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2.3 ORTEP diagram with labeling scheme for [(Cp)Ru(bpp-H)(PPh₃)]⁺ ([1]PF₆), at 50% probability level, PF₆ anion omitted for clarity.

2.4 ORTEP diagram with labeling scheme for [(η⁶-C₅Me₂)Ir(bpp-H)Cl]⁺ ([5]PF₆·H₂O), at 50% probability level, PF₆ anion omitted for clarity.

2.5 ORTEP diagram with labeling scheme for [(η⁶-C₆H₆)₂Ru₂(bpp)Cl]⁺ ([8]BF₄·H₂O), at 50% probability level, water and BF₄ anion omitted for clarity.


3.1 ¹³C NMR spectrum of the ligand mixture of 3,3 and 3,5 3,6-bis(3-methylpyrazolyl)pyridazine (L3) in CDCl₃.


3.3 ¹³C NMR spectrum of the complex mixture of 3,3 and 3,5 [(η⁶-C₁₀H₁₄)Ru(L3)Cl]ClO₄ ([11]ClO₄) in CDCl₃+CD₂CN.


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5A.1 \(^1H\) NMR spectra of complexes \([(\eta^5-C_5Me_5)Rh(L)L]BF_4 (4)\) and \([(\eta^5-C_5H_5)Ru(L)(PPh_3)]PF_6 (6).\)

5A.2 Molecular structure of a compound \([(\eta^5-C_5Me_5)Rh(L)L]BF_4 (4)\) with 35% probability thermal ellipsoids. Hydrogen atoms and BF\(_4\) ion are omitted for clarity.

5A.3 Molecular structure of a compound \([(\eta^5-C_5Me_5)Ir(L)L]BF_4 (4)\) with 35% probability thermal ellipsoids. Hydrogen atoms and perchlorate ion are omitted for clarity.

5B.1 Molecular structure of a complex \([(\eta^5-C_5Me_5)Rh(dpt-NH_2)L]PF_6 (4)\) with 35% probability thermal ellipsoids. Hydrogen atoms and PF\(_6^\cdot\) are omitted for clarity.

5B.2 \(^1H\) NMR spectra of complexes \([(\eta^6-p-cymene)Ru(dpt-NH_2)L]PF_6 (1)\) and \([(\eta^5-C_5Me_5)Rh(dpt-NH_2)L]PF_6 (4).\)

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5B.4 IR spectrum of complex \([(\eta^5-C_5Me_5)Rh(dpt-NH_2)L]PF_6 (4).\)

5B.5 Molecular structure of complex \([(\eta^5-C_5H_5)Ru(dpt-NH_2)(PPh_3)]PF_6 (7)\) with 35% probability thermal ellipsoids. Hydrogen atoms and PF\(_6^\cdot\) are omitted for clarity.
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6.3 \(^1\)H NMR spectra of ligand (NNN) and complex \([(C_5Me_5)Rh_2(\text{NNN})Cl_2](PF_6)_2 \([4]\)(PF_6)_2).

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6.5 Molecular structure of \([(\eta^5-\text{Cp})_2Ru_2(\text{NNN})(PPh_3)_2](PF_6)_2 \([6]\)(PF_6)_2 · 0.5 Et_2O\) at 35% probability level. Hydrogen atoms, diethyl ether molecule and hexafluorophosphate anions have been omitted for clarity.

6.6 Space filling views of the NNN-M\(_2\) moieties in 2, 4 and 6, and colored representations of the planes formed by the central phenyl (green) and the two pyridine-pyrazolyl units (red and blue) to emphasize the structural flexibility of the NNNNN ligand.

6.7 UV-vis. absorption spectra of mononuclear complexes 1 to 6 and 8 in acetonitrile at 298 K.