-Fe1-C3-C4	33.8(4)	C7-Fe1-C6-C32	121.6(2)
C6-Fe1-C3-C4	-171.3(2)	C5-Fe1-C6-C32	-51.3(2)
C8-Fe1-C3-C2	-132.25(16)	C9-Fe1-C6-C32	-156.7(2)
C7-Fe1-C3-C2	-88.69(17)	C1-Fe1-C6-C32	-9.2(2)
C5-Fe1-C3-C2	81.50(17)	C2-Fe1-C6-C32	33.8(2)
C9-Fe1-C3-C2	-173.50(15)	C10-Fe1-C6-C32	-120.1(2)
C1-Fe1-C3-C2	37.56(15)	C3-Fe1-C6-C32	70.6(3)
C10-Fe1-C3-C2	152.9(3)	C4-Fe1-C6-C32	-88.3(4)
C4-Fe1-C3-C2	119.1(2)	C10-C6-C7-C8	0.3(2)
C6-Fe1-C3-C2	-52.1(3)	C32-C6-C7-C8	177.52(19)
C2-C3-C4-C5	-0.2(3)	Fe1-C6-C7-C8	-59.09(14)
Fe1-C3-C4-C5	59.35(18)	C10-C6-C7-P1	-173.51(16)
C2-C3-C4-Fe1	-59.51(17)	C32-C6-C7-P1	3.8(3)
C8-Fe1-C4-C5	152.63(15)	Fe1-C6-C7-P1	127.15(18)
C7-Fe1-C4-C5	-176.30(18)	C10-C6-C7-Fe1	59.35(14)
C9-Fe1-C4-C5	110.85(16)	C32-C6-C7-Fe1	-123.4(2)
C1-Fe1-C4-C5	-37.98(16)	O1-P1-C7-C8	150.20(16)
C2-Fe1-C4-C5	-81.45(18)	C11-P1-C7-C8	26.5(2)
C10-Fe1-C4-C5	72.07(19)	C17-P1-C7-C8	-82.07(18)
C3-Fe1-C4-C5	-119.1(2)	O1-P1-C7-C6	-36.9(2)
C6-Fe1-C4-C5	47.2(4)	C11-P1-C7-C6	-160.58(19)
C8-Fe1-C4-C3	-88.29(18)	C17-P1-C7-C6	90.9(2)
C7-Fe1-C4-C3	-57.2(3)	O1-P1-C7-Fe1	60.86(17)
C5-Fe1-C4-C3	119.1(2)	C11-P1-C7-Fe1	-62.86(16)
C9-Fe1-C4-C3	-130.07(17)	C17-P1-C7-Fe1	-171.41(13)

C5-Fe1-C7-C8	146.9(5)
C9-Fe1-C7-C8	37.34(12)
C1-Fe1-C7-C8	-169.49(14)
C2-Fe1-C7-C8	-127.88(14)
C10-Fe1-C7-C8	80.72(13)
C3-Fe1-C7-C8	-83.78(16)
C4-Fe1-C7-C8	-44.9(2)
C6-Fe1-C7-C8	118.64(17)
C8-Fe1-C7-C6	-118.64(17)
C5-Fe1-C7-C6	28.3(5)
C9-Fe1-C7-C6	-81.30(13)
C1-Fe1-C7-C6	71.87(16)
C2-Fe1-C7-C6	113.48(13)
C10-Fe1-C7-C6	-37.92(12)
C3-Fe1-C7-C6	157.58(13)
C4-Fe1-C7-C6	-163.54(19)
C8-Fe1-C7-P1	115.3(2)
C5-Fe1-C7-P1	-97.8(5)
C9-Fe1-C7-P1	152.59(17)
C1-Fe1-C7-P1	-54.2(2)
C2-Fe1-C7-P1	-12.63(18)
C10-Fe1-C7-P1	-164.03(17)
C3-Fe1-C7-P1	31.47(19)
C4-Fe1-C7-P1	70.4(3)
C6-Fe1-C7-P1	-126.1(2)
C6-C7-C8-C9	-0.3(2)
P1-C7-C8-C9	174.07(15)
Fe1-C7-C8-C9	-59.92(15)
C6-C7-C8-Fe1	59.65(13)
P1-C7-C8-Fe1	-126.01(15)
C7-Fe1-C8-C9	119.46(18)
C5-Fe1-C8-C9	-48.4(2)
C1-Fe1-C8-C9	168.8(5)
C2-Fe1-C8-C9	-164.79(14)
C10-Fe1-C8-C9	37.36(13)
C3-Fe1-C8-C9	-125.54(14)
C4-Fe1-C8-C9	-82.67(16)
C6-Fe1-C8-C9	81.01(13)
C5-Fe1-C8-C7	-167.82(17)
C9-Fe1-C8-C7	-119.46(18)
C1-Fe1-C8-C7	49.4(6)
C2-Fe1-C8-C7	75.75(17)
C10-Fe1-C8-C7	-82.10(13)
C3-Fe1-C8-C7	115.00(14)
C4-Fe1-C8-C7	157.87(13)
C6-Fe1-C8-C7	-38.45(12)
C7-C8-C9-C10	0.2(3)
Fe1-C8-C9-C10	-59.45(16)
C7-C8-C9-Fe1	59.64(15)
C8-Fe1-C9-C10	119.47(18)
C7-Fe1-C9-C10	81.55(13)
C5-Fe1-C9-C10	-86.25(15)
C1-Fe1-C9-C10	-56.6(2)
C2-Fe1-C9-C10	176.1(4)
C3-Fe1-C9-C10	-166.01(14)
C4-Fe1-C9-C10	-127.93(14)
C6-Fe1-C9-C10	36.87(12)
C7-Fe1-C9-C8	-37.91(12)
C5-Fe1-C9-C8	154.29(14)
C1-Fe1-C9-C8	-176.06(18)
C2-Fe1-C9-C8	56.6(4)
C10-Fe1-C9-C8	-119.47(18)
C3-Fe1-C9-C8	74.52(17)
C4-Fe1-C9-C8	112.61(14)
C6-Fe1-C9-C8	-82.59(13)
C8-C9-C10-C6	0.0(3)
Fe1-C9-C10-C6	-58.94(15)
C8-C9-C10-Fe1	58.91(16)
C7-C6-C10-C9	-0.1(2)
C32-C6-C10-C9	-177.46(19)
Fe1-C6-C10-C9	58.71(15)
C7-C6-C10-Fe1	-58.85(13)
C32-C6-C10-Fe1	123.8(2)
C8-Fe1-C10-C9	-37.54(13)
C7-Fe1-C10-C9	-81.94(14)
C5-Fe1-C10-C9	109.26(15)
C1-Fe1-C10-C9	151.28(14)
C2-Fe1-C10-C9	-177.9(2)
C3-Fe1-C10-C9	43.2(4)
C4-Fe1-C10-C9	69.43(17)
C6-Fe1-C10-C9	-120.72(18)
C8-Fe1-C10-C6	83.18(13)
C7-Fe1-C10-C6	38.78(12)
C5-Fe1-C10-C6	-130.02(14)
C9-Fe1-C10-C6	120.72(18)
C1-Fe1-C10-C6	-88.00(15)
C2-Fe1-C10-C6	-57.2(3)
C3-Fe1-C10-C6	163.9(3)
C4-Fe1-C10-C6	-169.85(14)
O1-P1-C11-C12	-35.3(2)
C7-P1-C11-C12	90.06(18)
C17-P1-C11-C12	-160.76(17)
O1-P1-C11-C16	146.01(18)
C7-P1-C11-C16	-88.6(2)
C17-P1-C11-C16	20.5(2)
C16-C11-C12-C13	0.6(3)
P1-C11-C12-C13	-178.11(19)
C11-C12-C13-C14	-0.7(4)
C12-C13-C14-C15	0.3(4)
C13-C14-C15-C16	0.1(4)
C12-C11-C16-C15	-0.2(3)
P1-C11-C16-C15	178.47(19)
C14-C15-C16-C11	-0.2(4)
O1-P1-C17-C18	130.04(17)
C7-P1-C17-C18	2.6(2)
C11-P1-C17-C18	-106.42(18)
O1-P1-C17-C26	-54.2(2)
C7-P1-C17-C26	178.30(17)
C11-P1-C17-C26	69.34(19)
C26-C17-C18-C19	-0.7(3)
P1-C17-C18-C19	175.15(17)
C17-C18-C19-C20	0.0(4)
C18-C19-C20-C21	0.7(4)
C19-C20-C21-C22	178.3(2)
C19-C20-C21-C26	-0.8(4)
C20-C21-C22-C23	-179.7(3)
C26-C21-C22-C23	-0.6(4)
C21-C22-C23-C24	-0.6(4)
C22-C23-C24-C25	1.0(4)
C23-C24-C25-C26	0.0(4)
C24-C25-C26-C21	-1.1(3)
C24-C25-C26-C17	179.3(2)
C20-C21-C26-C25	-179.5(2)
C22-C21-C26-C25	1.4(3)
C20-C21-C26-C17	0.1(3)
C22-C21-C26-C17	-179.0(2)
C18-C17-C26-C25	-179.9(2)
P1-C17-C26-C25	4.3(3)
C18-C17-C26-C21	0.6(3)
P1-C17-C26-C21	-175.20(16)
C33-Fe2-C27-C28	68.6(2)
C34-Fe2-C27-C28	22.8(7)
C31-Fe2-C27-C28	-118.6(3)
C30-Fe2-C27-C28	-80.75(19)
C29-Fe2-C27-C28	-37.30(17)
C35-Fe2-C27-C28	-166.77(19)

C32-Fe2-C27-C28	111.30(17)
C36-Fe2-C27-C28	154.82(16)
C33-Fe2-C27-C31	-172.85(16)
C34-Fe2-C27-C31	141.4(6)
C28-Fe2-C27-C31	118.6(3)
C30-Fe2-C27-C31	37.84(18)
C29-Fe2-C27-C31	81.28(19)
C35-Fe2-C27-C31	-48.2(3)
C32-Fe2-C27-C31	-130.11(17)
C36-Fe2-C27-C31	-86.60(19)
C31-C27-C28-C29	0.3(3)
Fe2-C27-C28-C29	59.91(19)
C31-C27-C28-Fe2	-59.66(19)
C33-Fe2-C28-C29	108.07(17)
C34-Fe2-C28-C29	65.8(2)
C31-Fe2-C28-C29	-81.47(19)
C30-Fe2-C28-C29	-37.58(18)
C27-Fe2-C28-C29	-119.4(3)
C35-Fe2-C28-C29	28.6(6)
C32-Fe2-C28-C29	152.65(16)
C36-Fe2-C28-C29	-171.55(19)
C33-Fe2-C28-C27	-132.58(17)
C34-Fe2-C28-C27	-174.83(16)
C31-Fe2-C28-C27	37.89(18)
C30-Fe2-C28-C27	81.8(2)
C29-Fe2-C28-C27	119.4(3)
C35-Fe2-C28-C27	148.0(4)
C32-Fe2-C28-C27	-87.99(19)
C36-Fe2-C28-C27	-52.2(3)
C27-C28-C29-C30	-0.2(3)
Fe2-C28-C29-C30	59.81(19)
C27-C28-C29-Fe2	-59.97(18)
C33-Fe2-C29-C30	151.65(18)
C34-Fe2-C29-C30	107.74(19)
C28-Fe2-C29-C30	-119.0(3)
C31-Fe2-C29-C30	-37.8(2)
C27-Fe2-C29-C30	-81.5(2)
C35-Fe2-C29-C30	68.7(2)
C32-Fe2-C29-C30	-174.2(2)
C36-Fe2-C29-C30	42.9(6)
C33-Fe2-C29-C28	-89.36(19)
C34-Fe2-C29-C28	-133.27(17)
C31-Fe2-C29-C28	81.2(2)
C30-Fe2-C29-C28	119.0(3)
C27-Fe2-C29-C28	37.47(18)
C35-Fe2-C29-C28	-172.35(16)
C32-Fe2-C29-C28	-55.2(3)
C36-Fe2-C29-C28	161.9(4)
C28-C29-C30-C31	0.0(3)
Fe2-C29-C30-C31	59.73(19)
C28-C29-C30-Fe2	-59.73(19)
C33-Fe2-C30-C29	-53.1(3)
C34-Fe2-C30-C29	-87.9(2)
C28-Fe2-C30-C29	37.55(19)
C31-Fe2-C30-C29	118.9(3)
C27-Fe2-C30-C29	81.2(2)
C35-Fe2-C30-C29	-130.46(19)
C32-Fe2-C30-C29	165.5(5)
C36-Fe2-C30-C29	-168.62(17)
C33-Fe2-C30-C31	-172.04(19)
C34-Fe2-C30-C31	153.20(19)
C28-Fe2-C30-C31	-81.4(2)
C29-Fe2-C30-C31	-118.9(3)
C27-Fe2-C30-C31	-37.71(19)
C35-Fe2-C30-C31	110.6(2)
C32-Fe2-C30-C31	46.6(7)
C36-Fe2-C30-C31	72.5(2)
C28-C27-C31-C30	-0.3(3)
Fe2-C27-C31-C30	-59.8(2)
C28-C27-C31-Fe2	59.59(18)
C29-C30-C31-C27	0.2(3)
Fe2-C30-C31-C27	60.01(19)
C29-C30-C31-Fe2	-59.9(2)
C33-Fe2-C31-C27	34.5(7)
C34-Fe2-C31-C27	-168.20(18)
C28-Fe2-C31-C27	-37.84(18)
C30-Fe2-C31-C27	-118.8(3)
C29-Fe2-C31-C27	-81.3(2)
C35-Fe2-C31-C27	155.29(17)
C32-Fe2-C31-C27	72.1(2)
C36-Fe2-C31-C27	112.19(18)
C33-Fe2-C31-C30	153.3(6)
C34-Fe2-C31-C30	-49.4(3)
C28-Fe2-C31-C30	81.0(2)
C29-Fe2-C31-C30	37.52(19)
C27-Fe2-C31-C30	118.8(3)
C35-Fe2-C31-C30	-85.9(2)
C32-Fe2-C31-C30	-169.07(17)
C36-Fe2-C31-C30	-129.00(19)
C10-C6-C32-C36	-119.8(2)
C7-C6-C32-C36	63.4(3)
Fe1-C6-C32-C36	-28.3(3)
C10-C6-C32-C33	62.2(3)
C7-C6-C32-C33	-114.5(2)
Fe1-C6-C32-C33	153.76(16)
C10-C6-C32-Fe2	-26.8(3)
C7-C6-C32-Fe2	156.39(16)
Fe1-C6-C32-Fe2	64.7(2)
C33-Fe2-C32-C36	-118.62(18)
C34-Fe2-C32-C36	-79.77(14)
C28-Fe2-C32-C36	154.75(15)
C31-Fe2-C32-C36	70.07(19)
C30-Fe2-C32-C36	31.3(6)
C29-Fe2-C32-C36	-168.0(2)
C27-Fe2-C32-C36	111.16(15)
C35-Fe2-C32-C36	-36.42(13)
C34-Fe2-C32-C33	38.86(12)
C28-Fe2-C32-C33	-86.63(15)
C31-Fe2-C32-C33	-171.31(16)
C30-Fe2-C32-C33	150.0(6)
C29-Fe2-C32-C33	-49.4(3)
C27-Fe2-C32-C33	-130.22(14)
C35-Fe2-C32-C33	82.21(13)
C36-Fe2-C32-C33	118.62(18)
C33-Fe2-C32-C6	119.5(2)
C34-Fe2-C32-C6	158.3(2)
C28-Fe2-C32-C6	32.8(2)
C31-Fe2-C32-C6	-51.9(2)
C30-Fe2-C32-C6	-90.6(6)
C29-Fe2-C32-C6	70.1(3)
C27-Fe2-C32-C6	-10.8(2)
C35-Fe2-C32-C6	-158.3(2)
C36-Fe2-C32-C6	-121.9(2)
C36-C32-C33-C34	-0.3(2)
C6-C32-C33-C34	177.99(19)
Fe2-C32-C33-C34	-59.84(14)
C36-C32-C33-P2	-175.64(16)
C6-C32-C33-P2	2.7(3)
Fe2-C32-C33-P2	124.83(18)
C36-C32-C33-Fe2	59.52(14)
C6-C32-C33-Fe2	-122.2(2)
O2-P2-C33-C34	151.92(18)
C43-P2-C33-C34	-80.7(2)
C37-P2-C33-C34	27.5(2)
O2-P2-C33-C32	-33.5(2)
C43-P2-C33-C32	93.9(2)

C37-P2-C33-C32	-157.92(19)
O2-P2-C33-Fe2	62.15(17)
C43-P2-C33-Fe2	-170.50(13)
C37-P2-C33-Fe2	-62.30(16)
C28-Fe2-C33-C34	-129.42(15)
C31-Fe2-C33-C34	161.7(6)
C30-Fe2-C33-C34	-51.5(3)
C29-Fe2-C33-C34	-86.47(16)
C27-Fe2-C33-C34	-168.97(15)
C35-Fe2-C33-C34	37.36(13)
C32-Fe2-C33-C34	117.90(18)
C36-Fe2-C33-C34	80.45(14)
C34-Fe2-C33-C32	-117.90(18)
C28-Fe2-C33-C32	112.68(14)
C31-Fe2-C33-C32	43.8(7)
C30-Fe2-C33-C32	-169.4(2)
C29-Fe2-C33-C32	155.63(14)
C27-Fe2-C33-C32	73.13(17)
C35-Fe2-C33-C32	-80.54(13)
C36-Fe2-C33-C32	-37.45(12)
C34-Fe2-C33-P2	117.7(2)
C28-Fe2-C33-P2	-11.73(18)
C31-Fe2-C33-P2	-80.6(7)
C30-Fe2-C33-P2	66.2(3)
C29-Fe2-C33-P2	31.22(19)
C27-Fe2-C33-P2	-51.3(2)
C35-Fe2-C33-P2	155.05(17)
C32-Fe2-C33-P2	-124.4(2)
C36-Fe2-C33-P2	-161.85(17)
C32-C33-C34-C35	0.1(2)
P2-C33-C34-C35	175.68(16)
Fe2-C33-C34-C35	-60.66(16)
C32-C33-C34-Fe2	60.75(14)
P2-C33-C34-Fe2	-123.67(16)
C33-Fe2-C34-C35	118.97(19)
C28-Fe2-C34-C35	-168.30(15)
C31-Fe2-C34-C35	-55.6(2)
C30-Fe2-C34-C35	-88.22(17)
C29-Fe2-C34-C35	-130.47(15)
C27-Fe2-C34-C35	172.6(6)
C32-Fe2-C34-C35	80.18(14)
C36-Fe2-C34-C35	36.99(13)
C28-Fe2-C34-C33	72.73(18)
C31-Fe2-C34-C33	-174.54(19)
C30-Fe2-C34-C33	152.81(15)
C29-Fe2-C34-C33	110.56(15)
C27-Fe2-C34-C33	53.6(6)
C35-Fe2-C34-C33	-118.97(19)
C32-Fe2-C34-C33	-38.79(12)
C36-Fe2-C34-C33	-81.98(13)
C33-C34-C35-C36	0.2(3)
Fe2-C34-C35-C36	-59.28(17)
C33-C34-C35-Fe2	59.45(15)
C33-Fe2-C35-C34	-38.56(13)
C28-Fe2-C35-C34	45.5(5)
C31-Fe2-C35-C34	150.13(15)
C30-Fe2-C35-C34	107.58(16)
C29-Fe2-C35-C34	68.75(18)
C27-Fe2-C35-C34	-177.4(2)
C32-Fe2-C35-C34	-83.37(14)
C36-Fe2-C35-C34	-119.89(19)
C33-Fe2-C35-C36	81.33(13)
C34-Fe2-C35-C36	119.89(19)
C28-Fe2-C35-C36	165.4(4)
C31-Fe2-C35-C36	-89.98(16)
C30-Fe2-C35-C36	-132.52(15)
C29-Fe2-C35-C36	-171.36(14)
C27-Fe2-C35-C36	-57.5(3)
C32-Fe2-C35-C36	36.52(12)
C34-C35-C36-C32	-0.4(3)
Fe2-C35-C36-C32	-58.63(15)
C34-C35-C36-Fe2	58.24(16)
C33-C32-C36-C35	0.4(2)
C6-C32-C36-C35	-177.9(2)
Fe2-C32-C36-C35	58.55(16)
C33-C32-C36-Fe2	-58.12(14)
C6-C32-C36-Fe2	123.6(2)
C33-Fe2-C36-C35	-82.25(14)
C34-Fe2-C36-C35	-37.24(13)
C28-Fe2-C36-C35	-173.3(2)
C31-Fe2-C36-C35	107.68(16)
C30-Fe2-C36-C35	66.65(19)
C29-Fe2-C36-C35	31.8(5)
C27-Fe2-C36-C35	150.93(15)
C32-Fe2-C36-C35	-120.99(18)
C33-Fe2-C36-C32	38.75(12)
C34-Fe2-C36-C32	83.75(14)
C28-Fe2-C36-C32	-52.3(3)
C31-Fe2-C36-C32	-131.33(15)
C30-Fe2-C36-C32	-172.35(16)
C29-Fe2-C36-C32	152.8(4)
C27-Fe2-C36-C32	-88.07(16)
C35-Fe2-C36-C32	120.99(18)
O2-P2-C37-C38	-25.1(2)
C33-P2-C37-C38	101.06(19)
C43-P2-C37-C38	-149.42(18)
O2-P2-C37-C42	152.59(18)
C33-P2-C37-C42	-81.2(2)
C43-P2-C37-C42	28.3(2)
C42-C37-C38-C39	1.0(3)
P2-C37-C38-C39	178.82(18)
C37-C38-C39-C40	-1.4(4)
C38-C39-C40-C41	0.8(4)
C39-C40-C41-C42	0.1(4)
C38-C37-C42-C41	0.0(3)
P2-C37-C42-C41	-177.76(18)
C40-C41-C42-C37	-0.5(4)
O2-P2-C43-C44	127.55(18)
C33-P2-C43-C44	0.2(2)
C37-P2-C43-C44	-110.04(19)
O2-P2-C43-C52	-56.1(2)
C33-P2-C43-C52	176.51(17)
C37-P2-C43-C52	66.29(19)
C52-C43-C44-C45	-0.3(3)
P2-C43-C44-C45	175.98(19)
C43-C44-C45-C46	0.3(4)
C44-C45-C46-C47	-0.1(4)
C45-C46-C47-C48	-179.8(3)
C45-C46-C47-C52	0.0(4)
C46-C47-C48-C49	178.5(3)
C52-C47-C48-C49	-1.4(4)
C47-C48-C49-C50	0.9(5)
C48-C49-C50-C51	0.2(5)
C49-C50-C51-C52	-0.9(4)
C50-C51-C52-C47	0.5(4)
C50-C51-C52-C43	-178.6(2)
C46-C47-C52-C51	-179.2(2)
C48-C47-C52-C51	0.7(3)
C46-C47-C52-C43	-0.1(3)
C48-C47-C52-C43	179.8(2)
C44-C43-C52-C51	179.3(2)
P2-C43-C52-C51	3.0(3)
C44-C43-C52-C47	0.2(3)
P2-C43-C52-C47	-176.12(16)

Non-bonding distances					
			5.3420 (0.0012)	P1 - P2
			6.1757 (0.0023)	O1 - O2
4.4063 (0.0009)	Fe1 - Fe2		3.4419 (0.0010)	Fe2 - P2
3.4865 (0.0009)	Fe1 - P1		3.9889 (0.0018)	Fe2 - O2
4.0319 (0.0019)	Fe1 - O1			

Table S16. Crystal data and structure refinement for (±)-2,2'-Bis(1-naphthylphenylphosphino)-1,1'-biferrocenyl bisdichloromethane solvate, (±)-**1a**·2CH_2Cl_2, $C_{52}H_{40}Fe_2P_2$·2CH_2Cl_2.

Identification code	widij4fr
Empirical formula	C_{54} H_{40} Cl_4 Fe_2 P_2 (with 2 solvent CH_2Cl_2)
Formula weight	1004.30
Temperature	213(2) K
Wavelength	0.71073 Å
Crystal system, space group	orthorhombic, Pbcn (No. 60)
Unit cell dimensions	a = 16.392(8) Å α = 90° b = 17.161(8) Å β = 90° c = 16.522(8) Å γ = 90°
Volume	4648(4) Å^3
Z, Calculated density	4, 1.435 Mg/m^3
Absorption coefficient	0.960 mm^{-1}
F(000)	2056
Crystal size	0.3 x 0.3 x 0.2 mm, orange fragment from CD_2Cl_2
Diffractometer	Siemens SMART 3-circle with CCD area detector (sealed X-ray tube, Mo Kα radiation, graphite monochr., det.dist. 44.50 mm, 512x512 pixels)
Scan type / width / speed	ω-scan frames / Δω = 0.3° / 30 sec. per frame full sphere, 4 x 606 frames
Theta range for data collection	2.11° to 27.00°
Index ranges	-20 ≤ h ≤ 20, -21 ≤ k ≤ 21, -21 ≤ l ≤ 21
Reflections collected / unique	51546 / 5008 [R(int)= 0.041, R(sigma)= 0.018]
Completeness to theta = 27.00	89.5%
Absorption correction	Empirical (program SADABS; Sheldrick, 1996)
Transmission factors	0.862 - 0.685
Structure solution	Direct methods (program SHELXS97)
Refinement method	Full-matrix least-squares on F^2 (prg SHELXL97)
Data / restraints / parameters	5008 / 0 / 334
Goodness-of-fit on F^2	1.121
Final R indices [I>2sigma(I)]	R1 = 0.0363, wR2 = 0.0813 (4463 data)
R indices (all data)	R1 = 0.0429, wR2 = 0.0847 (5008 data)
Extinction coefficient	0.00049(8)
Largest diff. peak and hole	0.280 and -0.253 e Å^{-3}

$R1 = \Sigma||F_o|-|F_c||/\Sigma|F_o|$, $wR2 = [\Sigma(w(F_o^2-F_c^2)^2)/\Sigma(w(F_o^2)^2)]^{1/2}$

Table S17. Atomic coordinates and equivalent isotropic displacement parameters (Å^2 x 10^3 for (±)-2,2'-Bis(1-naphthylphenylphosphino)-1,1'-biferrocenyl bisdichloromethane solvate, (±)-**1a**·2CH_2Cl_2, $C_{52}H_{40}Fe_2P_2$·2CH_2Cl_2. U_{eq} is defined as one third of the trace of the orthogonalized U_{ij} tensor.

	x	y	z	U_{eq}
Fe	0.43932(2)	0.81435(2)	0.87375(2)	26(1)
P	0.64433(3)	0.78753(3)	0.86142(3)	28(1)
C(1)	0.41433(13)	0.91701(12)	0.81583(12)	34(1)
C(2)	0.47130(13)	0.92964(12)	0.87912(13)	35(1)
C(3)	0.43470(14)	0.90622(13)	0.95298(13)	39(1)
C(4)	0.35503(13)	0.87923(13)	0.93514(13)	40(1)
C(5)	0.34238(13)	0.88582(12)	0.85053(14)	38(1)
C(6)	0.48892(11)	0.73508(10)	0.79347(11)	25(1)

C(7)		0.54201(11)	0.74653(11)	0.86318(11)	27(1)
C(8)		0.49626(12)	0.72574(11)	0.93398(11)	31(1)
C(9)		0.41661(13)	0.70274(12)	0.90998(12)	33(1)
C(10)		0.41194(12)	0.70828(11)	0.82425(12)	29(1)
C(11)		0.66094(11)	0.81154(12)	0.96926(11)	30(1)
C(12)		0.66398(15)	0.88949(13)	0.99134(14)	43(1)
C(13)		0.67869(17)	0.91106(15)	1.07134(16)	54(1)
C(14)		0.69180(15)	0.85490(16)	1.12926(14)	48(1)
C(15)		0.68909(13)	0.77782(15)	1.10827(13)	42(1)
C(16)		0.67381(12)	0.75568(13)	1.02902(12)	35(1)
C(17)		0.70880(13)	0.69935(14)	0.85558(12)	37(1)
C(18)		0.67756(17)	0.62607(14)	0.85149(14)	47(1)
C(19)		0.72910(20)	0.55987(18)	0.84342(17)	72(1)
C(20)		0.81060(20)	0.56890(20)	0.83973(16)	79(1)
C(21)		0.84649(18)	0.64270(30)	0.84384(14)	71(1)
C(22)		0.93290(20)	0.65480(40)	0.84047(19)	104(2)
C(23)		0.96640(20)	0.72600(40)	0.84510(20)	114(2)
C(24)		0.91690(18)	0.79110(30)	0.85304(19)	92(1)
C(25)		0.83326(15)	0.78400(20)	0.85557(16)	64(1)
C(26)		0.79605(14)	0.71035(18)	0.85165(12)	49(1)
C(27S)	§	0.3855(6)	0.5044(4)	0.8704(6)	208(6)
Cl(1A)	§	0.3991(10)	0.4272(7)	0.8072(12)	129(5)
Cl(1B)	§	0.4594(6)	0.4969(6)	0.7917(5)	195(6)
Cl(1C)	§	0.3828(11)	0.4231(9)	0.8540(40)	260(20)
Cl(1D)	§	0.3845(12)	0.4308(15)	0.8161(14)	116(7)
Cl(2A)	§	0.3947(14)	0.4773(15)	0.9705(17)	393(19)
Cl(2B)	§	0.3617(5)	0.4758(3)	0.9709(4)	106(3)
Cl(2C)	§	0.4521(17)	0.4787(12)	0.9590(14)	278(12)

§ CH_2Cl_2 solvent molecule with disordered Cl sites. Refined site occupancies C(27S) 1.15(2), Cl(1A) 0.30(3), Cl(1B) 0.28(1), Cl(1C) 0.22(2), Cl(1D) 0.19(3), Cl(2A) 0.42(2), Cl(2B) 0.31(1), Cl(2C) 0.24(1).

Table S18. Hydrogen coordinates and isotropic displacement parameters ($Å^2$ x 10^3) for (±)-2,2'-Bis(1-naphthylphenylphosphino)-1,1'-biferrocenyl bisdichloromethane solvate, (±)-**1a**·$2CH_2Cl_2$, $C_{52}H_{40}Fe_2P_2 \cdot 2CH_2Cl_2$.

	x	y	z	U_{iso}
H(1)	0.4228	0.9275	0.7606	41
H(2)	0.5242	0.9500	0.8731	42
H(3)	0.4589	0.9082	1.0045	46
H(4)	0.3171	0.8602	0.9729	48
H(5)	0.2947	0.8719	0.8224	45
H(8)	0.5158	0.7271	0.9875	37
H(9)	0.3744	0.6867	0.9447	40
H(10)	0.3658	0.6963	0.7928	35
H(12)	0.6560	0.9282	0.9519	52
H(13)	0.6797	0.9640	1.0857	65
H(14)	0.7026	0.8694	1.1831	57
H(15)	0.6977	0.7395	1.1480	50
H(16)	0.6721	0.7025	1.0155	42
H(18)	0.6208	0.6190	0.8541	56
H(19)	0.7062	0.5097	0.8407	87
H(20)	0.8441	0.5247	0.8343	95
H(22)	0.9674	0.6113	0.8348	124
H(23)	1.0234	0.7318	0.8430	137
H(24)	0.9408	0.8408	0.8567	111
H(25)	0.8007	0.8289	0.8600	77

Hydrogen atoms were inserted in idealized positions and were refined riding with the atoms to which they were bonded. All hydrogen atoms had $U_{iso} = U_{eq}$ x 1.2 of their carrier atoms.

Table S19. Anisotropic displacement parameters ($Å^2$ x 10^3) for (±)-2,2'-Bis(1-naphthylphenylphosphino)-1,1'-biferrocenyl bisdichloromethane solvate, (±)-**1a**·$2CH_2Cl_2$, $C_{52}H_{40}Fe_2P_2 \cdot 2CH_2Cl_2$. The anisotropic displacement factor exponent takes the form: $-2\pi^2 [h^2 a^{*2} U_{11} + ... + 2 h k a^* b^* U_{12}]$

	U_{11}	U_{22}	U_{33}	U_{23}	U_{13}	U_{12}
Fe	25(1)	29(1)	24(1)	1(1)	1(1)	1(1)
P	26(1)	33(1)	26(1)	2(1)	-4(1)	2(1)
C(1)	39(1)	31(1)	33(1)	4(1)	2(1)	9(1)
C(2)	35(1)	29(1)	42(1)	-4(1)	3(1)	0(1)
C(3)	48(1)	37(1)	30(1)	-7(1)	1(1)	6(1)
C(4)	37(1)	43(1)	41(1)	-1(1)	14(1)	7(1)
C(5)	29(1)	37(1)	46(1)	-2(1)	0(1)	8(1)
C(6)	26(1)	23(1)	27(1)	1(1)	-3(1)	1(1)
C(7)	29(1)	26(1)	25(1)	1(1)	-2(1)	4(1)
C(8)	35(1)	32(1)	26(1)	4(1)	-2(1)	3(1)
C(9)	36(1)	34(1)	31(1)	7(1)	3(1)	-3(1)
C(10)	30(1)	27(1)	31(1)	2(1)	-2(1)	-3(1)
C(11)	24(1)	36(1)	29(1)	-2(1)	-4(1)	2(1)
C(12)	50(1)	35(1)	44(1)	-2(1)	-13(1)	4(1)
C(13)	66(2)	41(1)	54(2)	-17(1)	-14(1)	8(1)
C(14)	45(1)	66(2)	33(1)	-15(1)	-7(1)	10(1)
C(15)	39(1)	57(1)	30(1)	4(1)	-5(1)	10(1)
C(16)	34(1)	39(1)	33(1)	1(1)	-6(1)	5(1)
C(17)	36(1)	52(1)	23(1)	1(1)	-3(1)	15(1)
C(18)	59(2)	43(1)	38(1)	2(1)	-1(1)	19(1)
C(19)	116(3)	56(2)	45(1)	6(1)	8(2)	44(2)
C(20)	96(3)	101(3)	39(1)	17(2)	14(2)	70(2)
C(21)	56(2)	135(3)	22(1)	15(1)	7(1)	55(2)
C(22)	54(2)	221(6)	36(2)	25(2)	11(2)	75(3)
C(23)	31(2)	268(7)	44(2)	12(3)	4(1)	30(3)
C(24)	36(2)	190(4)	51(2)	0(2)	0(1)	-19(2)
C(25)	32(1)	120(3)	41(1)	-4(2)	-1(1)	-4(2)
C(26)	34(1)	91(2)	22(1)	1(1)	-1(1)	22(1)
C(27S)	257(10)	96(5)	270(11)	20(5)	103(8)	30(5)
Cl(1A)	109(7)	103(7)	177(9)	-41(7)	9(5)	53(7)
Cl(1B)	233(11)	171(9)	181(7)	-14(5)	8(6)	91(8)
Cl(1C)	90(7)	67(7)	620(60)	75(17)	30(20)	-18(5)
Cl(1D)	60(7)	144(17)	143(14)	33(11)	4(5)	-33(8)
Cl(2A)	208(14)	420(30)	550(40)	350(30)	141(14)	38(13)
Cl(2B)	107(4)	97(4)	115(5)	22(3)	21(3)	-15(2)
Cl(2C)	250(20)	309(19)	275(19)	-62(14)	-82(14)	84(14)

§ CH_2Cl_2 solvent molecule with disordered Cl sites, see Table 2.

Table S20. Complete bond lengths [Å] and angles [deg] for (±)-2,2'-Bis(1-naphthylphenylphosphino)-1,1'-biferrocenyl bisdichloromethane solvate, (±)-**1a**·$2CH_2Cl_2$, $C_{52}H_{40}Fe_2P_2 \cdot 2CH_2Cl_2$.

Bond lengths			
		P-C(17)	1.848(2)
		P-C(11)	1.849(2)
Fe-C(9)	2.041(2)	C(1)-C(5)	1.416(3)
Fe-C(8)	2.043(2)	C(1)-C(2)	1.419(3)
Fe-C(5)	2.044(2)	C(1)-H(1)	0.94
Fe-C(4)	2.044(2)	C(2)-C(3)	1.418(3)
Fe-C(10)	2.045(2)	C(2)-H(2)	0.94
Fe-C(1)	2.046(2)	C(3)-C(4)	1.417(3)
Fe-C(2)	2.049(2)	C(3)-H(3)	0.94
Fe-C(3)	2.051(2)	C(4)-C(5)	1.418(3)
Fe-C(7)	2.054(2)	C(4)-H(4)	0.94
Fe-C(6)	2.067(2)	C(5)-H(5)	0.94
P-C(7)	1.819(2)	C(6)-C(10)	1.436(3)

C(6)-C(7)	1.457(2)
C(6)-C(6)#1	1.482(4)
C(7)-C(8)	1.435(3)
C(8)-C(9)	1.420(3)
C(8)-H(8)	0.94
C(9)-C(10)	1.422(3)
C(9)-H(9)	0.94
C(10)-H(10)	0.94
C(11)-C(12)	1.387(3)
C(11)-C(16)	1.392(3)
C(12)-C(13)	1.394(3)
C(12)-H(12)	0.94
C(13)-C(14)	1.375(4)
C(13)-H(13)	0.94
C(14)-C(15)	1.368(4)
C(14)-H(14)	0.94
C(15)-C(16)	1.386(3)
C(15)-H(15)	0.94
C(16)-H(16)	0.94
C(17)-C(18)	1.360(3)
C(17)-C(26)	1.444(3)
C(18)-C(19)	1.422(3)
C(18)-H(18)	0.94
C(19)-C(20)	1.347(5)
C(19)-H(19)	0.94
C(20)-C(21)	1.397(5)
C(20)-H(20)	0.94
C(21)-C(26)	1.432(4)
C(21)-C(22)	1.433(5)
C(22)-C(23)	1.342(7)
C(22)-H(22)	0.94
C(23)-C(24)	1.386(7)
C(23)-H(23)	0.94
C(24)-C(25)	1.377(4)
C(24)-H(24)	0.94
C(25)-C(26)	1.405(4)
C(25)-H(25)	0.94
C(27S)-Cl(1C)	1.42(2)
C(27S)-Cl(1D)	1.55(3)
C(27S)-Cl(1A)	1.701(12)
C(27S)-Cl(2A)	1.72(3)
C(27S)-Cl(2B)	1.776(11)
C(27S)-Cl(1B)	1.781(10)
C(27S)-Cl(2C)	1.878(16)

Bond angles

C(9)-Fe-C(8)	40.71(8)
C(9)-Fe-C(5)	118.45(9)
C(8)-Fe-C(5)	153.30(8)
C(9)-Fe-C(4)	104.03(9)
C(8)-Fe-C(4)	118.20(9)
C(5)-Fe-C(4)	40.59(9)
C(9)-Fe-C(10)	40.72(8)
C(8)-Fe-C(10)	68.45(8)
C(5)-Fe-C(10)	106.76(9)
C(4)-Fe-C(10)	122.33(9)
C(9)-Fe-C(1)	155.31(9)
C(8)-Fe-C(1)	163.76(8)
C(5)-Fe-C(1)	40.52(8)
C(4)-Fe-C(1)	68.15(9)
C(10)-Fe-C(1)	122.36(9)
C(9)-Fe-C(2)	160.10(9)
C(8)-Fe-C(2)	125.51(9)
C(5)-Fe-C(2)	68.13(9)
C(4)-Fe-C(2)	68.00(9)
C(10)-Fe-C(2)	158.89(8)
C(1)-Fe-C(2)	40.54(9)
C(9)-Fe-C(3)	121.85(9)
C(8)-Fe-C(3)	106.16(9)
C(5)-Fe-C(3)	68.27(9)
C(4)-Fe-C(3)	40.49(9)
C(10)-Fe-C(3)	158.65(8)
C(1)-Fe-C(3)	68.23(9)
C(2)-Fe-C(3)	40.47(9)
C(9)-Fe-C(7)	69.06(8)
C(8)-Fe-C(7)	41.00(7)
C(5)-Fe-C(7)	164.01(8)
C(4)-Fe-C(7)	154.82(8)
C(10)-Fe-C(7)	68.99(8)
C(1)-Fe-C(7)	127.74(8)
C(2)-Fe-C(7)	109.95(8)
C(3)-Fe-C(7)	121.35(8)
C(9)-Fe-C(6)	69.04(8)
C(8)-Fe-C(6)	69.08(8)
C(5)-Fe-C(6)	125.48(8)
C(4)-Fe-C(6)	160.56(8)
C(10)-Fe-C(6)	40.88(7)
C(1)-Fe-C(6)	110.20(8)
C(2)-Fe-C(6)	124.25(8)
C(3)-Fe-C(6)	158.49(8)
C(7)-Fe-C(6)	41.41(7)
C(7)-P-C(17)	102.21(10)
C(7)-P-C(11)	101.92(8)
C(17)-P-C(11)	98.54(9)
C(5)-C(1)-C(2)	107.91(19)
C(5)-C(1)-Fe	69.64(12)
C(2)-C(1)-Fe	69.82(12)
C(5)-C(1)-H(1)	126.0
C(2)-C(1)-H(1)	126.0
Fe-C(1)-H(1)	126.1
C(3)-C(2)-C(1)	108.21(19)
C(3)-C(2)-Fe	69.84(12)
C(1)-C(2)-Fe	69.64(12)
C(3)-C(2)-H(2)	125.9
C(1)-C(2)-H(2)	125.9
Fe-C(2)-H(2)	126.2
C(4)-C(3)-C(2)	107.68(19)
C(4)-C(3)-Fe	69.50(12)
C(2)-C(3)-Fe	69.69(12)
C(4)-C(3)-H(3)	126.2
C(2)-C(3)-H(3)	126.2
Fe-C(3)-H(3)	126.2
C(3)-C(4)-C(5)	108.29(19)
C(3)-C(4)-Fe	70.01(12)
C(5)-C(4)-Fe	69.70(12)
C(3)-C(4)-H(4)	125.9
C(5)-C(4)-H(4)	125.9
Fe-C(4)-H(4)	126.0
C(1)-C(5)-C(4)	107.90(19)
C(1)-C(5)-Fe	69.84(12)
C(4)-C(5)-Fe	69.71(12)
C(1)-C(5)-H(5)	126.0
C(4)-C(5)-H(5)	126.0
Fe-C(5)-H(5)	126.0
C(10)-C(6)-C(7)	106.74(16)
C(10)-C(6)-C(6)#1	123.98(19)
C(7)-C(6)-C(6)#1	128.3(2)
C(10)-C(6)-Fe	68.77(11)
C(7)-C(6)-Fe	68.82(10)
C(6)#1-C(6)-Fe	135.95(7)
C(8)-C(7)-C(6)	107.39(16)
C(8)-C(7)-P	126.24(14)
C(6)-C(7)-P	126.18(14)
C(8)-C(7)-Fe	69.09(11)

C(6)-C(7)-Fe	69.77(10)
P-C(7)-Fe	122.54(10)
C(9)-C(8)-C(7)	108.77(17)
C(9)-C(8)-Fe	69.57(11)
C(7)-C(8)-Fe	69.91(11)
C(9)-C(8)-H(8)	125.6
C(7)-C(8)-H(8)	125.6
Fe-C(8)-H(8)	126.5
C(8)-C(9)-C(10)	108.01(17)
C(8)-C(9)-Fe	69.72(11)
C(10)-C(9)-Fe	69.82(11)
C(8)-C(9)-H(9)	126.0
C(10)-C(9)-H(9)	126.0
Fe-C(9)-H(9)	126.0
C(9)-C(10)-C(6)	109.08(17)
C(9)-C(10)-Fe	69.47(12)
C(6)-C(10)-Fe	70.35(11)
C(9)-C(10)-H(10)	125.5
C(6)-C(10)-H(10)	125.5
Fe-C(10)-H(10)	126.3
C(12)-C(11)-C(16)	118.16(19)
C(12)-C(11)-P	118.26(16)
C(16)-C(11)-P	123.53(16)
C(11)-C(12)-C(13)	120.8(2)
C(11)-C(12)-H(12)	119.6
C(13)-C(12)-H(12)	119.6
C(14)-C(13)-C(12)	120.1(2)
C(14)-C(13)-H(13)	120.0
C(12)-C(13)-H(13)	120.0
C(15)-C(14)-C(13)	119.7(2)
C(15)-C(14)-H(14)	120.1
C(13)-C(14)-H(14)	120.1
C(14)-C(15)-C(16)	120.7(2)
C(14)-C(15)-H(15)	119.7
C(16)-C(15)-H(15)	119.7
C(15)-C(16)-C(11)	120.6(2)
C(15)-C(16)-H(16)	119.7
C(11)-C(16)-H(16)	119.7
C(18)-C(17)-C(26)	119.5(2)
C(18)-C(17)-P	122.99(18)
C(26)-C(17)-P	117.49(19)
C(17)-C(18)-C(19)	121.3(3)
C(17)-C(18)-H(18)	119.3
C(19)-C(18)-H(18)	119.3
C(20)-C(19)-C(18)	120.1(3)
C(20)-C(19)-H(19)	119.9
C(18)-C(19)-H(19)	119.9
C(19)-C(20)-C(21)	121.3(3)
C(19)-C(20)-H(20)	119.4
C(21)-C(20)-H(20)	119.4
C(20)-C(21)-C(26)	119.8(3)
C(20)-C(21)-C(22)	123.0(4)
C(26)-C(21)-C(22)	117.2(4)
C(23)-C(22)-C(21)	122.3(4)
C(23)-C(22)-H(22)	118.9
C(21)-C(22)-H(22)	118.9
C(22)-C(23)-C(24)	120.0(3)
C(22)-C(23)-H(23)	120.0
C(24)-C(23)-H(23)	120.0
C(25)-C(24)-C(23)	121.0(4)
C(25)-C(24)-H(24)	119.5
C(23)-C(24)-H(24)	119.5
C(24)-C(25)-C(26)	120.7(4)
C(24)-C(25)-H(25)	119.7
C(26)-C(25)-H(25)	119.7
C(25)-C(26)-C(21)	118.9(3)
C(25)-C(26)-C(17)	123.0(2)
C(21)-C(26)-C(17)	118.0(3)

Cl(1C)-C(27S)-Cl(1D)	24(3)
Cl(1C)-C(27S)-Cl(1A)	29(3)
Cl(1D)-C(27S)-Cl(1A)	8.6(8)
Cl(1C)-C(27S)-Cl(2A)	85(2)
Cl(1D)-C(27S)-Cl(2A)	109.7(12)
Cl(1A)-C(27S)-Cl(2A)	111.6(13)
Cl(1C)-C(27S)-Cl(2B)	84(3)
Cl(1D)-C(27S)-Cl(2B)	108.3(8)
Cl(1A)-C(27S)-Cl(2B)	112.8(9)
Cl(2A)-C(27S)-Cl(2B)	17.7(7)
Cl(1C)-C(27S)-Cl(1B)	79(2)
Cl(1D)-C(27S)-Cl(1B)	61.7(8)
Cl(1A)-C(27S)-Cl(1B)	53.6(7)
Cl(2A)-C(27S)-Cl(1B)	128.4(9)
Cl(2B)-C(27S)-Cl(1B)	144.3(6)
Cl(1C)-C(27S)-Cl(2C)	86(2)
Cl(1D)-C(27S)-Cl(2C)	105.4(10)
Cl(1A)-C(27S)-Cl(2C)	102.7(8)
Cl(2A)-C(27S)-Cl(2C)	30.5(10)
Cl(2B)-C(27S)-Cl(2C)	48.2(11)
Cl(1B)-C(27S)-Cl(2C)	99.0(11)

Torsion angles

C9-Fe-C1-C5	37.9(3)
C8-Fe-C1-C5	-154.2(3)
C4-Fe-C1-C5	-37.81(13)
C10-Fe-C1-C5	77.53(15)
C2-Fe-C1-C5	-119.07(18)
C3-Fe-C1-C5	-81.57(14)
C7-Fe-C1-C5	164.89(12)
C6-Fe-C1-C5	121.42(13)
C9-Fe-C1-C2	156.94(18)
C8-Fe-C1-C2	-35.1(3)
C5-Fe-C1-C2	119.07(18)
C4-Fe-C1-C2	81.26(14)
C10-Fe-C1-C2	-163.40(12)
C3-Fe-C1-C2	37.49(13)
C7-Fe-C1-C2	-76.05(15)
C6-Fe-C1-C2	-119.51(12)
C5-C1-C2-C3	0.1(2)
Fe-C1-C2-C3	-59.39(14)
C5-C1-C2-Fe	59.45(14)
C9-Fe-C2-C3	-31.8(3)
C8-Fe-C2-C3	-71.96(15)
C5-Fe-C2-C3	81.70(14)
C4-Fe-C2-C3	37.79(13)
C10-Fe-C2-C3	161.5(2)
C1-Fe-C2-C3	119.43(18)
C7-Fe-C2-C3	-115.30(13)
C6-Fe-C2-C3	-159.40(12)
C9-Fe-C2-C1	-151.3(2)
C8-Fe-C2-C1	168.61(12)
C5-Fe-C2-C1	-37.73(12)
C4-Fe-C2-C1	-81.65(14)
C10-Fe-C2-C1	42.1(3)
C3-Fe-C2-C1	-119.43(18)
C7-Fe-C2-C1	125.27(12)
C6-Fe-C2-C1	81.17(14)
C1-C2-C3-C4	-0.1(2)
Fe-C2-C3-C4	-59.35(15)
C1-C2-C3-Fe	59.27(14)
C9-Fe-C3-C4	-73.25(15)
C8-Fe-C3-C4	-114.74(13)
C5-Fe-C3-C4	37.61(13)
C10-Fe-C3-C4	-42.8(3)
C1-Fe-C3-C4	81.40(14)

C2-Fe-C3-C4	118.95(19)
C7-Fe-C3-C4	-156.70(12)
C6-Fe-C3-C4	171.44(19)
C9-Fe-C3-C2	167.80(12)
C8-Fe-C3-C2	126.31(13)
C5-Fe-C3-C2	-81.34(14)
C4-Fe-C3-C2	-118.95(19)
C10-Fe-C3-C2	-161.7(2)
C1-Fe-C3-C2	-37.56(13)
C7-Fe-C3-C2	84.35(14)
C6-Fe-C3-C2	52.5(3)
C2-C3-C4-C5	0.1(2)
Fe-C3-C4-C5	-59.40(15)
C2-C3-C4-Fe	59.47(15)
C9-Fe-C4-C3	123.03(13)
C8-Fe-C4-C3	81.84(15)
C5-Fe-C4-C3	-119.38(19)
C10-Fe-C4-C3	162.99(12)
C1-Fe-C4-C3	-81.63(14)
C2-Fe-C4-C3	-37.77(13)
C7-Fe-C4-C3	52.6(3)
C6-Fe-C4-C3	-170.6(2)
C9-Fe-C4-C5	-117.59(14)
C8-Fe-C4-C5	-158.77(13)
C10-Fe-C4-C5	-77.63(15)
C1-Fe-C4-C5	37.75(13)
C2-Fe-C4-C5	81.61(14)
C3-Fe-C4-C5	119.38(19)
C7-Fe-C4-C5	171.94(17)
C6-Fe-C4-C5	-51.2(3)
C2-C1-C5-C4	0.0(2)
Fe-C1-C5-C4	59.55(15)
C2-C1-C5-Fe	-59.56(14)
C3-C4-C5-C1	0.0(2)
Fe-C4-C5-C1	-59.63(15)
C3-C4-C5-Fe	59.59(15)
C9-Fe-C5-C1	-163.04(12)
C8-Fe-C5-C1	164.25(17)
C4-Fe-C5-C1	119.01(19)
C10-Fe-C5-C1	-120.53(13)
C2-Fe-C5-C1	37.74(13)
C3-Fe-C5-C1	81.49(14)
C7-Fe-C5-C1	-48.5(4)
C6-Fe-C5-C1	-79.56(15)
C9-Fe-C5-C4	77.95(15)
C8-Fe-C5-C4	45.2(2)
C10-Fe-C5-C4	120.46(14)
C1-Fe-C5-C4	-119.01(19)
C2-Fe-C5-C4	-81.26(14)
C3-Fe-C5-C4	-37.52(14)
C7-Fe-C5-C4	-167.5(3)
C6-Fe-C5-C4	161.44(13)
C9-Fe-C6-C10	37.10(11)
C8-Fe-C6-C10	80.83(12)
C5-Fe-C6-C10	-73.60(14)
C4-Fe-C6-C10	-35.1(3)
C1-Fe-C6-C10	-116.51(12)
C2-Fe-C6-C10	-159.70(11)
C3-Fe-C6-C10	161.8(2)
C7-Fe-C6-C10	118.81(15)
C9-Fe-C6-C7	-81.71(12)
C8-Fe-C6-C7	-37.98(11)
C5-Fe-C6-C7	167.59(11)
C4-Fe-C6-C7	-153.9(2)
C10-Fe-C6-C7	-118.81(15)
C1-Fe-C6-C7	124.68(11)
C2-Fe-C6-C7	81.49(13)
C3-Fe-C6-C7	43.0(3)
C9-Fe-C6-C6#1	154.5(3)
C8-Fe-C6-C6#1	-161.7(3)
C5-Fe-C6-C6#1	43.8(3)
C4-Fe-C6-C6#1	82.3(3)
C10-Fe-C6-C6#1	117.4(3)
C1-Fe-C6-C6#1	0.9(3)
C2-Fe-C6-C6#1	-42.3(3)
C3-Fe-C6-C6#1	-80.8(3)
C7-Fe-C6-C6#1	-123.8(3)
C10-C6-C7-C8	0.5(2)
C6#1-C6-C7-C8	-168.38(10)
Fe-C6-C7-C8	59.07(13)
C10-C6-C7-P	-174.67(14)
C6#1-C6-C7-P	16.4(2)
Fe-C6-C7-P	-116.14(15)
C10-C6-C7-Fe	-58.53(13)
C6#1-C6-C7-Fe	132.55(9)
C17-P-C7-C8	90.94(18)
C11-P-C7-C8	-10.66(19)
C17-P-C7-C6	-94.73(17)
C11-P-C7-C6	163.67(16)
C17-P-C7-Fe	177.66(10)
C11-P-C7-Fe	76.06(12)
C9-Fe-C7-C8	-37.15(11)
C5-Fe-C7-C8	-158.3(3)
C4-Fe-C7-C8	41.1(2)
C10-Fe-C7-C8	-80.90(12)
C1-Fe-C7-C8	163.77(12)
C2-Fe-C7-C8	121.62(12)
C3-Fe-C7-C8	78.21(14)
C6-Fe-C7-C8	-118.80(16)
C9-Fe-C7-C6	81.65(12)
C8-Fe-C7-C6	118.80(16)
C5-Fe-C7-C6	-39.5(3)
C4-Fe-C7-C6	159.89(18)
C10-Fe-C7-C6	37.90(10)
C1-Fe-C7-C6	-77.43(14)
C2-Fe-C7-C6	-119.58(11)
C3-Fe-C7-C6	-162.98(11)
C9-Fe-C7-P	-157.61(13)
C8-Fe-C7-P	-120.46(16)
C5-Fe-C7-P	81.3(3)
C4-Fe-C7-P	-79.4(2)
C10-Fe-C7-P	158.64(13)
C1-Fe-C7-P	43.31(15)
C2-Fe-C7-P	1.16(13)
C3-Fe-C7-P	-42.25(14)
C6-Fe-C7-P	120.74(16)
C6-C7-C8-C9	-0.6(2)
P-C7-C8-C9	174.58(14)
Fe-C7-C8-C9	58.87(14)
C6-C7-C8-Fe	-59.50(13)
P-C7-C8-Fe	115.71(15)
C5-Fe-C8-C9	46.7(2)
C4-Fe-C8-C9	78.37(14)
C10-Fe-C8-C9	-37.78(12)
C1-Fe-C8-C9	-172.3(3)
C2-Fe-C8-C9	160.35(12)
C3-Fe-C8-C9	120.37(13)
C7-Fe-C8-C9	-120.13(16)
C6-Fe-C8-C9	-81.78(12)
C9-Fe-C8-C7	120.13(16)
C5-Fe-C8-C7	166.88(17)
C4-Fe-C8-C7	-161.50(12)
C10-Fe-C8-C7	82.35(12)
C1-Fe-C8-C7	-52.2(3)
C2-Fe-C8-C7	-79.52(14)
C3-Fe-C8-C7	-119.50(12)

C6-Fe-C8-C7	38.35(11)	C2-Fe-C10-C6	52.8(3)
C7-C8-C9-C10	0.5(2)	C3-Fe-C10-C6	-161.6(2)
Fe-C8-C9-C10	59.55(14)	C7-Fe-C10-C6	-38.38(10)
C7-C8-C9-Fe	-59.08(13)	C7-P-C11-C12	-110.65(18)
C5-Fe-C9-C8	-158.15(12)	C17-P-C11-C12	144.86(18)
C4-Fe-C9-C8	-117.16(13)	C7-P-C11-C16	72.00(18)
C10-Fe-C9-C8	119.14(17)	C17-P-C11-C16	-32.49(19)
C1-Fe-C9-C8	174.87(17)	C16-C11-C12-C13	-0.6(3)
C2-Fe-C9-C8	-53.5(3)	P-C11-C12-C13	-178.1(2)
C3-Fe-C9-C8	-77.31(14)	C11-C12-C13-C14	1.1(4)
C7-Fe-C9-C8	37.41(11)	C12-C13-C14-C15	-1.0(4)
C6-Fe-C9-C8	81.90(12)	C13-C14-C15-C16	0.4(4)
C8-Fe-C9-C10	-119.14(17)	C14-C15-C16-C11	0.0(3)
C5-Fe-C9-C10	82.71(14)	C12-C11-C16-C15	0.1(3)
C4-Fe-C9-C10	123.70(13)	P-C11-C16-C15	177.43(16)
C1-Fe-C9-C10	55.7(2)	C7-P-C17-C18	1.7(2)
C2-Fe-C9-C10	-172.7(2)	C11-P-C17-C18	105.99(19)
C3-Fe-C9-C10	163.55(12)	C7-P-C17-C26	178.94(15)
C7-Fe-C9-C10	-81.73(12)	C11-P-C17-C26	-76.81(17)
C6-Fe-C9-C10	-37.24(12)	C26-C17-C18-C19	0.0(3)
C8-C9-C10-C6	-0.1(2)	P-C17-C18-C19	177.15(18)
Fe-C9-C10-C6	59.37(13)	C17-C18-C19-C20	0.1(4)
C8-C9-C10-Fe	-59.49(14)	C18-C19-C20-C21	0.1(4)
C7-C6-C10-C9	-0.3(2)	C19-C20-C21-C26	-0.4(4)
C6#1-C6-C10-C9	169.26(13)	C19-C20-C21-C22	179.7(3)
Fe-C6-C10-C9	-58.83(14)	C20-C21-C22-C23	-179.5(3)
C7-C6-C10-Fe	58.56(12)	C26-C21-C22-C23	0.6(4)
C6#1-C6-C10-Fe	-131.91(12)	C21-C22-C23-C24	-0.3(6)
C8-Fe-C10-C9	37.77(12)	C22-C23-C24-C25	-0.6(5)
C5-Fe-C10-C9	-114.38(13)	C23-C24-C25-C26	1.2(4)
C4-Fe-C10-C9	-72.80(15)	C24-C25-C26-C21	-0.8(4)
C1-Fe-C10-C9	-155.88(12)	C24-C25-C26-C17	178.8(2)
C2-Fe-C10-C9	173.1(2)	C20-C21-C26-C25	-179.9(2)
C3-Fe-C10-C9	-41.3(3)	C22-C21-C26-C25	0.0(3)
C7-Fe-C10-C9	81.92(13)	C20-C21-C26-C17	0.4(3)
C6-Fe-C10-C9	120.29(16)	C22-C21-C26-C17	-179.7(2)
C9-Fe-C10-C6	-120.29(16)	C18-C17-C26-C25	-179.9(2)
C8-Fe-C10-C6	-82.52(12)	P-C17-C26-C25	2.8(3)
C5-Fe-C10-C6	125.32(12)	C18-C17-C26-C21	-0.3(3)
C4-Fe-C10-C6	166.91(11)	P-C17-C26-C21	-177.55(15)
C1-Fe-C10-C6	83.83(13)		

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

Table 21. Crystal structure refinement data for [(S_P,R_m,R_m,S_P)-2,2'-Bis(1-naphthylphenylphosphino)-1,1'-biferrocenyl]dichloro-platinum(II), **8a** (s2156a).

Identification code	s2156a
Empirical formula	C52 H40 Cl2 Fe2 P2 Pt [*]
Formula weight	1104.47 [*]
Temperature	150(2) K
Wavelength	0.71073 A
Crystal system, space group	Orthorhombic, P 21 21 21
Unit cell dimensions	a = 11.8381(3) A alpha = 90 deg.
	b = 19.7931(5) A beta = 90 deg.
	c = 20.8439(5) A gamma = 90 deg.
Volume	4884.0(2) A^3
Z, Calculated density	4, 1.502 Mg/m^3 [*]
Absorption coefficient	3.651 mm^-1 [*]
F(000)	2184
Crystal size	0.45 x 0.45 x 0.10 mm
Theta range for data collection	1.42 to 27.50 deg.
Limiting indices	-15<=h<=15, 0<=k<=25, 0<=l<=27
Reflections collected / unique	11186 / 11186 [R(int) = 0.0677]
Completeness to theta = 27.50	99.7 %
Absorption correction	MULABS as implemented in PLATON
Max. and min. transmission	0.70 and 0.53
Refinement method	Full-matrix least-squares on F^2
Data / restraints / parameters	11186 / 64 / 532
Goodness-of-fit on F^2	1.041
Final R indices [I>2sigma(I)]	R1 = 0.0413, wR2 = 0.1031
R indices (all data)	R1 = 0.0476, wR2 = 0.1063
Absolute structure parameter	-0.020(5)
Largest diff. peak and hole	2.446 and -1.120 e.A^-3

[*] Structure contains disordered solvent molecules (339 electrons/unit cell). Their contribution to the structure factors is handled with CALC SQUEEZE as implemented in PLATON. Fw, density and abs.coeff. is calculated without solvent contribution.

Table 22. Atomic coordinates (x 10^4) and equivalent isotropic displacement parameters (A^2 x 10^3) for s2156a.
U(eq) is defined as one third of the trace of the orthogonalized Uij tensor.

	x	y	z	U(eq)
Pt(1)	6339(1)	5803(1)	4107(1)	27(1)
Cl(1)	5581(1)	6892(1)	3907(1)	37(1)
Cl(1A)	7518(1)	5937(1)	3200(1)	38(1)
Fe(1)	5095(1)	4871(1)	6504(1)	36(1)
P(1)	5191(1)	5698(1)	4966(1)	28(1)
C(1)	5753(5)	5233(3)	5651(3)	28(1)
C(2)	5922(5)	4522(3)	5695(3)	28(1)
C(3)	6565(5)	4393(3)	6270(3)	35(1)
C(4)	6796(5)	5011(3)	6565(3)	35(1)
C(5)	6291(6)	5536(3)	6204(3)	35(1)
C(6)	3555(7)	4421(4)	6656(4)	56(2)
C(7)	4312(7)	4240(5)	7149(4)	61(2)
C(8)	4695(8)	4837(6)	7461(4)	65(3)
C(9)	4159(7)	5385(5)	7167(4)	56(2)
C(10)	3442(6)	5135(5)	6676(4)	52(2)
C(11)	4723(7)	6493(3)	5340(2)	43(2)
C(12)	3585(8)	6564(4)	5440(2)	55(2)
C(13)	3186(10)	7142(5)	5775(3)	81(3)
C(14)	3944(13)	7626(5)	5995(3)	95(3)
C(15)	5859(18)	8053(5)	6123(4)	111(4)
C(16)	6990(17)	7989(5)	6027(4)	112(4)
C(17)	7442(11)	7428(4)	5696(3)	78(3)
C(18)	6703(8)	6934(4)	5462(3)	54(2)
C(19)	5520(8)	6984(3)	5561(3)	52(2)
C(20)	5075(11)	7558(3)	5894(3)	77(2)
C(21)	3908(5)	5288(3)	4662(3)	34(1)
C(22)	3598(6)	5418(3)	4016(3)	41(1)
C(23)	2668(7)	5118(5)	3752(4)	54(2)
C(24)	2016(6)	4678(4)	4104(5)	58(2)
C(25)	2296(7)	4547(4)	4746(4)	53(2)
C(26)	3245(5)	4855(4)	5019(3)	41(2)
Fe(1A)	6192(1)	3148(1)	4827(1)	34(1)
P(1A)	7070(1)	4769(1)	4254(1)	30(1)
C(1A)	6075(5)	4135(3)	4531(2)	27(1)
C(2A)	5610(5)	4071(3)	5170(3)	27(1)
C(3A)	4730(5)	3584(3)	5150(3)	36(1)
C(4A)	4602(6)	3360(4)	4501(3)	42(2)
C(5A)	5415(5)	3693(3)	4122(3)	33(1)
C(6A)	6436(8)	2316(3)	5392(3)	55(2)
C(7A)	6227(9)	2132(3)	4741(4)	57(2)
C(8A)	7119(8)	2415(4)	4374(4)	57(2)
C(9A)	7809(7)	2788(4)	4773(3)	48(2)
C(10A)	7380(7)	2733(4)	5425(4)	49(2)
C(11A)	7697(6)	4337(3)	3550(3)	41(1)
C(12A)	8693(7)	4029(3)	3631(3)	53(2)
C(13A)	9092(9)	3523(4)	3194(4)	72(2)
C(14A)	8453(9)	3357(4)	2691(4)	76(3)
C(15A)	6716(11)	3480(4)	2058(4)	86(3)
C(16A)	5692(11)	3777(5)	1946(4)	84(3)
C(17A)	5270(8)	4283(4)	2348(3)	66(2)
C(18A)	5896(7)	4482(3)	2871(3)	47(2)
C(19A)	7000(6)	4169(3)	3013(3)	45(1)
C(20A)	7388(9)	3666(4)	2584(3)	66(2)