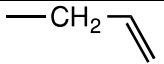
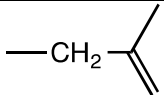
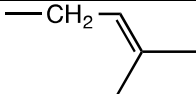
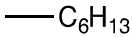
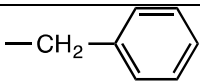
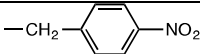
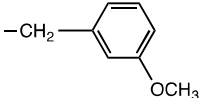
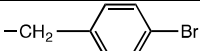


R (n)	X ⁻	Yield	UV/Vis (λ/ε)	¹ H NMR (δ,split, #H)	¹³ C (δ)	Analyses %Calc./%Found
(bpy) ₂ RuL ₂						
 (10)	4 Cl ⁻	92.5%	255/3.2x10 ⁴ 291/3.9x10 ⁴ 475/1.1x10 ⁴	5.12-5.18, br, 4H; 5.49, m, 4H; 6.00, m, 2H; 7.09-8.85, m, 32H	63.10, 122.45, 122.88, 123.08, 123.13, 123.33, 125.68, 125.99, 129.68, 129.78, 136.74, 141.60(q), 141.35(q), 144.83, 149.91, 150.26(q), 157.68, 157.88(q), 159.22	C: 58.17/58.00 H: 4.46/4.61 N: 11.80/11.72 C ₄₆ H ₄₂ N ₈ Cl ₄ Ru
 (11)	4 Cl ⁻	90.3%	255/3.5x10 ⁴ 290/4.4x10 ⁴ 474/1.2x10 ⁴	1.63, d, 6H; 4.90, d, 2H; 5.06-5.15, m, 6H; 7.00-9.58, m, 32H	16.47, 57.35, 117.71, 122.88, 123.06, 125.75, 126.03, 126.75(q), 127.31(q), 138.19, 138.28, 141.53, 142.42, 144.91, 149.92, 151.95(q), 152.17(q), 157.65, 157.84, 159.17(q)	C: 58.96/58.84 H: 4.74/4.87 N: 11.46/11.30 C ₄₈ H ₄₆ N ₈ Cl ₄ Ru
 (12)	4 Cl ⁻	78.1%	254/4.7x10 ⁴ 291/5.4x10 ⁴ 474/1.4x10 ⁴	[1.73, 1.75, 1.76, 1.77], s, 12H; 5.11, m, 4H; 5.45, m, 2H; 7.10-9.61, m, 32H - terminal pendant groups held in conformationally non-equivalent positions	17.46, 24.92, 58.61, 114.69, 122.42, 123.07, 125.44, 125.74, 126.71, 127.31, 136.16, 136.72, 137.07, 142.58(q), 144.32(q), 146.25(q), 149.87, 157.66, 157.71, 157.88(q), 159.20(q)	C: 59.70/59.55 H: 5.01/5.23 N: 11.14/11.01 C ₅₀ H ₅₀ N ₈ Cl ₄ Ru
 (13)	2 Br ⁻ 2 Cl ⁻	79.6%	255/2.1x10 ⁴ 291/2.3x10 ⁴ 473/6.5x10 ³	0.78, t, 6H; 1.06, m, 12H; 1.88, m, 4H; 4.51, t, 4H; 7.46-8.81, m, 32H	13.11, 21.66, 24.82, 30.24, 30.44, 61.60, 122.36, 125.43, 126.09, 127.85., 130.71(q), 136.62,	C: 55.43/55.31 H: 5.19/5.29 N: 9.94/9.87 C ₅₂ H ₅₈ N ₈ Cl ₂ Br ₂ Ru

					142.42(q), 143.7(q), 147.80, 149.89, 15.00(q), 150.94, 152.29, 153.99, 154.49	
 (14)	Cl ⁻	50.2%	255/2.9x10 ⁴ 290/3.7x10 ⁴ 474/1.0x10 ⁴	[5.69 and 5.72], 2, 4H; 7.00-9.59, m, 42H terminal groups held in conformationally non- equivalent positions producing two equal intensity signals for benzylic hydrogens	[57.38 and 64.21], 122.40, 122.85, 123.02, 123.35, 123.59, 125.75, 125.87, 126.02, 129.08, 129.59, 129.99, 132.50(q), 136.21, 136.70, 137.06, 141.35(q), 142.22(q), 144.72, 151.91, 152.19(q), 154.63, 156.68, 157.78(q), 159.13(q) terminal groups held in conformationally non- equivalent positions producing two signals for benzylic and phenyl carbons	C: 61.77/61.51 H: 4.42/4.51 N: 10.67/10.58 C ₅₄ H ₄₆ N ₈ Cl ₄ Ru
 (15)	2 Br ⁻ 2 Cl ⁻	90.5%	257/3.6x10 ⁴ 283/4.3x10 ⁴ 474/9.1x10 ³	[5.87 and 5.91], s, 4H; 6.95-8.97, m, 40H terminal groups held in conformationally non- equivalent positions producing two equal intensity signals for benzylic hydrogens	[55.37 and 63.05], 122.59, 122.87, 123.07, 123.33, 123.56, 124.44, 124.47, 126.05, 126.41, 126.72, 127.30, 129.80, 139.67(q), 141.28(q), 142.54(q), 145.20, 149.72(q), 151.96, 152.17(q), 157.83(q) terminal groups held in conformationally non- equivalent positions	C: 52.78/52.64 H: 3.61/3.79 N: 11.40/11.28 C ₅₄ H ₄₄ N ₁₀ O ₄ Cl ₂ Br ₂ Ru

					producing two signals for benzylic carbons	
 (16)	4 Cl ⁻	76.9%	255/4.3x10 ⁴ 290/4.4x10 ⁴ 474/1.2x10 ⁴	[3.69 and 3.70], s, 6H; [5.63 and 5.66], s, 4H; 6.90-8.86, m, 40H terminal pendant groups held in conformationally non-equivalent positions	[55.35 and 57.37], [63.75 and 63.78], 114.52, 122.00, 123.14, 123.28, 124.14, 125.66, 126.23. 126.27(q), 126.31, 130.77, 135.90, 136.41, 136.51, 140.80(q), 145.07, 150.86, 151.11(q), 151.37, 152.51, 152.67(q), 157.28(q), 157.78(q), 158.77(q), 160.00(q) pendant groups held in conformationally non- equivalent positions	C: 60.60/60.46 H: 4.54/4.65 N: 10.10/10.02 C ₅₆ H ₄₄ N ₁₀ O ₄ Br ₂ Cl ₂ Ru
 (17)	2 Cl ⁻ 2 Br ⁻	97.6%	247/5.3x10 ⁴ 290/5.2x10 ⁴ 472/1.0x10 ⁴	4.70, s, 6H; 5.60, s, 4H; 6.79-8.82, m, 40H	55.30, 57.34, 114.53, 115.34, 121.45, 121.53, 122.12, 122.66, 125.56, 125.93, 130.90, 133.98(q), 136.88, 141.81(q), 144.58, 144.72, 144.96(q), 149.18, 149.44, 149.88, 151.75, 152.92(q), 157.76(q), 159.45(q)	C: 56.10/55.96 H: 4.20/4.31 N: 9.35/9.22 C ₅₆ H ₅₀ N ₈ O ₂ Cl ₂ Br ₂ Ru
 (18)	2 Cl ⁻ 2 Br ⁻	94.0%	255/7.3x10 ⁴ 291/9.4x10 ⁴ 476/2.6x10 ⁴	5.93, s, 4H; 7.34-9.45, m, 40H	61.88, 121.98, 122.92(q), 125.74, 125.87, 126.27(q). 126.75, 127.21, 127.32, 131.23, 132.10, 133.47(q), 136.91, 136.43, 136.53,	C: 50.02/49.96 H: 3.42/3.55 N: 8.64/8.48 C ₅₄ H ₄₄ N ₈ Cl ₂ Br ₂ Ru

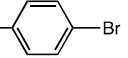
					140.71(q), 145.75, 151.39, 152.30, 157.57(q), 157.77(q)	
(phen)₂RuL₂						
$\text{---C}_6\text{H}_{13}$ (19)	2 Cl ⁻ 2 Br ⁻	79.6%	262/6.2x10 ⁴ 422/7.8x10 ³ 431/7.7x10 ³ 439/7.2x10 ³ 448/7.7x10 ³	0.78, t, 6H; 1.06, m, 12H; 1.88, m, 4H; 4.51, t, 4H; 7.46-8.81, m, 32H	13.11, 21.66, 24.82, 30.24, 30.44, 61.60, 122.36, 125.43, 125.86, 127.85, 139.71(q), 136.62, 142.42(q), 144.65, 147.80(q), 149.89, 152.29, 153.49(q)	C: 57.25/57.01 H: 4.98/5.06 N: 9.54/9.43 C ₅₆ H ₅₈ N ₈ Cl ₂ Br ₂ Ru
$\text{---CH}_2\text{---}$  (20)	4 Br ⁻	57.3%	263/4.2x10 ⁴ 422/3.9x10 ³ 430/3.9x10 ³ 438/3.7x10 ³ 466/3.7/10 ³	[2.44 and 2.51], s, 4H; 7.30-10.35, m, 40H terminal groups held in conformationally non- equivalent positions producing two equal intensity signals for benzylic hydrogens	56.80, 127.32, 127.50, 127.78, 129.55(q), 129.91(q), 130.01(q), 134.80, 135.04, 135.37, 148.13(q), 148.32(q), 149.20(q), 152.34, 153.50, 153.98	C: 46.02/45.97 H: 3.69/3.78 N: 9.33/9.29 C ₄₆ H ₄₄ N ₈ Br ₄ Cl ₂ Ru

Table 2 - Yields, spectroscopic and analytical data for new compounds *cis*-bis-(2,2'-bipyridine)-*cis*-bis-(1-substituted-[4,4'-bipyridin]-1-ium)ruthenium tetrahalides (**10**)-(**18**); corresponding data for the *cis*-bis-(1,10-phenanthroline)-*cis*-bis-(1-substituted-[4,4'-bipyridine]-1-ium)ruthenium tetrahalides (**19**)-(**20**) are also shown.