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Contents

Papers

Sandip Dey, Vimal K. Jain, Satyajeet Chaudhury, Axel Knoedler, Wolfgang Kaim

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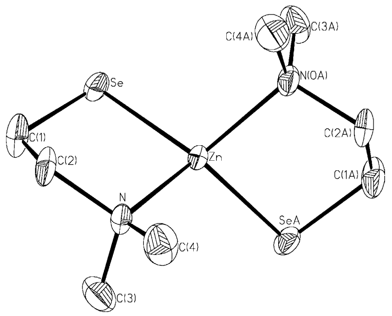
Synthesis and structure of bis(2-N,N-dimethylamioethyl-selenolato)zinc and its transformation to ZnSe

The air-stable compound $[Zn(SeCH_2CH_2NMe_2)_2]$ (**1**) as prepared from $Zn(OAc)_2 \cdot 2H_2O$ and 2 equiv. of $NaSeCH_2CH_2NMe_2$ contains monomeric molecules with a characteristically distorted tetrahedral zinc atom coordinated to two selenium and two nitrogen atoms. On thermolysis **1** yields ZnSe which was characterized by XRD.

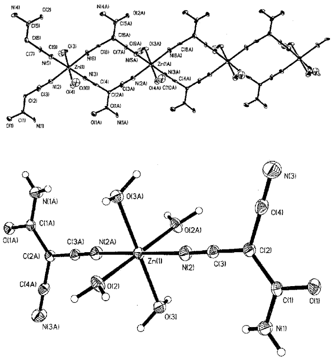


Jing-Min Shi, Hai-Liang Yin, Chang-Ju Wu, Feng-Ling Liu, Wen Xu

Polyhedron 22 (2003) 493

Syntheses, crystal structures and fluorescence emission of one-dimensional and mononuclear complexes generated from zinc(II) and carbamyldicyanomethanide

A novel one-dimensional chain complex $\{[Zn(cda)_2(CH_3OH)_2] \cdot 4CH_3OH\}_\infty$ and a new mononuclear complex $[Zn(cda)_2(H_2O)_4] \cdot 2H_2O$ have been synthesized with the polynitrile ligand carbamyldicyanomethanide. The two complexes exhibit fluorescent emission property both in the solid state and in solution.

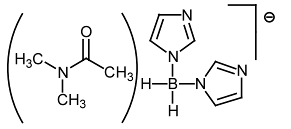


Maura Pellei, Giancarlo Gioia Lobbia, Massimo Ricciutelli, Carlo Santini

Polyhedron 22 (2003) 499

Synthesis and solution studies by electrospray mass spectroscopy of new bis(imidazolyl)borate organotin(IV) complexes

New organotin(IV) derivatives have been obtained from the interaction of potassium (dimethylacetamide)dihydrobis(1-imidazolyl)borate, $K(DMAC)[H_2B(im)_2]$, with a number of organotin(IV) halides, SnR_nX_{4-n} (R = Me, Ph, ^{n}Bu or Cy; $n = 1-3$). The complexes of the type $\{[H_2B(im)_2]R_nSnCl_{4-n-1}\}$ have been fully characterized by elemental analyses and FT-IR in the solid state and by NMR (^{1}H and ^{119}Sn) spectroscopy, conductivity measurements and electrospray ionization mass spectrometry in solution.



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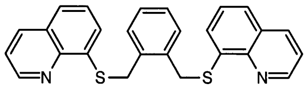
Sara Tavacoli, Thomas A. Miller, Rowena L. Paul, John C. Jeffery, Michael D. Ward

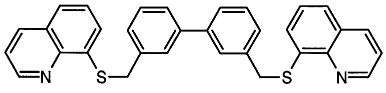
Polyhedron 22 (2003) 507

Synthesis and coordination chemistry of tetradentate ligands containing two bidentate thioquinoline units: mononuclear complexes with Cu(I) and Cu(II), and a coordination polymer with Cu(I)

The N_2S_2-donor tetradentate ligands L^3 and L^4 have been prepared and structurally characterised, and their coordination behaviour to Cu(I) and Cu(II) investigated. L^3 forms mononuclear complexes $[Cu(L^3)][PF_6]$ (pseudo-tetrahedral) and $[Cu(L^3)(MeCN)][BF_4]_2$ (five-coordinate, with a geometric τ parameter of 0.62) with Cu(I) and Cu(II), respectively, in which L^3 acts as a tetradentate chelate. In contrast, L^4 cannot act as a tetradentate chelate to a single metal ion and forms a coordination polymer $\{[Cu(L^4)][PF_6]\}_\infty$ with Cu(I), in which each metal/ligand chain has a pronounced zig-zag structure.



L^3



L^4

Mohamed A.S. Goher, Franz A. Mautner, Afaf K. Hafez, Adel A. Youssef

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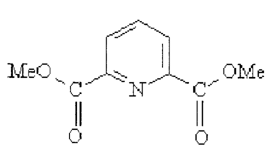
Synthesis and characterization of copper(I) complexes of dimethyldipicolinate (dmdp) and X-ray structure of the mononuclear six-coordinate complex $[Cu(dmdp)_2]ClO_4$

Copper(I) complexes of dimethyldipicolinate (dmdp) have been synthesized and characterized. The crystal structure determination has shown $[Cu(dmdp)_2]ClO_4$ to contain a six-coordinate (4+2) copper(I) environment.



Chew Hee Ng, Yih Tong Lim, Norhayati Moris, Siang Guan Teoh

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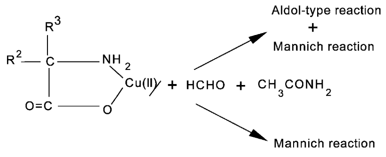
Effect of different α-substituent on the Mannich reaction of copper(II) chelated α-amino acids with formaldehyde and acetamide: X-ray structure of aquabis(3-methylacetamido-5-methyl-oxazolidine-4-carboxylato)-copper(II)

The nature of the α-substituent (R) can affect the reaction pathway of chelated amino acids. There are two types of R: (i) activating α-alkyl or reactive α-hydroxyalkyl and (ii) non-activating α-alkyl substituent. The two different types of compounds formed are differentiated further by their thermal decomposition patterns.



Xuan Shen, Daisuke Hirayama, Kazunori Sakata, Mamoru Hashimoto

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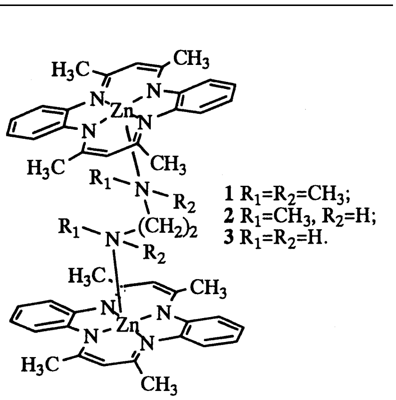
Syntheses, characterization and crystal structures of diamine-bridged dinuclear 5,14-dihydro-6,8,15,17-tetramethyldibenzo[*b*,*i*][1,4,8,11]tetraazacyclotetradecinato-zinc(II) complexes

Three diamine-bridged dinuclear zinc(II) complexes, Zn(tmtaa) (μ-DA)(tmtaa)Zn (H_2tmtaa = 5,14-dihydro-6,8,15,17-tetramethyldibenzo [*b*,*i*] [1,4,8,11] tetraazacyclotetradecine; DA = *N*,*N*,*N′*,*N′*-tetramethylethylenediamine, **1**; *N*,*N′*-dimethylethylenediamine, **2**; EDA, **3**), were prepared by the reactions of $Zn(CF_3SO_3)_2$, H_2tmtaa and diamines in acetonitrile, X-ray single crystal analyses of **1** and **2** show that two zinc(II) ions in **1** or **2** are coordinated through four nitrogen atoms of tmtaa and a nitrogen atom of diamine to form two five-coordinated dinuclear complexes of square-pyramidal geometry.

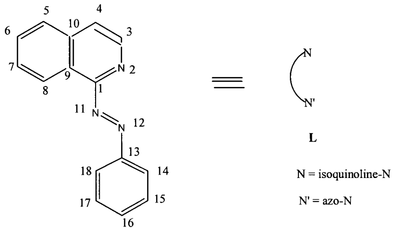


Tian-Huey Lu, Tarun Kumar Misra, Po-Ching Lin, Fen-Ling Liao, Chung-Sun Chung

Polyhedron 22 (2003) 535

Synthesis and X-ray characterization of two isomeric dichloro bis-{1-(phenylazo)isoquinoline} complexes of ruthenium(II)

The azoimine functionalized new ligand, 1-(phenylazo)isoquinoline is synthesized and is afforded two complexes of isomeric dichlorobis-{1-(phenylazo)isoquinoline} ruthenium(II) on reaction with $RuCl_3$ in dry ethanol under nitrogen atmosphere. These complexes are characterized by X-ray crystal structure determination. Both isomers are having distorted octahedral geometry.



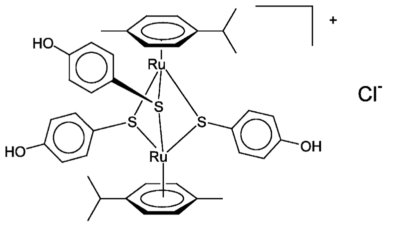
1-(Phenylazo)isoquinoline

Frédéric Chérioux, Christophe M. Thomas, Tiffany Monnier, Georg Süss-Fink

Polyhedron 22 (2003) 543

Specific reactivity of SH versus OH functions towards dinuclear arene ruthenium units: synthesis of cationic complexes of the type $[(arene)_2Ru_2(SR)_3]^+$

Reaction of $[(arene)RuCl_2]_2$ (arene = C_6H_6, p-CH_3–C_6H_4–^{i}Pr, C_6Me_6) with p-thiocresol, 2-mercaptoethanol and p-mercaptophenol provides an easy access to multifunctional molecules containing free OH functions. Nine new dinuclear arene-ruthenium complexes of this type have been synthesized and isolated as the chloride salts.



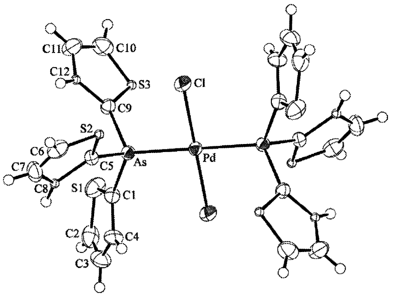
4b

H. Mahalakshmi, Vimal K. Jain, Edward R.T. Tiekink

Polyhedron 22 (2003) 549

Chemistry of 2-thienyl derivatives of arsenic and antimony: synthesis and characterization; X-ray structure of $[PdCl_2\{(C_4H_3S)_3As\}_2]$

Synthesis of tri-(2-thienyl)-arsine and -stibine, Th_3E (E = As; Sb) has been described. The coordination behaviour of Th_3E has been explored and a series of complexes of the type $[MCl_2(AsTh_3)_2]$, $[PdX_2(\mu\text{-}Y)_2(AsTh_3)_2]$, $[PdCl(S^\wedge S)(AsTh_3)]$ [M = Pd, Pt; X = Cl, Me; Y = Cl, dmpz, pz, $S^\wedge S$ = $S_2P(OEt)_2$, $S_2P(OPr^i)_2$] have been prepared and characterized. Molecular structure of $[PdCl_2(AsTh_3)_2]$ reveals a square planar geometry for palladium defined by an As_2Cl_2 donor set.

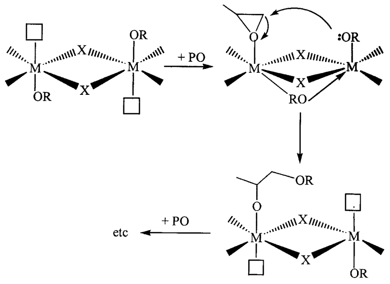


Malcolm H. Chisholm, Judith Gallucci, Diana Navarro-Llobet, Hongshi Zhen

Polyhedron 22 (2003) 557

Further investigation of the ring-opening polymerization of propylene oxide. Catecholate derivatives of Zn(II) and Al(III)

Dimeric zinc and aluminum complexes with open coordination site are reported, along with studies aimed at developing oxirane polymerization catalysts.



Gustavo Ríos-Moreno, Gerardo Aguirre, Miguel Parra-Hake, Patrick J. Walsh

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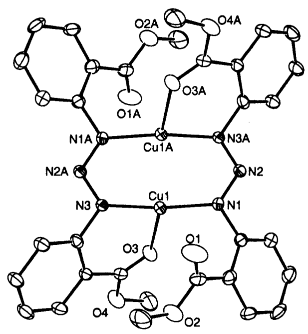
Synthesis, characterization, and structure of dinuclear copper(I) and silver(I) complexes of *ortho*-functionalized 1,3-bis(aryl)triazenide ligands

The diaryl triazene ligand **1**, substituted with *ortho*-carboxymethyl groups reacts with Cu(OAc) and Ag(OAc) to give dinuclear triazenide complexes [M(Ar–NNN–Ar)]$_2$. In both compounds, one ester carbonyl group is coordinated to each metal center.



Vijaykumar S. Ijeri, Ashwini K. Srivastava

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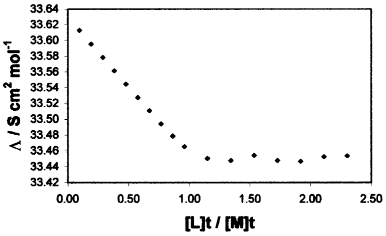
Complexation of macrocyclic compounds with mono-, di- and tri-valent transition and heavy metal ions in 90% (v/v) DMSO+water medium

Complexation of transition metal ions with macrocyclic compounds has been studied by conductometry and potentiometry. On complexation, the mobility of the metal ions vary, depending on their solvation in the medium. In general, larger cations show a decrease and smaller ones show an increase in mobility due to replacement of the solvation sphere by the macrocyclic compound.



Andrej Pevec, Maja Mrak, Alojz Demšar, Saša Petricek, Herbert W. Roesky

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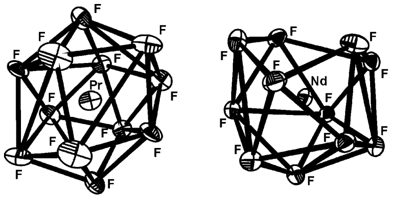
Coordination number 12 in praseodymium and 11 in neodymium complexes with organofluorotitanate ligands

Using fluorodentate ligand [(C$_5$Me$_5$)$_2$-Ti$_2$F$_7$]$^-$ the all-fluorine environment of Pr(III) and Nd(III) in molecular compounds was found for the first time in the solid state and in solution. The lanthanide contraction results in coordination numbers 12 in praseodymium and 11 in neodymium compound.

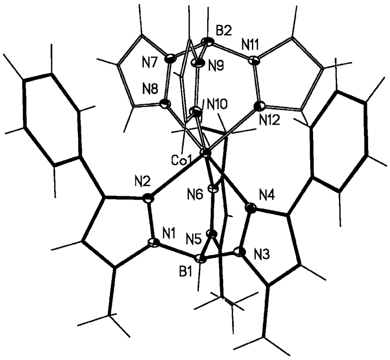


Tomasz Ruman, Zbigniew Ciunik, Stanisław Wołowiec

Polyhedron 22 (2003) 581

Complexes of heteroscorpionate trispyrazolylborate ligands. Part IX. X-ray crystallographic studies on cobalt(II) complexes of hydrobis(3-phenyl,5-methylpyrazolyl)(3,5-diethylpyrazolyl)borate

Novel heteroscorpionate hydrobis(3-phenyl,5-methylpyrazolyl)(3,5-diethylpyrazolyl)-borate (Tp″) forms mono-ligand Tp″Co-(NCS)(THF) and heteroleptic Tp″CoTp complexes (Tp = trispyrazolylborate), which were characterized in solid state by X-ray crystallography and in solution by ^{1}H NMR spectroscopy.



Maravanji S. Balakrishna, Rashmishree Panda, Joel T. Mague

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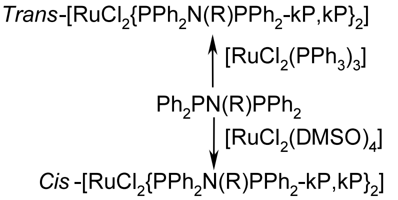
Synthesis, structures, spectroscopic and electrochemical studies of Ru(II) complexes containing bis(phosphino)amine ligands. Crystal and molecular structures of *trans*-$[RuCl_2\{Ph_2PN(Me)PPh_2\text{-}\kappa P,\kappa P\}_2]$ and *trans*-$[RuCl_2\{Ph_2PN(^iPr)PPh_2\text{-}\kappa P,\kappa P\}_2]$

Bis(phosphino)amines, $Ph_2PN(R)PPh_2$ react with $[RuCl_2(DMSO)_4]$ and $[RuCl_2(PPh_3)_3]$ under mild conditions to give geometrically pure *cis* and *trans* Ru(II) octahedral complexes, respectively in good yield. Synthesis, spectroscopic, structural and electrochemical aspects are described.



M.J. Moloto, M.A. Malik, P. O'Brien, M. Motevalli, G.A. Kolawole

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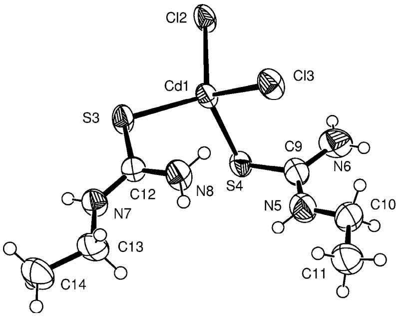
Synthesis and characterisation of some *N*-alkyl/aryl and *N,N′*-dialkyl/aryl thiourea cadmium(II) complexes: the single crystal X-ray structures of $[CdCl_2(CS(NH_2)NHCH_3)_2]_n$ and $[CdCl_2(CS(NH_2)NHCH_2CH_3)_2]$

A series of cadmium complexes with *N*-alky or aryl and *N,N*-dialkyl or diaryl thioureas (RNHCSNHR; where $R = R' = Me$, Et, Ph and $R' = H$) have been synthesised and characterised. The structure of $[CdCl_2(CS(NH_2)(NHCH_3)_2]_n$ (**I**) is apolymer chain built from $[CdCl_3S_3]$ distorted octahedra and the structure of $CdCl_2(CS(NH_2)NHCH_2CH_3)_2$ (II) is monomeric with distorted tetrahedral geometry at the cadmium centre.



R. Lalrempuia, Mohan Rao Kollipara, Patrick J. Carroll

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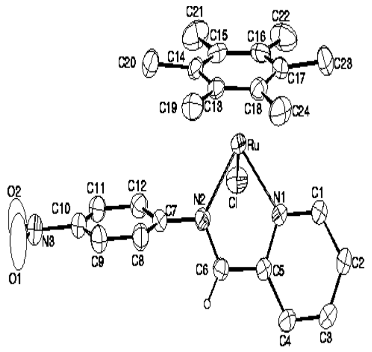
Syntheses and characterization of arene ruthenium (II) complexes containing *N,N′*-donor Schiff base ligands. Crystal and molecular structure of $[(\eta^6\text{-}C_6Me_6)Ru(C_5H_4N\text{-}2\text{-}CH{=}N\text{-}C_6H_4\text{-}p\text{-}NO_2)]PF_6$

The photophysics, photochemistry and redox properties of α,α′-diimines of ruthenium complexes have been prolific areas of research over the past two decades. There are few reports of arene ruthenium complexes with α,α′-diimines available in literature. Herein, we would like to report the synthesis and characterization of new cationic half sandwich arene ruthenium complexes of *N,N′*-Schiff base ligands.



Ling Jiang, Xi-An Mao

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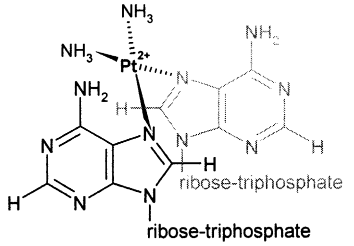
Cisplatin forms a 1:2 complex with ATP in aqueous solutions between pH 2 and 9

Interaction of ATP with cisplatin in the pH range 1.9–9.5 was studied by NMR. A new complex with the composition $Pt(NH_3)_2(ATP)_2$ formed very slowly after cisplatin was added to ATP solution. In the complex, ATP bound Pt at N7 with a kinetically inert coordination bond. Beside the 2:1 complex of N7 type, a 1:1 complex of N1 type co-existed at low pH, which exchanged rapidly with free ATP on the NMR time scale.



Mau Sinha Ray, Rahul Bhattacharya, Siddhartha Chaudhuri, Lara Righi, Gabriele Bocelli, Gurucharan Mukhopadhyay, Ashutosh Ghosh

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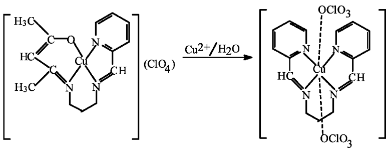
Synthesis, characterisation and X-ray crystal structure of copper(II) complexes with unsymmetrical tetradentate Schiff base ligands: first evidence of Cu(II) catalysed rearrangement of unsymmetrical to symmetrical complex

Two mononuclear complexes of Cu(II) with tetradentate unsymmetrical Schiff base ligands derived from the 1:1:1 condensation of 2,4-pentanedione, pyridine-2-carboxaldehyde and 1,2-ethanediamine or 1,3-propanediamine are reported. One of them is found to undergo Cu(II) catalysed rearrangement to a complex of symmetrical tetradentate Schiff base ligand involving pyridine-2-carboxaldehyde. X-ray single crystal structure of all the three complexes are determined.



Saugata Sain, Tapas Kumar Maji, Golam Mostafa, Tian-Huey Lu, Joan Ribas, Xavier Tercero, Nirmalendu Ray Chaudhuri

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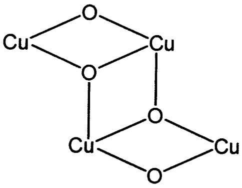
Magneto structural correlations of a ‘stepped-wise’ discrete tetranuclear unit of copper(II), $[Cu_4(\mu_2\text{-}OH)_2((\mu_3\text{-}OH)_2(2,2'\text{-}bipy)_4Cl_2]Cl_2\cdot 6H_2O$

A novel tetranuclear copper(II) complex, $[Cu_4(\mu_2\text{-}OH)_2(\mu_3\text{-}OH)_2(2,2'\text{-}bipy)_4Cl_2]Cl_2\cdot 6H_2O$ has been synthesized. This is the rare type of copper(II) complex having discrete tetranuclear $Cu_4(II)O_4$ entities with a ‘stepped-wise’ structure. A novel feature of the title complex is that the OH^- anion functions as a bridging bidentate (μ-2) and tridentate (μ-3). The magnetic behavior has been investigated in the temperature range 300–4.2 K and shows ferromagnetic interactions.



G.M. Golzar Hossain, Md. Iqbal Hyder, Shariff E. Kabir, K.M. Abdul Malik, Md. Arzu Miah, Tasneem A. Siddiquee

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Binuclear ruthenium complexes containing bridging dithiolate and dppm ligands: X-ray structures of $[Ru_2(CO)_4(\mu\text{-}SCH_2CH_2CH_2S)(\mu\text{-}dppm)]$ and $[Ru_2(CO)_4\{(\mu\text{-}SC_6H_3(CH_3)\text{-}S\}(\mu\text{-}dppm)]$

The reactions of $[Ru_3(CO)_{10}(\mu\text{-}dppm)]$ (**4**) with $HS(CH_2)_2SH$, $HS(CH_2)_3SH$ and $HSC_6H_3(CH_3)SH$ in refluxing THF afforded the dinuclear complexes $[Ru_2(CO)_4(\mu\text{-}SCH_2CH_2S)(\mu\text{-}dppm)]$ (**5**), $[Ru_2(CO)_4(\mu\text{-}SCH_2CH_2CH_2S)(\mu\text{-}dppm)]$ (**6**) and $[Ru_2(CO)_4\{\mu\text{-}SC_6H_3(CH_3)S\}(\mu\text{-}dppm)]$ (**7**), respectively. Protonation of **5** and **6** by HBF_4 in CD_2Cl_2 resulted in the cationic hydrido complexes $[(\mu\text{-}H)Ru_2(CO)_4(\mu\text{-}SCH_2CH_2S)(\mu\text{-}dppm)]^+$ (**8**) and $[Ru_2(CO)_4(\mu\text{-}SCH_2CH_2CH_2S)(\mu\text{-}dppm)]^+$ (**9**) isolated as their PF_6^- salts.