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POLYHEDRON

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Contents

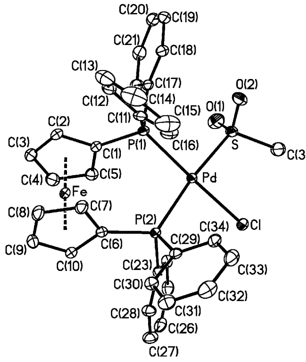
Papers

Kelin Li, Ilia A. Guzei, James Darkwa

Polyhedron 22 (2003) 805

Insertion of sulfur dioxide into metal–carbon bonds of chloro(methyl)palladium complexes

A number of chloromethyl palladium complexes of general formula (L–L)Pd(Me)Cl {(L–L) = dippf, dppf, dppe, COD or 3,5-di^{t}Bupz} react with sulfur dioxide via insertion of sulfur dioxide into the palladium–carbon bond to form (L–L)Pd(SO_2Me)Cl. Solutions of insertion products containing diphosphino ancillary ligands are quite stable in air but those with COD and 3,5-di^{t}Bupz slowly decompose when left in air. Single crystal X-ray structure analysis confirms the nature of the insertion product in the solid-state.

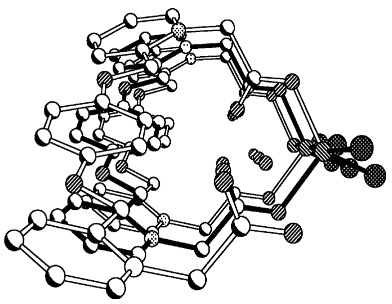


Lin-Ping Zhang, Hai-Bin Song,
Quan-Ming Wang, Thomas C.W. Mak

Polyhedron 22 (2003) 811

Coordination networks generated from transition metal chlorides and a flexible double betaine

The synthesis and characterization of a series of divalent manganese, cobalt, copper, zinc and cadmium complexes with a new flexible double betaine, 1,4-bis(2-picolyloxyl)benzene-*N*,*N′*-diacetate, are reported; the ligand exhibit *anti* and *syn* ligation modes, thereby generating different kinds of coordination networks.

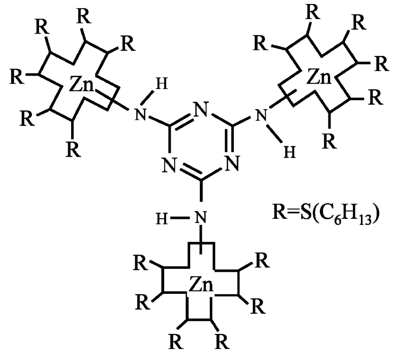


Nazan Ozan, Özer Bekaroğlu

Polyhedron 22 (2003) 819

Synthesis and characterization of a triazine containing three phthalocyanines

An unsymmetrical zinc(II) phthalocyanine carrying one nitro group was prepared by using the method of statistically mixed condensation. This compound was reduced to its ammonium salt. Then, an interesting trimeric-s-triazine containing three amino zinc(II) phthalocyanines was synthesized.



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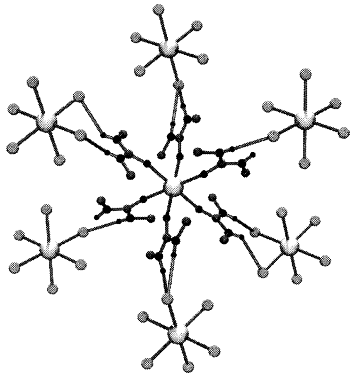
Eleanna Diamantopoulou, Giannis S. Papaefstathiou, Aris Terzis, Catherine P. Raptopoulou, Herman O. Desseyn, Spyros P. Perlepes

Polyhedron 22 (2003) 825

Hydrogen bonded networks based on lanthanide(III) complexes of *N*,*N*′-dimethylurea (DMU): preparation, characterisation, and crystal structures of $[Nd(DMU)_6][NdCl_6]$ and $[Nd(NO_3)_3(DMU)_3]$

In the crystal structure of $[Nd(DMU)_6]$-$[NdCl_6]$, the hexakis(*N*,*N*′-dimethylurea)-neodymium(III) cation acts as a hydrogen-bonding building block with multi-fold connectivity linking $[NdCl_6]^{3-}$ to generate 3D architectures. The hydrogen bonding functionalities on the molecules of $[Nd(NO_3)_3$-$(DMU)_3]$ yield also 3D architectures without the intervention of anionic intermediares.

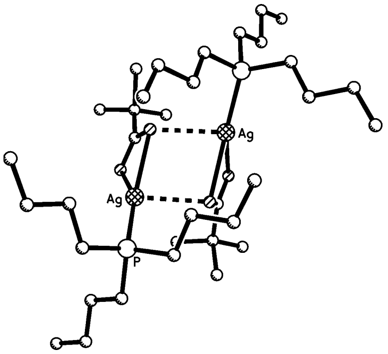


S.E. Paramonov, N.P. Kuzmina, S.I. Troyanov

Polyhedron 22 (2003) 837

Synthesis and crystal structure of silver(I) carboxylate complexes, $Ag(P^nBu_3)[C(CH_3)_3$-$COO]$ and $Ag(Phen)_2[CF_3COO]\cdot H_2O$

To study the influence of adduct formation on the volatility of silver carboxylates, new compounds, $Ag(P^nBu_3)[C(CH_3)_3COO]$ and $Ag(Phen)_2[CF_3COO]\cdot H_2O$, were synthesized and their crystal structures were determined. Dimeric $Ag(P^nBu_3)[C(CH_3)_3COO]$ (Fig.) is more volatile than the parent polymeric $Ag[C(CH_3)_3COO]$. In the case of the $Ag(Phen)_2[CF_3COO]\cdot H_2O$ complex, the addition of two ligands leads to the formation of an ionic structure; this compound is not volatile.

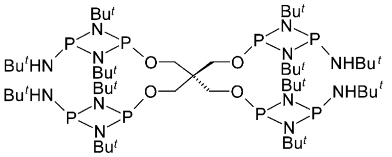


Praveen Kommana, J.J. Vittal, K.C. Kumara Swamy

Polyhedron 22 (2003) 843

Synthesis and structures of novel bis- and tetrakis-cyclodiphosphazane compounds appended to a diol or a tetra-ol

Novel multinuclear cyclodiphosphazanes $Et_2C[CH_2OP(\mu\text{-}N\text{-}t\text{-}Bu)_2PNH\text{-}t\text{-}Bu]_2$ (**2**) and $C[CH_2OP(\mu\text{-}N\text{-}t\text{-}Bu)_2PNH\text{-}t\text{-}Bu]_4$ (**3**) have been synthesized utilizing the precursor $[ClP(\mu\text{-}N\text{-}t\text{-}Bu)_2P(HN\text{-}t\text{-}Bu)]$ (**1**) and characterized by X-ray crystallography.



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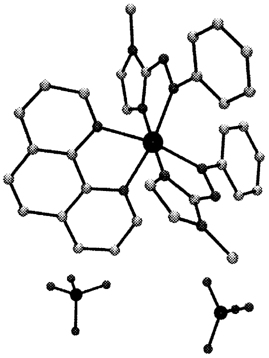
P. Byabartta, S.K. Jasimuddin, G. Mostafa, T.-H. Lu, C. Sinha

Polyhedron 22 (2003) 849

The synthesis, spectral studies and electrochemistry of 1,10-(phenanthroline)-bis-{1-alkyl-2-(arylazo)imidazole}ruthenium(II) perchlorate. Single crystal X-ray structure of $[Ru(phen)(HaaiMe)_2](ClO_4)_2$ [phen = 1,10-phenanthroline, HaaiMe = 1-methyl-2-(phenylazo)imidazole]

The synthesis, spectral studies and electrochemistry of 1,10-(phenanthroline)-bis-{1-alkyl-2-(arylazo)imidazole}ruthenium(II)perchlorate. Single crystal X-ray structure of $[Ru(phen)(HaaiMe)_2](ClO_4)_2$ [phen = 1,10−phenanthroline, HaaiMe = 1-methyl-2-(phenylazo)imidazole]. *Ctc*-Ru-$Cl_2(RaaiR')_2$ (RaaiR′ = 1-alkyl-2-(arylazo)imidazole) reacts with Ag^+ in the presence of 1,10−phenanthroline (phen) to synthesize the hetero-tris-chelated compound $[Ru(phen)(RaaiR')_2]$-$(ClO_4)_2$. Single crystal X-ray structure analyses determine the structure and ^1H NMR are data used to study the stereochemistry. Metal-to-ligand charge transfer (MLCT) transitions are exhibited by electronic spectra and the energy of the band is linearly correlated with the difference in potential between Ru(III)/Ru(II) and the first bound ligand reduction.

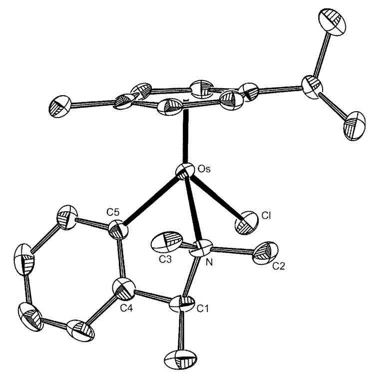


Henri Brunner, Thomas Zwack, Manfred Zabel

Polyhedron 22 (2003) 861

Optically active transition metal complexes. Part 131. Synthesis and epimerization of chiral-at-metal (η^6-arene)ruthenium(II) and (η^6-arene)osmium(II) half-sandwich complexes

The diastereomers of the compound [(η^6-*p*-cymene)Os(**LL***)Cl], **LL*-H** = (*S*)-(−)-*N*,*N*-dimethyl(1-phenylethyl)amine, differing only in the metal configuration, were separated. Diastereomer (R_{Os},S_C) was characterized by X-ray analysis. Epimerization studies showed that the metal configuration is labile in solution.

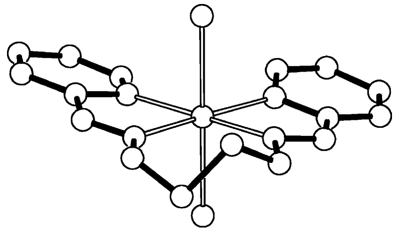


Satyanarayan Pal, Samudranil Pal

Polyhedron 22 (2003) 867

Syntheses, structures and properties of *trans*-dichlororuthenium(II) complexes with N_4-donor Schiff bases

The isolation and characterisation of three complexes having the formula *trans*-[RuLCl$_2$] where L represents neutral tetradentate Schiff bases prepared from 1 equiv. of linear diamines and 2 equiv. of 2-pyridine-carboxaldehyde have been described. The central chelate ring size formed by L strongly influences the spectral and redox features of these complexes.

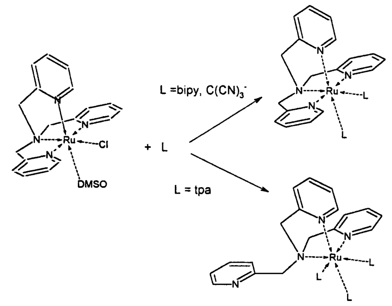


Jens Bjernemose, Alan Hazell, Christine J. McKenzie, Mary F. Mahon, Lars Preuss Nielsen, Paul R. Raithby, Ole Simonsen, Hans Toftlund, Juliusz A. Wolny

Polyhedron 22 (2003) 875

Synthesis and characterization of ruthenium(II) complexes with polypicolylamine ligands

[Ru(tpa)(dmso)Cl](PF$_6$) reacts with bipyridine, tpa and tricyanomethane anion (tcm) affording the [Ru(tpa)(bipy)](PF$_6$)$_2$, [Ru(tpa)$_2$](PF$_6$)$_2$ and Ru(tpa)(tcm)$_2$ complexes, respectively. The X-ray structures of [Ru(tpa)(bipy)](PF$_6$)$_2$ and Ru(tpa)(tcm)$_2$ show that tpa acts as a tetradentate ligand, while in [Ru(tpa)$_2$](PF$_6$)$_2$ it is tridentate, facially coordinated, with one non-coordinated pyridine.

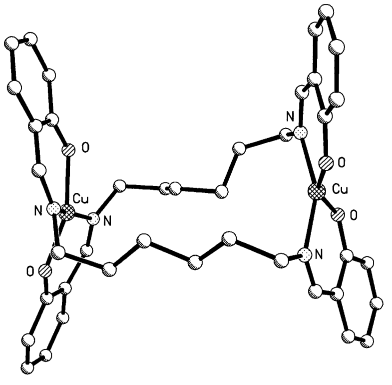


Lawrence C. Nathan, Jessica E. Koehne, Joshua M. Gilmore, Kelly A. Hannibal, William E. Dewhirst, Tuyetha D. Mai

Polyhedron 22 (2003) 887

The X-ray structures of a series of copper(II) complexes with tetradentate Schiff base ligands derived from salicylaldehyde and polymethylenediamines of varying chain length

In a series of *N*,*N*′-polymethylenebis(salicylaldiminato)copper(II) Schiff base complexes with alkyl backbones ranging from two to eight carbons, there is a monomer–dimer structural transition between those with backbones of four and five carbon atoms.

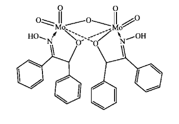


Attia S. Attia, Samir F. El-Mashtoly, M.F. El-Shahat

Polyhedron 22 (2003) 895

Synthesis, electrochemical and spectroscopic properties of dimeric oxomolybdenum(IV) and (VI) complexes containing terminal and bridged bidentate α-benzoinoxime ligands

Reactions between Mo(CO)$_6$ and α-benzoinoxime carried out under various atmospheric conditions, of either vacuum or argon, have resulted in a dramatically different products. When the reaction has been carried out under vacuum, the binuclear oxomolybdenum(VI) complex [Mo$_2$O$_5$(HBNO)$_2$] (**1**) was obtained. Changing the reaction condition to be under an inert atmosphere of argon, but not under scrupulously oxygen-free conditions, produced an oxomolybdenum dimer [Mo$_2$O$_2$(HBNO)$_4$] (**2**). The electrochemical behavior of the two complexes was completely different. While complex (**1**) displayed two reversible one-electron reductions, complex (**2**) showed one irreversible two-electron oxidation followed by a one-electron oxidation.



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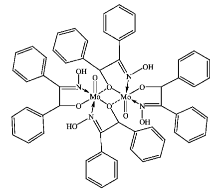


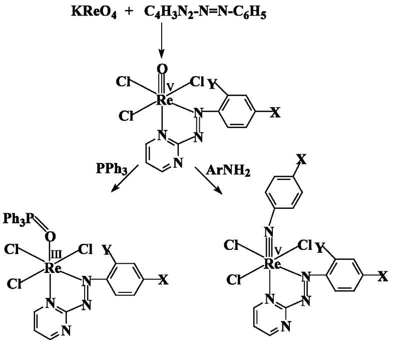
(2)

Samir Das, Indranil Chakraborty, Animesh Chakravorty

Polyhedron 22 (2003) 901

Chemistry of azopyrimidine chelates of Re^{V}O, Re^{III}OPPh$_3$ and Re^{V}NAr

The reaction of 2-(arylazo)pyrimidines with KReO$_4$ in hot concentrated HCl has afforded mono-chelates of Re^{V}OCl$_3$, the reaction being attended with aryl chlorination. The oxo species furnishes Re^{III}(OPPh$_3$)Cl$_3$ and Re^{V}(NAr)Cl$_3$ chelates upon reaction with PPh$_3$ and ArNH$_2$, respectively. The structure and properties of the family are reported.

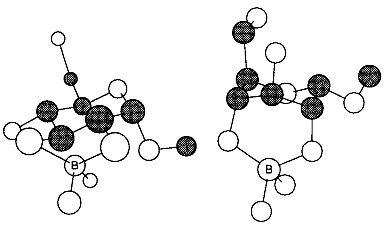


Yoshinobu Miyazaki, Kazuhisa Yoshimura, Yoshinori Miura, Hirofumi Sakashita, Katsutoshi Ishimaru

Polyhedron 22 (2003) 909

^{11}B NMR investigation of the complexation behavior of borate with polysaccharides in aqueous solution

The complexation of borate with linear dextrans and their monomer derivatives was investigated by using ^{11}B NMR spectroscopy. Borate reacts with dextran to form inter-chain (α,β)(α,β)- and (α,β)(α,γ)-bischelate complexes in the bis-complexation in addition to the (α,β)- and (α,γ)-monochelate complexes. The formation of intra-chain bischelate complexes can be negligible for the rather stiff polymer.



Yu-Jun Shi, Li-Hong Li, Yi-Zhi Li, Xue-Tai Chen, Ziling Xue, Xiao-Zeng You

Polyhedron 22 (2003) 917

Syntheses and structures of two one-dimensional double-stranded lead polymers of dicyanamide with unusual coordination mode

Two novel lead coordination polymers Pb(dca)(NO$_3$)(1,10-phen) (**1**) and Pb(dca)$_2$-(2,2′-bipy)(H$_2$O) (**2**) have novel one-dimensional double-stranded chains with dca in a novel 1,1,5-μ_3-coordination mode.