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Contents

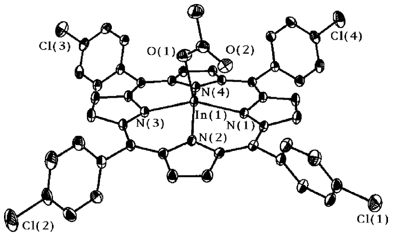
Papers

Yu-Yi Lee, Jyh-Horung Chen, Hsi-Ying Hsieh

Polyhedron 22 (2003) 1633

Metal complexes of *meso*-tetra-(*p*-chlorophenyl)porphyrin and *meso*-tetra-(*p*-bromophenyl)porphyrin: Tl[(*p*-Cl)$_4$tpp](OAc) and In[(*p*-X)$_4$tpp](OAc) [X = Cl, Br, tpp = 5,10,15,20-tetraphenylporphyrinate]

This work reports X-ray crystals of the three mononuclear metal complexes, Tl[(*p*-Cl)$_4$tpp](OAc) (**1**), In[(*p*-Cl)$_4$tpp](OAc) (**2**) and In[(*p*-Br)$_4$tpp](OAc) (**3**). The geometry around Tl in **1** is a distorted square-based pyramid whereas that around the In^{3+} in **2** and **3** is described as a regular square-based pyramid in which the apical site is occupied by an unidentate OAc^{-} ligand.

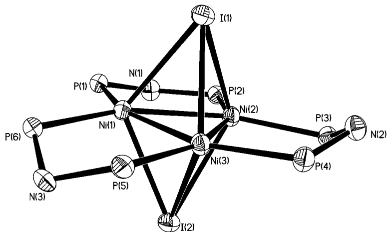


Eugenio Simón-Manso, Peter Gantzel, Clifford P. Kubiak

Polyhedron 22 (2003) 1641

Synthesis, molecular structure and electrochemical studies of the bis(diphenylphosphino)amine bridge triangular nickel clusters

The synthesis of the triangular trinuclear nickel complexes ([Ni$_3$(μ-I)$_2$(μ-dppa)$_3$]$^{+n}$, $n = 0$, $+1$; dppa = ligand bis(diphenylphosphine)amine), is reported. The crystallographic study of these clusters allow detailed structural comparison with the bis(diphenylphosphine)methane (dppm) analogs. Differences in electrochemical redox potentials are discussed in the light of stronger metal–phosphorus interaction in the dppa clusters. The dppa clusters [Ni$_3$(μ-I)$_2$(μ-dppa)$_3$]$^{+}$, show a bigger HOMO–LUMO gap, denoting greater thermodynamic stability of the dppa bridged 51e^{-} species, compared to its dppm analog.

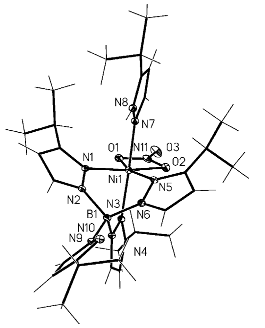


Joanna Kisała, Zbigniew Ciunik, Krzysztof Drabent, Tomasz Ruman, Stanisław Wołowiec

Polyhedron 22 (2003) 1645

The X-ray crystallographic structures, spectral and magnetic properties of nickel(II), copper(II) and cobalt(II) complexes with tetra(3-*iso*-propylpyrazol-1-yl)borate

The X-ray crystallographic structures, spectral and magnetic properties of nickel(II), copper(II) and cobalt(II) complexes with tetra(3-*iso*-propylpyrazol-1-yl)borate. Tetra(3-*iso*-propylpyrazol-1-yl)borate ligand (L) forms mono-ligand LMX, bis-ligand L$_2$M (where M = Ni(II) and Cu(II), and X = Cl^{-} or NO$_3$$^{-}$) and trinuclear (NCS)$_2$Co(L)-Co(L)Co(NCS)$_2$ complexes depending on the stoichiometry of the synthesis. The L coordinates to metal ions in a κ^3 fashion in LNiCl, LNi(NO$_3$)(5-^{i}PrpzH) and LCuCl(5-^{i}PrpzH), whereas a κ^2 binding mode was found in L$_2$Ni and in unique (NCS)$_2$Co(L)-Co(NCS)$_2$, in which L bridges two metal ions.



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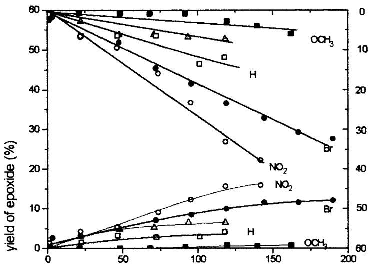
Santiago Zolezzi, Evgenia Spodine, Antonio Decinti

Polyhedron 22 (2003) 1653

Epoxidation of styrene with iodosylbenzene in the presence of copper(II) Schiff-base complexes

Copper(II) complexes with salen Schiff-base ligands derived from ethylenediamine or (*S*,*S*)-1,2-diphenylethylenediamine and salicylaldehyde or 5-methoxy, 5-bromo and 5-nitrosalicylaldehyde have been tested as catalysts for the epoxidation of styrene with iodosylbenzene, in dichloromethane as a solvent. Moderate styrene conversions and epoxide yields were obtained. Possible reaction mechanisms are outlined.

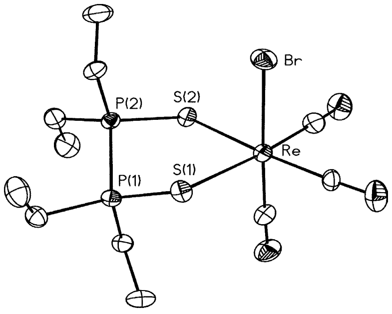


Ozan Sanlı Şentürk, Hawry A. Shekhel, Brian T. Sterenberg, Konantin A. Udachin, Sema Sert, Ümmühan Özdemir, Fadime Uğur Sarikahya

Polyhedron 22 (2003) 1659

Photochemical reactions of Re(CO)$_5$Br with tetraalkyldiphosphine disulfides (R = Me, Et, ^{n}Pr, ^{n}Bu, Ph) and the crystal structure of [ReBr(CO)$_3$(Et$_2$P(S)P(S)Et$_2$)]

The hitherto unknown series of complexes *fac*-[Re(CO)$_3$Br{R$_2$P(S)P(S)R$_2$}] **1a**–**5a** (**1a**, R = Me; **2a**, R = Et; **3a**, R = ^{n}Pr; **4a**, R = ^{n}Bu; **5a**, R = Ph) and [Re$_2$(CO)$_8$-Br$_2${*cis*-μ-R$_2$P(S)P(S)R$_2$}] **1b**–**5b** [**1b**, R = Me; **2b**, R = Et; **3b**, R = ^{n}Pr; **4b**, R = ^{n}Bu; **5b**, R = Ph] have been prepared by the photochemical reaction of Re(CO)$_5$Br with R$_2$P(S)P(S)R$_2$. The complexes have been characterized by elemental analysis, mass spectroscopy (EI), FT-IR and ^{31}P{^{1}H} NMR spectrometry.

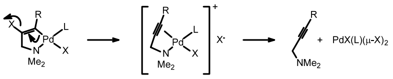


Mara L. Zanini, Mario R. Meneghetti, Gunter Ebeling, Paolo R. Livotto, Frank Rominger, Jairton Dupont

Polyhedron 22 (2003) 1665

The retro-chloropalladation reaction of heterosubstituted alkynes

Palladacycles of the type {Pd[κ^1-C, κ^1-*N*-C(R)=C(X)CH$_2$NMe2](X)(L)} (X = Cl, Br; R = Ph, Me, CH$_2$CH$_2$OH; L = Py, PPh3, ^{t}BuNC), are not stable in solution and undergo retro-chloropalladation reactions yielding the propargyl amines and [PdX(L)-μ-X]$_2$. This process is strongly dependent upon the nature of the nucleophile (L), the R group on the metallated ligand, the halogen (X) and the temperature.

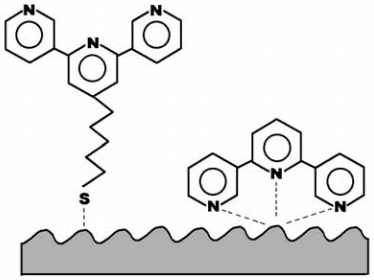


A.C. Sant'Ana, W.A. Alves, R.H.A. Santos, A.M.D. Ferreira, Marcia L.A. Temperini

Polyhedron 22 (2003) 1673

The adsorption of 2,2′:6′,2″-terpyridine, 4′-(5-mercaptopentyl)-2,2′:6′,2″-terpyridinyl, and perchlorate on silver and copper surfaces monitored by SERS

The adsorption of 2,2′:6′,2″-terpyridine (tpy) on Ag and Cu electrode surfaces has been studied by using surface enhanced Raman spectroscopy (SERS). Two types of surface complexes have been found on a silver electrode: the first one is stable near the open circuit potential, having bonding between tpy and silver active site analogous to the Ag–N bonding in the [Ag^I(tpy)Cl]·2H$_2$O complex; and the second one is stable in the −0.1 to −0.5 V (Ag/AgCl) potential range, where the interaction between tpy and silver active site is similar to the Cu–N bonding in the [Cu^{II}(tpy)Cl$_2$] complex.

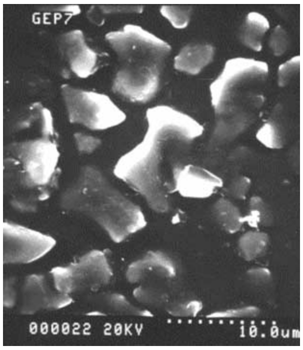


Russell Binions, Claire J. Carmalt, Ivan P. Parkin

Polyhedron 22 (2003) 1683

Germanium phosphide coatings from the atmospheric pressure chemical vapour deposition of GeX_4 ($X = Cl$ or Br) and $PCyc^{hex}H_2$

Thin films of germanium phosphide have been prepared using dual source atmospheric pressure chemical vapour deposition. Films were created using geranium tetrachloride and monocyclohexylphosphine. The stiochiometry of the resultant film could be controlled by varying reaction conditions. Scanning electron microscopy indicated an island growth mechanism was prevalent.

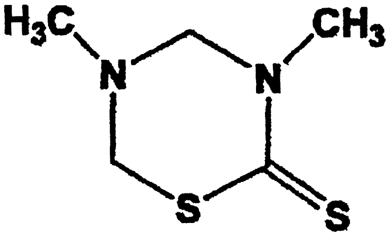


Sema Sert, Ayse Ercag, Ozan Sanli Sentürk, Brian T. Sterenberg, Konantin A. Udachin, Ümmühan Özdemir, Fadime Ugur Sarikahya

Polyhedron 22 (2003) 1689

Photochemical reactions of metal carbonyls $[M(CO)_6]$ ($M = Cr$, Mo, W), $Re(CO)_5Br$, $Mn(CO)_3Cp]$ with 3,5-dimethyl-tetrahydro-2H-1,3,5-thiadiazine-2-thione (DTTT) and the crystal structure of $[W(CO)_5(DTTT)]$

Five new complexes, $[M(CO)_5(DTTT)]$ [$M = Cr$; **1**, Mo; **2**, W; **3**], $[Re(CO)_4Br(DTTT)]$ (**4**) and $[Mn(CO)_2Cp(DTTT)]$ (**5**) have been synthesized by the photochemical reaction of metal carbonyls $[M(CO)_6]$ ($M =$ Cr, Mo and W), $[Re(CO)_5Br]$, and $[Mn(CO)_3Cp]$ with 3,5-dimethyl-tetrahydro-2H-1,3,5-thiadiazine-2-thione (DTTT). The complexes have been characterized by elemental analysis, mass spectrometry, FTIR, ^1H and $^{13}C\{^1H\}$ NMR spectroscopy.

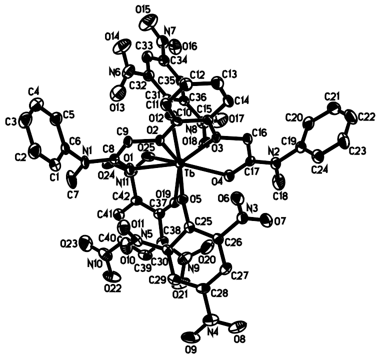


Yu-Liang Zhang, Wei-Hua Jiang, Wei-Sheng Liu, Yong-Hong Wen, Kai-Bei Yu

Polyhedron 22 (2003) 1695

Complexation and extractability studies of lanthanide elements by 2,2′-[1,2-phenylene-bis(oxy)]-bis(*N*-methyl-*N*-phenyl(acetamide))

The title ligand and its lanthanide picrate complexes were synthesised and characterized. X-ray diffraction verified that terbium complex formed a distorted mono-capped square anti-prism. Using multitracer technology, we found the sequence of the extractability of the rare earth ions for the ligand is in an inversive order in the nitrobenzene solution.

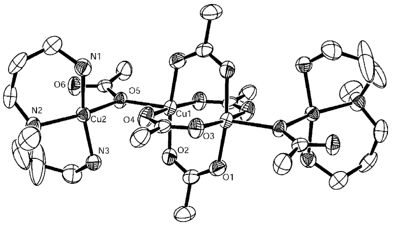


Carlos Lodeiro, Rufina Bastida, Emilia Bertolo, Alejandro Macías, Adolfo Rodríguez

Polyhedron 22 (2003) 1701

Coordination chemistry of copper(II) with oxaaza macrocyclic ligands. Crystal structure of a dinuclear tetramer copper(II) complex

A new series of Cu(II) complexes with eight different oxaaza macrocycles derived 2,6-bis(2-formylphenoxymethyl)pyridine or 1,7-bis(2′-formylphenyl)-1,4,7-trioxaheptane and the appropriate aliphatic or aromatic diamine precursor have been prepared and characterised. The crystal structure of a new binuclear tetramer Cu(II) complex is also reported.

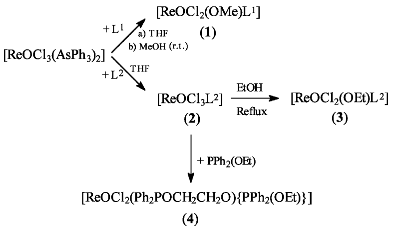


Sandra Bolaño, Jorge Bravo, Rosa Carballo, Eduardo Freijanes, Soledad García-Fontán, Pilar Rodríguez-Seoane

Polyhedron 22 (2003) 1711

Oxorhenium(V) complexes with bis-phosphinite chelating coligands. The crystal structure of $[ReOCl_2(OMe)L^1]$, $[ReOCl_3L^2]$, $[ReOCl_2(OEt)L^2]$ and $[ReOCl_2\{Ph_2PO(CH_2)_2O\}\{PPh_2(OEt)\}]$ $[L^1 = Cy_2PO(CH_2)_2OPCy_2$, $L^2 = Ph_2PO(CH_2)_2OPPh_2]$

The new ligand 1,2-bis(dicyclohexylphosphinite)ethane ($\mathbf{L^1}$) reacted with $[ReOCl_3(AsPh_3)_2]$ in the presence of methanol to yield $[ReOCl_2(OMe)L^1]$ (**1**). By refluxing $[ReOCl_3(Ph_2PO(CH_2)_2OPPh_2)]$ (**2**) (previously reported) in EtOH, $[ReOCl_2(EtO)(Ph_2PO(CH_2)_2OPPh_2)]$ (**3**) was formed. Reaction of **2** with $PPh_2(OEt)$ afforded $[ReOCl_2(Ph_2POCH_2CH_2O)\{PPh_2(OEt)\}]$ (**4**). Crystal structures of compounds **1**–**4** are reported.

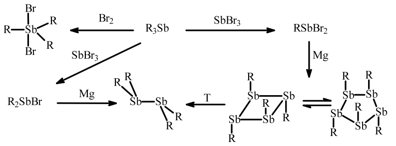


Lucia Balázs, Gabor Balázs, Hans J. Breunig, Ioan Ghesner, Enno Lork

Polyhedron 22 (2003) 1719

Syntheses of isobutylantimony compounds, *cyclo*-R_nSb_n ($n = 4$, 5), R_4Sb_2, and crystal structure of R_3SbBr_2; $R = Me_2CHCH_2$

Dehalogenation of $RSbBr_2$ ($R = Me_2CHCH_2$) with Mg in tetrahydrofuran gives *cyclo*-R_nSb_n ($n = 4$, 5). Solutions of the rings in benzene contain 4 mol.% of the tetramer and 96 mol.% of the pentamer. The rings decompose with formation of R_4Sb_2. The distibane is also formed by reaction of R_2SbBr with Mg. R_3SbBr_2 is obtained by addition of Br_2 to R_3Sb. The crystals of R_3SbBr_2 consist of trigonal bipyramidal molecules with apical bromine atoms.



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