EXPERIMENTAL DETAILS

A. Crystal Data

Empirical Formula	$C_{36}H_{30}N_{24}Ru_2$
Formula Weight	1000.93
Crystal Color, Habit	deep, plate
Crystal Dimensions	0.12 X 0.25 X 0.26 mm
Crystal System	monoclinic
Lattice Type	Primitive
No. of Reflections Used for Unit Cell Determination (2θ range)	25 (58.9 - 59.9°)
Omega Scan Peak Width at Half-height	0.36°
Lattice Parameters	a = 12.2426(8) $\AA$ b = 12.643(1) $\AA$ c = 13.2066(6) $\AA$ β = 92.738(4)° V = 2041.8(2) $\AA^3$
Space Group	$P2_1$ (#4)
Z value	2
D_{calc}	1.628 g/cm^3
F_{000}	1004.00
μ(CuKα)	65.12 cm^{-1}

B. Intensity Measurements

Diffractometer	Rigaku AFC7R (rotating anode)
Radiation	CuKα (λ = 1.54178 $\AA$) graphite monochromated
Attenuator	Ni foil (factor = 9.14)

Temperature	23.0 °C
Collimator Size	1.0 mm
Take-off Angle	6.0°
Detector Aperture	9.0 mm horizontal 13.0 mm vertical
Crystal to Detector Distance	235 mm
Scan Type	ω-2θ
Scan Rate	16.0°/min (in ω) (up to 5 scans)
Scan Width	(1.68 + 0.30 tan θ)°
$2\theta_{max}$	120.2°
No. of Reflections Measured	Total: 3360 Unique: 3194 (R_{int} = 0.041)
Corrections	Lorentz-polarization Absorption (trans. factors: 0.5343 - 0.9994) Decay (0.96% increase) Secondary Extinction (coefficient: 6.37500e-07)

C. Structure Solution and Refinement

Structure Solution	Direct Methods (SHELXS-86)
Refinement	Full-matrix least-squares
Function Minimized	$\Sigma w(\|Fo\| - \|Fc\|)^2$
Least Squares Weights	$w = \frac{1}{\sigma^2(Fo)} = [\sigma_c^2(Fo) + \frac{p^2}{4}Fo^2]^{-1}$
p-factor	0.0030
Anomalous Dispersion	All non-hydrogen atoms
No. of Observations (I>3.00σ(I), 2θ<120.20°)	2776
No. Variables	560
Reflection/Parameter Ratio	4.96
Residuals: R; Rw	0.042 ; 0.067

Residuals: R1	0.042
No. of Reflections to calc R1	2636
Goodness of Fit Indicator	1.75
Max Shift/Error in Final Cycle	0.684
Maximum peak in Final Diff. Map	0.72 $e^-/\mathring{A}^3$
Minimum peak in Final Diff. Map	-1.46 $e^-/\mathring{A}^3$

Table 1. Atomic coordinates and B_{iso}/B_{eq}

atom	x	y	z	B_{eq}
Ru(1)	-0.39091(6)	0.19991(10)	0.90562(6)	3.06(2)
Ru(2)	0.10811(7)	0.00990(10)	0.40632(6)	3.46(2)
N(1)	-0.5527(7)	0.1511(8)	0.8665(8)	4.3(2)
N(2)	-0.7115(8)	0.1991(8)	0.8005(8)	4.5(2)
N(3)	-0.4597(8)	0.3398(6)	0.8465(5)	2.8(1)
N(4)	-0.5966(8)	0.4222(7)	0.7633(8)	4.1(2)
N(5)	-0.3324(7)	0.0582(6)	0.9471(6)	2.8(1)
N(6)	-0.2493(9)	-0.0921(8)	0.8992(8)	4.4(2)
N(7)	-0.3431(9)	0.1447(7)	0.7691(7)	4.2(2)
N(8)	-0.3088(9)	-0.0021(9)	0.6795(8)	4.5(2)
N(9)	-0.2446(7)	0.2592(7)	0.9704(5)	2.9(1)
N(10)	-0.1594(9)	0.3230(9)	1.1130(7)	4.7(2)
N(11)	-0.4329(7)	0.2388(7)	1.0396(6)	3.5(1)
N(12)	-0.3953(9)	0.3092(8)	1.1969(8)	5.1(2)
N(13)	0.1816(8)	0.1593(7)	0.4453(8)	3.9(2)
N(14)	0.2627(9)	0.3047(7)	0.4051(7)	3.7(2)
N(15)	0.1553(6)	0.0730(7)	0.2660(7)	3.3(1)
N(16)	0.2015(8)	0.2128(7)	0.1795(6)	3.4(2)
N(17)	-0.0402(7)	0.0574(6)	0.3567(5)	2.6(1)
N(18)	-0.2115(8)	0.0210(8)	0.3008(6)	4.0(2)
N(19)	0.0485(7)	-0.1233(8)	0.3458(8)	4.5(2)
N(20)	-0.0960(9)	-0.2067(8)	0.2646(7)	4.4(2)
N(21)	0.2518(7)	-0.0523(7)	0.4715(8)	3.8(2)
N(22)	0.3428(7)	-0.1072(7)	0.6077(8)	3.7(2)

Table 1. Atomic coordinates and B_{iso}/B_{eq} (continued)

atom	x	y	z	B_{eq}
N(23)	0.0547(6)	-0.0288(7)	0.5540(5)	3.3(1)
N(24)	0.1035(7)	-0.0905(7)	0.7043(6)	3.1(2)
C(1)	-0.612(1)	0.0707(9)	0.8584(10)	5.4(3)
C(2)	-0.709(1)	0.090(1)	0.828(1)	6.1(3)
C(3)	-0.421(1)	0.4447(9)	0.826(1)	4.6(3)
C(4)	-0.513(1)	0.498(1)	0.782(1)	5.7(3)
C(5)	-0.6072(9)	0.2273(9)	0.8147(8)	3.4(2)
C(6)	-0.555(1)	0.3274(9)	0.7988(9)	3.4(2)
C(7)	-0.296(1)	-0.002(1)	1.0315(9)	5.0(3)
C(8)	-0.251(1)	-0.084(1)	1.009(1)	5.2(3)
C(9)	-0.366(1)	0.167(1)	0.6655(9)	4.7(3)
C(10)	-0.334(1)	0.078(1)	0.613(1)	4.5(3)
C(11)	-0.2938(9)	-0.0049(8)	0.8614(7)	3.2(2)
C(12)	-0.3096(8)	0.0433(8)	0.7683(9)	3.1(2)
C(13)	-0.1420(10)	0.2708(9)	0.9498(9)	3.8(2)
C(14)	-0.0838(9)	0.306(1)	1.0378(9)	5.1(3)
C(15)	-0.5336(8)	0.2388(8)	1.1089(8)	3.5(2)
C(16)	-0.501(1)	0.285(1)	1.1950(9)	4.2(2)
C(17)	-0.2528(8)	0.2922(7)	1.0674(7)	2.6(2)
C(18)	-0.3678(9)	0.2786(8)	1.112(1)	4.4(2)
C(19)	0.2078(10)	0.2039(10)	0.5353(9)	4.1(2)
C(20)	0.261(1)	0.3043(9)	0.5033(9)	4.5(2)
C(21)	0.1424(10)	0.0477(8)	0.1708(9)	3.8(2)
C(22)	0.166(1)	0.131(1)	0.1146(8)	5.1(3)

Table 1. Atomic coordinates and B_{iso}/B_{eq} (continued)

atom	x	y	z	B_{eq}
C(23)	0.2061(9)	0.2129(8)	0.3788(8)	3.6(2)
C(24)	0.189(1)	0.1755(9)	0.2715(8)	3.9(2)
C(25)	-0.1100(9)	0.1515(8)	0.3771(9)	3.5(2)
C(26)	-0.2147(9)	0.1199(10)	0.330(1)	4.1(2)
C(27)	0.0729(9)	-0.2245(9)	0.3311(10)	3.6(2)
C(28)	-0.0089(10)	-0.2710(8)	0.2764(7)	3.2(2)
C(29)	-0.113(1)	-0.0194(9)	0.3242(7)	3.1(2)
C(30)	-0.0633(9)	-0.1211(9)	0.3119(9)	3.3(2)
C(31)	0.3648(10)	-0.069(1)	0.452(1)	4.5(2)
C(32)	0.4149(10)	-0.106(1)	0.5375(9)	4.8(2)
C(33)	-0.0277(7)	-0.0337(9)	0.5883(8)	3.9(2)
C(34)	-0.0088(9)	-0.066(1)	0.6913(10)	4.1(2)
C(35)	0.2421(9)	-0.077(1)	0.571(1)	4.6(2)
C(36)	0.1488(8)	-0.0675(8)	0.6086(5)	2.6(1)
H(1)	-0.7721	0.2350	0.7663	4.9
H(2)	-0.5854	-0.0005	0.8721	5.6
H(3)	-0.7775	0.0397	0.8412	7.1
H(4)	-0.3369	0.4721	0.8386	6.9
H(5)	-0.5115	0.5756	0.7577	7.2
H(6)	-0.2251	-0.1534	0.8629	4.1
H(7)	-0.3128	0.0170	1.1028	4.3
H(8)	-0.2161	-0.1327	1.0525	4.1
H(9)	-0.3867	0.2323	0.6387	3.7
H(10)	-0.3233	0.0738	0.5400	4.5

Table 1. Atomic coordinates and B_{iso}/B_{eq} (continued)

atom	x	y	z	B_{eq}
H(11)	-0.1452	0.3505	1.1836	5.5
H(12)	-0.1136	0.2535	0.8816	4.1
H(13)	-0.0079	0.3304	1.0420	4.6
H(14)	-0.6099	0.2143	1.0888	4.2
H(15)	-0.5411	0.2979	1.2517	4.7
H(16)	0.2974	0.3526	0.3569	4.3
H(17)	0.1989	0.1747	0.6047	6.0
H(18)	0.2962	0.3653	0.5489	6.5
H(19)	0.1125	-0.0242	0.1367	5.8
H(20)	0.1457	0.1411	0.0436	5.3
H(21)	-0.2709	-0.0233	0.2738	4.6
H(22)	-0.0903	0.2185	0.4119	4.0
H(23)	-0.2761	0.1644	0.3127	3.8
H(24)	0.1371	-0.2607	0.3552	2.8
H(25)	-0.0127	-0.3416	0.2525	3.7
H(26)	0.3557	-0.1318	0.6755	3.8
H(27)	0.4050	-0.0630	0.3924	5.4
H(28)	0.4983	-0.1116	0.5515	6.9
H(29)	-0.0960	-0.0140	0.5524	4.3
H(30)	-0.0685	-0.0764	0.7445	4.3

$$B_{eq} = \frac{8}{3}\pi^2(U_{11}(aa^*)^2 + U_{22}(bb^*)^2 + U_{33}(cc^*)^2 + 2U_{12}aa^*bb^*\cos\gamma + 2U_{13}aa^*cc^*\cos\beta + 2U_{23}bb^*cc^*\cos\alpha)$$

Table 2. Anisotropic Displacement Parameters

atom	U_{11}	U_{22}	U_{33}	U_{12}	U_{13}	U_{23}
Ru(1)	0.0363(4)	0.0316(4)	0.0476(5)	0.0040(4)	-0.0076(4)	-0.0044(3)
Ru(2)	0.0505(6)	0.0362(5)	0.0426(5)	-0.0079(4)	-0.0189(5)	0.0095(3)
N(1)	0.034(3)	0.049(4)	0.079(6)	0.003(3)	-0.010(4)	0.014(4)
N(2)	0.047(4)	0.043(4)	0.081(7)	-0.020(4)	-0.016(5)	0.019(5)
N(3)	0.059(5)	0.028(3)	0.018(3)	0.006(3)	-0.001(3)	-0.015(3)
N(4)	0.046(5)	0.035(4)	0.073(6)	0.024(3)	-0.020(5)	-0.019(4)
N(5)	0.044(4)	0.039(3)	0.026(3)	0.016(3)	0.017(3)	-0.009(3)
N(6)	0.067(6)	0.041(5)	0.059(4)	0.021(4)	-0.012(5)	-0.004(4)
N(7)	0.094(7)	0.026(4)	0.035(3)	0.017(4)	-0.025(4)	0.005(3)
N(8)	0.052(6)	0.051(6)	0.069(5)	0.003(5)	0.006(5)	-0.008(4)
N(9)	0.049(3)	0.046(5)	0.014(3)	-0.002(3)	-0.017(3)	0.004(3)
N(10)	0.061(5)	0.087(8)	0.028(4)	-0.008(6)	-0.013(4)	-0.013(5)
N(11)	0.037(3)	0.032(4)	0.068(3)	0.005(3)	0.037(3)	0.000(3)
N(12)	0.066(5)	0.052(6)	0.071(5)	-0.010(5)	-0.039(5)	0.013(4)
N(13)	0.056(6)	0.032(3)	0.058(4)	0.004(3)	-0.022(5)	-0.001(3)
N(14)	0.060(6)	0.035(4)	0.043(3)	-0.001(4)	-0.016(4)	0.004(4)
N(15)	0.018(3)	0.047(4)	0.061(3)	0.007(3)	-0.004(3)	0.019(3)
N(16)	0.063(5)	0.033(4)	0.032(4)	-0.008(4)	-0.013(4)	0.009(3)
N(17)	0.058(3)	0.020(3)	0.018(3)	0.003(3)	-0.013(3)	0.011(3)
N(18)	0.064(5)	0.046(4)	0.037(4)	-0.014(4)	-0.026(4)	0.020(4)
N(19)	0.025(4)	0.044(4)	0.098(7)	-0.003(3)	-0.022(4)	-0.014(4)
N(20)	0.057(6)	0.057(5)	0.054(6)	0.019(4)	-0.003(5)	-0.027(4)
N(21)	0.035(3)	0.028(4)	0.081(5)	-0.018(3)	0.001(3)	0.014(4)
N(22)	0.031(4)	0.039(5)	0.069(6)	-0.002(4)	-0.016(3)	0.011(4)

Table 2. Anisotropic Displacement Parameters (continued)

atom	U_{11}	U_{22}	U_{33}	U_{12}	U_{13}	U_{23}
N(23)	0.033(3)	0.047(5)	0.041(2)	-0.015(3)	-0.038(2)	0.020(3)
N(24)	0.031(3)	0.048(5)	0.039(4)	-0.021(3)	0.015(3)	0.020(4)
C(1)	0.116(8)	0.025(5)	0.060(6)	-0.012(4)	-0.049(6)	0.008(4)
C(2)	0.110(8)	0.036(5)	0.08(1)	-0.022(7)	-0.038(9)	-0.001(6)
C(3)	0.083(8)	0.029(4)	0.062(7)	-0.005(5)	-0.010(7)	0.001(5)
C(4)	0.062(7)	0.035(6)	0.12(1)	-0.001(4)	0.004(7)	-0.012(6)
C(5)	0.044(4)	0.036(5)	0.048(6)	-0.006(4)	-0.014(5)	-0.010(4)
C(6)	0.051(5)	0.028(4)	0.048(5)	0.010(3)	-0.003(4)	-0.008(4)
C(7)	0.089(9)	0.060(7)	0.039(5)	0.016(6)	-0.032(6)	0.002(4)
C(8)	0.082(9)	0.059(7)	0.057(4)	0.014(6)	0.003(6)	0.031(5)
C(9)	0.082(9)	0.066(7)	0.030(4)	-0.002(7)	-0.015(6)	0.003(5)
C(10)	0.053(7)	0.058(6)	0.061(7)	-0.012(5)	-0.010(6)	-0.006(4)
C(11)	0.051(5)	0.034(4)	0.038(4)	0.019(4)	-0.006(4)	-0.030(3)
C(12)	0.030(5)	0.027(4)	0.061(4)	0.000(4)	-0.006(5)	0.009(3)
C(13)	0.046(4)	0.045(6)	0.051(6)	0.004(5)	-0.016(4)	-0.007(5)
C(14)	0.040(6)	0.092(8)	0.060(6)	0.019(6)	-0.016(4)	-0.051(6)
C(15)	0.040(5)	0.040(5)	0.055(5)	0.006(4)	0.033(4)	-0.008(4)
C(16)	0.062(5)	0.045(7)	0.052(5)	0.016(5)	0.022(5)	-0.009(5)
C(17)	0.048(4)	0.024(5)	0.029(3)	0.018(4)	0.003(3)	-0.003(4)
C(18)	0.032(4)	0.027(5)	0.108(7)	0.011(4)	0.008(4)	-0.014(5)
C(19)	0.057(6)	0.042(5)	0.058(5)	-0.001(5)	0.000(5)	-0.011(4)
C(20)	0.087(9)	0.040(6)	0.042(3)	-0.019(5)	-0.033(6)	0.001(5)
C(21)	0.048(6)	0.027(5)	0.069(5)	-0.009(5)	-0.014(6)	-0.004(4)
C(22)	0.11(1)	0.056(6)	0.024(5)	-0.035(7)	-0.018(6)	-0.002(4)

Table 2. Anisotropic Displacement Parameters (continued)

atom	U_{11}	U_{22}	U_{33}	U_{12}	U_{13}	U_{23}
C(23)	0.050(6)	0.040(5)	0.043(4)	0.012(4)	-0.025(4)	-0.013(3)
C(24)	0.061(7)	0.053(5)	0.033(3)	-0.020(5)	-0.013(6)	0.015(4)
C(25)	0.035(4)	0.032(4)	0.064(6)	-0.001(3)	-0.008(4)	-0.003(4)
C(26)	0.030(4)	0.047(5)	0.078(8)	-0.005(5)	-0.011(5)	0.005(6)
C(27)	0.027(4)	0.044(4)	0.064(7)	-0.001(4)	0.006(4)	0.008(5)
C(28)	0.057(5)	0.024(5)	0.040(5)	-0.007(3)	0.001(4)	-0.011(4)
C(29)	0.061(5)	0.037(4)	0.018(4)	-0.014(3)	-0.010(4)	0.006(4)
C(30)	0.030(4)	0.047(4)	0.046(5)	0.001(4)	-0.015(4)	0.017(4)
C(31)	0.039(4)	0.067(8)	0.065(7)	-0.004(5)	0.009(5)	-0.006(6)
C(32)	0.043(6)	0.074(7)	0.062(5)	0.017(5)	-0.005(4)	-0.034(5)
C(33)	0.025(3)	0.062(6)	0.058(5)	0.000(4)	-0.038(3)	-0.018(4)
C(34)	0.040(4)	0.049(7)	0.064(5)	0.000(5)	-0.024(5)	0.001(5)
C(35)	0.036(4)	0.059(8)	0.076(6)	0.011(5)	-0.026(4)	0.011(6)
C(36)	0.051(4)	0.040(5)	0.004(3)	0.004(4)	-0.029(2)	0.001(3)

The general temperature factor expression:

$$\exp(-2\pi^2(a^{*2}U_{11}h^2 + b^{*2}U_{22}k^2 + c^{*2}U_{33}l^2 + 2a^*b^*U_{12}hk + 2a^*c^*U_{13}hl + 2b^*c^*U_{23}kl))$$

Table 3. Bond Lengths($\AA$)

atom	atom	distance	atom	atom	distance
Ru(1)	N(1)	2.115(9)	Ru(1)	N(3)	2.093(8)
Ru(1)	N(5)	1.996(8)	Ru(1)	N(7)	2.045(9)
Ru(1)	N(9)	2.087(9)	Ru(1)	N(11)	1.929(9)
Ru(2)	N(13)	2.144(9)	Ru(2)	N(15)	2.122(10)
Ru(2)	N(17)	1.993(8)	Ru(2)	N(19)	1.987(10)
Ru(2)	N(21)	2.076(9)	Ru(2)	N(23)	2.144(7)
N(1)	C(1)	1.25(2)	N(1)	C(5)	1.34(1)
N(2)	C(2)	1.42(2)	N(2)	C(5)	1.33(1)
N(2)	H(1)	0.96	N(3)	C(3)	1.44(1)
N(3)	C(6)	1.31(1)	N(4)	C(4)	1.41(2)
N(4)	C(6)	1.38(1)	N(5)	C(7)	1.40(1)
N(5)	C(11)	1.48(1)	N(6)	C(8)	1.45(2)
N(6)	C(11)	1.32(1)	N(6)	H(6)	0.96
N(7)	C(9)	1.41(1)	N(7)	C(12)	1.35(1)
N(8)	C(10)	1.36(2)	N(8)	C(12)	1.31(2)
N(9)	C(13)	1.31(2)	N(9)	C(17)	1.36(1)
N(10)	C(14)	1.41(2)	N(10)	C(17)	1.33(1)
N(10)	H(11)	1.00	N(11)	C(15)	1.57(1)
N(11)	C(18)	1.32(1)	N(12)	C(16)	1.33(2)
N(12)	C(18)	1.24(2)	N(13)	C(19)	1.34(2)
N(13)	C(23)	1.16(1)	N(14)	C(20)	1.30(1)
N(14)	C(23)	1.39(1)	N(14)	H(16)	0.99
N(15)	C(21)	1.30(2)	N(15)	C(24)	1.36(2)
N(16)	C(22)	1.40(2)	N(16)	C(24)	1.32(1)

Table 3. Bond Lengths($\AA$) (continued)

atom	atom	distance	atom	atom	distance
N(17)	C(25)	1.50(1)	N(17)	C(29)	1.37(1)
N(18)	C(26)	1.31(2)	N(18)	C(29)	1.34(2)
N(18)	H(21)	0.97	N(19)	C(27)	1.33(2)
N(19)	C(30)	1.42(1)	N(20)	C(28)	1.34(2)
N(20)	C(30)	1.30(2)	N(21)	C(31)	1.44(2)
N(21)	C(35)	1.37(2)	N(22)	C(32)	1.31(2)
N(22)	C(35)	1.36(1)	N(22)	H(26)	0.95
N(23)	C(33)	1.13(1)	N(23)	C(36)	1.42(1)
N(24)	C(34)	1.41(1)	N(24)	C(36)	1.43(1)
C(1)	C(2)	1.26(2)	C(1)	H(2)	0.97
C(2)	H(3)	1.08	C(3)	C(4)	1.41(2)
C(3)	H(4)	1.10	C(4)	H(5)	1.04
C(5)	C(6)	1.44(2)	C(7)	C(8)	1.22(2)
C(7)	H(7)	1.00	C(8)	H(8)	0.93
C(9)	C(10)	1.38(2)	C(9)	H(9)	0.93
C(10)	H(10)	0.99	C(11)	C(12)	1.38(1)
C(13)	C(14)	1.41(2)	C(13)	H(12)	1.00
C(14)	H(13)	0.98	C(15)	C(16)	1.33(2)
C(15)	H(14)	1.01	C(16)	H(15)	0.93
C(17)	C(18)	1.56(2)	C(19)	C(20)	1.50(2)
C(19)	H(17)	1.00	C(20)	H(18)	1.06
C(21)	C(22)	1.33(2)	C(21)	H(19)	1.07
C(22)	H(20)	0.97	C(23)	C(24)	1.50(2)
C(25)	C(26)	1.46(2)	C(25)	H(22)	0.99

Table 3. Bond Lengths($\AA$) (continued)

atom	atom	distance	atom	atom	distance
C(26)	H(23)	0.96	C(27)	C(28)	1.34(2)
C(27)	H(24)	0.95	C(28)	H(25)	0.95
C(29)	C(30)	1.43(2)	C(31)	C(32)	1.34(2)
C(31)	H(27)	0.95	C(32)	H(28)	1.03
C(33)	C(34)	1.43(2)	C(33)	H(29)	0.97
C(34)	H(30)	1.05	C(35)	C(36)	1.27(1)

Table 4. Bond Angles(°)

atom	atom	atom	angle	atom	atom	atom	angle
N(1)	Ru(1)	N(3)	78.5(4)	N(1)	Ru(1)	N(5)	97.2(4)
N(1)	Ru(1)	N(7)	89.4(4)	N(1)	Ru(1)	N(9)	168.6(4)
N(1)	Ru(1)	N(11)	90.6(4)	N(3)	Ru(1)	N(5)	173.2(3)
N(3)	Ru(1)	N(7)	95.0(3)	N(3)	Ru(1)	N(9)	99.9(3)
N(3)	Ru(1)	N(11)	90.4(3)	N(5)	Ru(1)	N(7)	79.7(3)
N(5)	Ru(1)	N(9)	85.4(3)	N(5)	Ru(1)	N(11)	94.9(3)
N(7)	Ru(1)	N(9)	102.0(4)	N(7)	Ru(1)	N(11)	174.5(4)
N(9)	Ru(1)	N(11)	78.1(3)	N(13)	Ru(2)	N(15)	75.5(4)
N(13)	Ru(2)	N(17)	100.3(3)	N(13)	Ru(2)	N(19)	169.9(4)
N(13)	Ru(2)	N(21)	84.0(4)	N(13)	Ru(2)	N(23)	97.2(4)
N(15)	Ru(2)	N(17)	83.2(3)	N(15)	Ru(2)	N(19)	94.4(4)
N(15)	Ru(2)	N(21)	104.1(4)	N(15)	Ru(2)	N(23)	171.0(3)
N(17)	Ru(2)	N(19)	79.2(3)	N(17)	Ru(2)	N(21)	172.3(3)
N(17)	Ru(2)	N(23)	93.1(3)	N(19)	Ru(2)	N(21)	97.7(4)
N(19)	Ru(2)	N(23)	92.9(4)	N(21)	Ru(2)	N(23)	79.9(4)
Ru(1)	N(1)	C(1)	142.1(9)	Ru(1)	N(1)	C(5)	110.6(8)
C(1)	N(1)	C(5)	105(1)	C(2)	N(2)	C(5)	102(1)
C(2)	N(2)	H(1)	125.7	C(5)	N(2)	H(1)	130.7
Ru(1)	N(3)	C(3)	136.1(8)	Ru(1)	N(3)	C(6)	114.4(7)
C(3)	N(3)	C(6)	108.1(9)	C(4)	N(4)	C(6)	106.1(10)
Ru(1)	N(5)	C(7)	143.2(7)	Ru(1)	N(5)	C(11)	113.4(6)
C(7)	N(5)	C(11)	102.3(8)	C(8)	N(6)	C(11)	107.0(10)
C(8)	N(6)	H(6)	124.9	C(11)	N(6)	H(6)	127.9
Ru(1)	N(7)	C(9)	137.1(9)	Ru(1)	N(7)	C(12)	115.6(7)

Table 4. Bond Angles(°) (continued)

atom	atom	atom	angle	atom	atom	atom	angle
C(9)	N(7)	C(12)	103.3(9)	C(10)	N(8)	C(12)	103(1)
Ru(1)	N(9)	C(13)	140.4(7)	Ru(1)	N(9)	C(17)	113.4(7)
C(13)	N(9)	C(17)	106.1(9)	C(14)	N(10)	C(17)	102.5(9)
C(14)	N(10)	H(11)	128.2	C(17)	N(10)	H(11)	129.2
Ru(1)	N(11)	C(15)	141.8(6)	Ru(1)	N(11)	C(18)	126.0(8)
C(15)	N(11)	C(18)	92.2(8)	C(16)	N(12)	C(18)	102(1)
Ru(2)	N(13)	C(19)	131.5(8)	Ru(2)	N(13)	C(23)	117.0(8)
C(19)	N(13)	C(23)	111(1)	C(20)	N(14)	C(23)	102.5(9)
C(20)	N(14)	H(16)	132.2	C(23)	N(14)	H(16)	125.2
Ru(2)	N(15)	C(21)	136.6(8)	Ru(2)	N(15)	C(24)	114.0(7)
C(21)	N(15)	C(24)	107.9(9)	C(22)	N(16)	C(24)	104.7(9)
Ru(2)	N(17)	C(25)	134.4(6)	Ru(2)	N(17)	C(29)	117.0(7)
C(25)	N(17)	C(29)	104.7(8)	C(26)	N(18)	C(29)	109.7(9)
C(26)	N(18)	H(21)	128.7	C(29)	N(18)	H(21)	121.2
Ru(2)	N(19)	C(27)	142.5(8)	Ru(2)	N(19)	C(30)	116.1(7)
C(27)	N(19)	C(30)	101.1(9)	C(28)	N(20)	C(30)	102.8(9)
Ru(2)	N(21)	C(31)	141.8(9)	Ru(2)	N(21)	C(35)	112.0(7)
C(31)	N(21)	C(35)	105.7(10)	C(32)	N(22)	C(35)	112(1)
C(32)	N(22)	H(26)	125.6	C(35)	N(22)	H(26)	122.1
Ru(2)	N(23)	C(33)	134.1(7)	Ru(2)	N(23)	C(36)	105.4(5)
C(33)	N(23)	C(36)	119.9(8)	C(34)	N(24)	C(36)	105.4(8)
N(1)	C(1)	C(2)	113(1)	N(1)	C(1)	H(2)	123.8
C(2)	C(1)	H(2)	122.7	N(2)	C(2)	C(1)	106(1)
N(2)	C(2)	H(3)	127.2	C(1)	C(2)	H(3)	124.4

Table 4. Bond Angles(°) (continued)

atom	atom	atom	angle	atom	atom	atom	angle
N(3)	C(3)	C(4)	104(1)	N(3)	C(3)	H(4)	125.3
C(4)	C(3)	H(4)	129.7	N(4)	C(4)	C(3)	107(1)
N(4)	C(4)	H(5)	127.7	C(3)	C(4)	H(5)	123.8
N(1)	C(5)	N(2)	109.3(10)	N(1)	C(5)	C(6)	119(1)
N(2)	C(5)	C(6)	130(1)	N(3)	C(6)	N(4)	111.5(9)
N(3)	C(6)	C(5)	115.3(10)	N(4)	C(6)	C(5)	131(1)
N(5)	C(7)	C(8)	113(1)	N(5)	C(7)	H(7)	122.9
C(8)	C(7)	H(7)	123.5	N(6)	C(8)	C(7)	109(1)
N(6)	C(8)	H(8)	122.8	C(7)	C(8)	H(8)	127.4
N(7)	C(9)	C(10)	105(1)	N(7)	C(9)	H(9)	125.9
C(10)	C(9)	H(9)	127.6	N(8)	C(10)	C(9)	110(1)
N(8)	C(10)	H(10)	123.3	C(9)	C(10)	H(10)	126.0
N(5)	C(11)	N(6)	107.6(8)	N(5)	C(11)	C(12)	114.1(9)
N(6)	C(11)	C(12)	138(1)	N(7)	C(12)	N(8)	116(1)
N(7)	C(12)	C(11)	116.3(10)	N(8)	C(12)	C(11)	126(1)
N(9)	C(13)	C(14)	108(1)	N(9)	C(13)	H(12)	122.6
C(14)	C(13)	H(12)	128.8	N(10)	C(14)	C(13)	107(1)
N(10)	C(14)	H(13)	124.6	C(13)	C(14)	H(13)	126.0
N(11)	C(15)	C(16)	106.8(9)	N(11)	C(15)	H(14)	126.2
C(16)	C(15)	H(14)	126.8	N(12)	C(16)	C(15)	111(1)
N(12)	C(16)	H(15)	119.8	C(15)	C(16)	H(15)	128.4
N(9)	C(17)	N(10)	114.7(9)	N(9)	C(17)	C(18)	115.8(9)
N(10)	C(17)	C(18)	129.2(9)	N(11)	C(18)	N(12)	126(1)
N(11)	C(18)	C(17)	106(1)	N(12)	C(18)	C(17)	126(1)

Table 4. Bond Angles(°) (continued)

atom	atom	atom	angle	atom	atom	atom	angle
N(13)	C(19)	C(20)	101.3(10)	N(13)	C(19)	H(17)	128.8
C(20)	C(19)	H(17)	129.8	N(14)	C(20)	C(19)	108.2(10)
N(14)	C(20)	H(18)	122.9	C(19)	C(20)	H(18)	128.9
N(15)	C(21)	C(22)	109(1)	N(15)	C(21)	H(19)	129.7
C(22)	C(21)	H(19)	121.0	N(16)	C(22)	C(21)	108.2(10)
N(16)	C(22)	H(20)	123.7	C(21)	C(22)	H(20)	126.6
N(13)	C(23)	N(14)	116.3(10)	N(13)	C(23)	C(24)	120(1)
N(14)	C(23)	C(24)	123.1(10)	N(15)	C(24)	N(16)	109.9(10)
N(15)	C(24)	C(23)	112.2(10)	N(16)	C(24)	C(23)	137(1)
N(17)	C(25)	C(26)	101.7(9)	N(17)	C(25)	H(22)	129.5
C(26)	C(25)	H(22)	128.8	N(18)	C(26)	C(25)	110.5(10)
N(18)	C(26)	H(23)	121.9	C(25)	C(26)	H(23)	127.2
N(19)	C(27)	C(28)	109.5(10)	N(19)	C(27)	H(24)	127.0
C(28)	C(27)	H(24)	123.6	N(20)	C(28)	C(27)	111.4(10)
N(20)	C(28)	H(25)	120.4	C(27)	C(28)	H(25)	128.0
N(17)	C(29)	N(18)	111.5(9)	N(17)	C(29)	C(30)	113(1)
N(18)	C(29)	C(30)	134(1)	N(19)	C(30)	N(20)	113(1)
N(19)	C(30)	C(29)	112.7(10)	N(20)	C(30)	C(29)	132(1)
N(21)	C(31)	C(32)	107(1)	N(21)	C(31)	H(27)	132.8
C(32)	C(31)	H(27)	119.4	N(22)	C(32)	C(31)	107(1)
N(22)	C(32)	H(28)	124.5	C(31)	C(32)	H(28)	125.8
N(23)	C(33)	C(34)	106.9(9)	N(23)	C(33)	H(29)	123.7
C(34)	C(33)	H(29)	129.3	N(24)	C(34)	C(33)	106.9(9)
N(24)	C(34)	H(30)	126.8	C(33)	C(34)	H(30)	126.0

Table 4. Bond Angles(°) (continued)

atom	atom	atom	angle	atom	atom	atom	angle
N(21)	C(35)	N(22)	106.6(10)	N(21)	C(35)	C(36)	118(1)
N(22)	C(35)	C(36)	135(1)	N(23)	C(36)	N(24)	100.3(7)
N(23)	C(36)	C(35)	124.0(8)	N(24)	C(36)	C(35)	135.7(9)