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Contents

Papers

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Polyhedron 22 (2003) 1507

Optically active sulfur-bridged Co(III)– M(II) (M = Pd, Pt) dinuclear complexes with square-planar [$M(\mu$ -S)₂(bpy)] (bpy = 2,2'-bipyridine) frameworks derived from octahedral bidentate sulfur-donating Co(III) metalloligands The optically active S-bridged dinuclear complexes, $[M(bpy){Co(D-pen)_2}]^+$ (M = Pd^{II}, Pt^{II}; bpy = 2,2'-bipyridine, D-pen = D-penicillaminate) and Δ -[M(bpy){Co(aet)_2-(R-pn)}]^{3+} (aet = 2-aminoethanethiolate, pn = 1,2-propanediamine) were obtained by the reactions of $[MCl_2(bpy)]$ with *trans*(N)-[Co(D-pen)_2]⁻ and $\Delta \Delta$ -[Ni{Co(aet)_2(R-pn)}_2]^{4+}, respectively. Some spectrochemical properties of these complexes were discussed in relation to the X-ray crystal structures.



Qing-Xiang Liu, Hai-Bin Song, Feng-Bo Xu, Qing-Shan Li, Xian-Shun Zeng, Xue-Bin Leng, Zheng-Zhi Zhang

Polyhedron 22 (2003) 1515

Synthesis, crystal structure and photophysical properties of *N*-heterocyclic carbene Pd(II), Pt(II) complexes and iodine adduct

1-(9-Anthracenylmethyl)-3-ethylimidazolium iodide (1) is treated with PdCl₂, Pt(cod)Cl₂ or iodine to afford [1-(9-anthracylmethyl)-3ethylimidazol-2-ylidene]₂PdCl₂ (2), [1-(9-anthracylmethyl)-3-ethylimidazol-2-ylidene]₂-PtCl₂ (3), on [1-(9-anthracylmethyl)-3-ethylimidazol-2-ylidene I]⁺ I₃⁻ (4), respectively. In CH₂Cl₂ solution 1 is transformed into 1-(9-anthracylmethyl)-3-ethylimidazol-2-ylidene chloride (5).



Zhan-Xi Bian, Hai-Ying Zhao, Bao-Guo Li

Polyhedron 22 (2003) 1523

Synthesis of cyanohydrin trimethylsilyl ethers of acylferrocenes

The addition of trimethylsilyl cyanide to acylferrocenes FcCOR (R = Me, Et, ^{*n*}Pr, ^{*i*}Pr, Ph, *p*-MeOC₆H₄, *o*-ClC₆H₄, *m*-ClC₆H₄, *p*-ClC₆H₄, Fc; Fc = C₅H₄FeC₅H₅) catalyzed by zinc iodide in methylene chloride provided the corresponding cyanohydrin trimethylsilyl ethers in moderate to high yields. Factors affecting the reaction and yields of adducts were investigated.



Contents

Adnan S. Abu-Surrah, Talal A.K. Al-Allaf, Martti Klinga, Markku Ahlgren

Polyhedron 22 (2003) 1529

Yu-Ling Zhang, Wen-Juan Ruan, Xiao-Jing Zhao, Hong-Gen Wang,

Polyhedron 22 (2003) 1535

chiral Salen ligands

Zhi-Ang Zhu

Chiral palladium(II) and platinum(II) complexes of diaminocyclohexane: X-ray structures of (1R,2R)-(-)-1,2-diaminocyclohexane dihydrochloride and its corresponding oxalato platinum(II) complex

The reaction of the ligand (1R,2R)-(-)-1,2diaminocyclohexane (DACH) with cis- $[(PhCN)_2MCl_2]$ (M = Pd, Pt) leads to the formation of the complexes [(DACH)PdCl₂] and $[(PhC=NH-NH(C_6H_{10})NH_2)Pt(N=$ CPh)Cl]Cl, respectively. The aqua and oxalato derivatives [(DACH)Pd(H2O)2](NO3)2, $[(DACH)Pd(C_2O_4)]$ and $[(DACH)Pt(C_2O_4)]$ have also been prepared. The solid state structures of the ligand (DACH·2HCl)] and the complex [(DACH)Pt(C2O4)] have been determined by X-ray structure analysis. The result indicates that the complex contains both the trans-(-)-1R,2R and trans-(+)-1S, 2S isomers.

Several chiral Schiff base cobalt(III) complexes [CoSBL₂]ClO₄ (SB = Salen, MeOSalen, *t*-Bu-Salen; L = Im, 2-MeIm, MeIm) have been prepared and characterized by FT-IR, UV-Vis, CD and ¹H NMR spectra. The crystal structures of [Co(Salen)-(MeIm)₂]ClO₄ (1c), [Co(MeOSalen)-(MeIm)₂]ClO₄ (2c), [Co(*t*-Bu-Salen)(MeIm)₂]ClO₄ (3c) have been determined by X-ray structure analysis.





 1. Salen,
 $R_1 = R_2 = H;$

 2. MeOSalen,
 $R_1 = OCH_3, R_2 = H;$

 3. t-Bu-Salen,
 $R_1 = R_2 = t - Bu$

Alexander V. Shtemenko, Oleg V. Kozhura, Alexander A. Pasenko, Konstantin V. Domasevitch

Synthesis and characterization of axial co-

ordination cobalt(III) complexes containing

Polyhedron 22 (2003) 1547

New octachlorodirhenate(III) salts: solid state manifestation for a certain conformational flexibility of the $[Re_2Cl_8]^{2-}$ ion

Octachlorodirhenate(III) ion $[\text{Re}_2\text{Cl}_8]^{2-}$, which is usually fully eslipsed owing to a maximization of $\delta-\delta$ overlap, in fact can adopt forced conformation with appreciable rotational distortion and effectively satisfy demands of a hydrogen bonding motif in the crystal.



Nevenka Brničević, Ivan Bašic, Besnik Hoxha, Pavica Planinić, Robert E. McCarley

Polyhedron 22 (2003) 1553

Molybdenum and tungsten methoxo clusters with differently bonded methoxo groups. Crystal structure of $[Na(CH_3OH)_5]_2[Mo_6(\mu_3-Br)_8(OCH_3)_6]$

The hexanuclear halide clusters of molybdenum and tungsten $[M_6(\mu_3-X)_8]^{4+}$ react with 2 and 4 sodium methoxide equivalents giving polymeric species with two intermolecular μ -methoxo groups and species with two μ -methoxo and two terminally bonded methoxo groups, respectively. With 6 sodium methoxide equivalents only monomeric compounds with $[Mo_6(\mu_3-X)_8(OCH_3)_6]^{2-}$ anions are formed. The crystal structure has been solved for the molybdenum bromo derivative.



This work describes the syntheses of

four compounds containing [Ni(RSO_2N=

 $(CS_2)_2^2$ anions and the single crystal

structures of (Bu₄N)₂[Ni(2-CH₃C₆H₄SO₂N=

 CS_2)₂] and $(Bu_4N)_2[Ni(4-BrC_6H_4SO_2N=$

 $(CS_2)_2$]. The UV–Vis, IR, ¹H NMR and ¹³C

NMR are reported.

Marcelo R.L. Oliveira, Renata Diniz, Vito M. De Bellis, Nelson G. Fernandes

Polyhedron 22 (2003) 1561

Nickel(II) complexes of dithiocarbimates from sulfonamides: syntheses and crystal structures



 $1 \ (R = C_6H_5), \ 2 \ (R = 4 - ClC_6H_4), \ 3 \ (R = 2 - CH_3C_6H_4), \ 4 \ (R = 4 - BrC_6H_4)$

João A.S. Bomfim, Fabio P. de Souza, Carlos A.L. Filgueiras, Alexsandro G. de Sousa, Maria Teresa P. Gambardella

Polyhedron 22 (2003) 1567

Diphosphine complexes of nickel: analogies in molecular structures and variety in crystalline arrangement

Silvana C. Ngo, Kulbinder K. Banger, Mark J. DelaRosa, Paul J. Toscano, John T. Welch

Polyhedron 22 (2003) 1575

Thermal and structural characterization of a series of homoleptic Cu(II) dialkyldithiocarbamate complexes: bigger is only marginally better for potential MOCVD performance [Ni(dppe)Cl₂]CH₂Cl₂ (I), [Ni(dppen)Cl₂] (II), [Ni(dppm)Br₂]CH₂Cl₂ (III), [Ni(dppe)(NCS)₂] (IV), [Ni(dppen)I₂] (V), [Ni(dppp)Cl₂]CH₂Cl₂ (VI) were prepared and studied by a variety of methods, of which X-ray crystallography was of paramount importance. The diphosphine ligands contain saturated or unsaturated carbon chains. In spite of similarities in their molecular structure, there is a marked difference in their overall crystalline arrangement. The structure of VI, in which dppp is 1,3-bis(diphenylphospino)propane, has tubular stacking, and is shown here.

A series of Cu(II) complexes, Cu(S₂CN-RR')₂, where R and R' are alkyl groups of various steric sizes, were prepared and were characterized by thermal methods (differential scanning calorimetry and thermogravimetric analysis). While X-ray diffraction studies showed that the steric bulk of the peripheral R and R' substituents can affect the observed solid-state pattern motif and intermolecular contacts, only small gains are realized in terms of the volatility of the complexes.

Richard Sevcik, Marek Necas, Josef Novosad

Polyhedron 22 (2003) 1585

The synthesis and characterization of three oxidized derivatives of bis(diphenylphosphino)pyridine and their Sn(IV) complexes

The synthesis and spectroscopic characterization of three chalcogenophosphoryl ligands derived from pyridine is reported. Prepared compounds were reacted with SnCl₄ to give a series of ionic complexes with octahedral Sn(IV) cationic chelate and SnCl₅(OH₂)_{$\overline{0}$,1} counteranions.







Malachy McCann, Barry Coyle, John Briody, Francis Bass, Neil O'Gorman, Michael Devereux, Kevin Kavanagh, Vickie McKee

Polyhedron 22 (2003) 1595

Synthesis and antimicrobial activity of (Z)-3-(1*H*-imidazol-1-yl)-2-phenylpropenenitrile and its metal complexes: X-ray crystal structures of the Zn(II) and Ag(I) complexes (Z)-3-(1*H*-imidazol-1-yl)-2-phenylpropenenitrile (imppn) reacts with Cu(ClO₄)₂·6H₂O, Zn(CH₃CO₂)₂·2H₂O and AgClO₄ producing [Cu(imppn)₄](ClO₄)₂·H₂O (1), [Zn-(imppn)₂(CH₃CO₂)₂]·2H₂O (2) and [Ag₂-(imppn)₄(ClO₄)₂] (3). Complexes 2 and 3 were characterised by X-ray crystallography, and all complexes were screened for their ability to inhibit the growth of *Candida albicans*.



Tao Zhu, Zhu Qian-Jiang, Xie Sai-Feng, W. Gregory Jackson, Zhou Zhong-Yuan, Zhou Xiang-Ge

Polyhedron 22 (2003) 1603

The chemistry of $[Co(triamine)(diamine)-Cl]^{2+}$ complexes: the single crystal X-ray structures of five $[Co(dien)(ibn)Cl]ZnCl_4$ isomers

The X-ray structures for five of the seven $[Co(dien)(ibn)Cl]ZnCl_4 \cdot nH_2O$ isomers are reported—*anti-cis*(NH*) (m1, right), *syn*-*cis*(NH*) (m2), *anti-trans*(NH*) (m3), *cis*(Cl)-*cis*(N*) (f1, right) and *trans*(Cl)-*cis*(N*) (f2). Three independent X-ray structures were determined for salts of the m1, f1 (two) and m3 isomers, in excellent agreement. The results confirm the solution structures determined by 2D NMR techniques.



Carmen Paraschiv, Jean-Pascal Sutter, Marc Schmidtmann, Achim Müller, Marius Andruh

Polyhedron 22 (2003) 1611

$$\begin{split} & [Mn(MAC)\{\mu_{1,5}\text{-}N(CN)_2\}](PF_6)\text{: a new one-dimensional coordination polymer with $\mu_{1,5}$-dicyanamido bridges (MAC = pentaaza macrocyclic ligand)—synthesis, crystal structure and magnetic properties \end{split}$$

By reacting [Mn(MAC)(H₂O)₂]Cl₂ with sodium dicyanamide, a new 1D coordination polymer has been obtained. The cryomagnetic investigation reveals a weak antiferromagnetic interaction between the 1,5-dicyanamido bridged manganese(II) ions.



Christopher J. Sanders, Paul N. O'Shaughnessy, Peter Scott

Polyhedron 22 (2003) 1617

Non-planar manganese Schiff-base complexes; synthesis and molecular structures Mn(II) and Mn(III) complexes of three biaryl-bridged salicylaldimine N_2O_2 proligands have trigonal bipyramidal, and octahedral *cis*- α and *cis*- β structures. While the biaryl unit in these and similar compounds is able to predetermine the chirality-at-metal very efficiently, it is apparent that conversions between diastereomeric forms, albeit with the same helicity, may occur in response to the nature of the co-ligands.



Michael A. Beckett, David S. Brassington, Simon J. Coles, Thomas Gelbrich, Michael B. Hursthouse

Polyhedron 22 (2003) 1627

Synthesis and characterisation of a series of Group 7 metal 2,2,2,2-dicarbonylbis(triorganophosphine)-*arachno*-2-metallatetraboranes, $[M(CO)_2L_2(B_3H_8)]$ (M = Re, Mn); crystal and molecular structures of [Re-(CO)_2(dppf)(B_3H_8)] and [Mn(CO)_2(dppe)(B_3H_8)]

A series of Group 7 metal *arachno*-2-metallatetraboranes, $[M(CO)_2L_2(B_3H_8)]$ (M = Re, Mn L = organophosphine) were synthesised from reactions of $[NBu_4][B_3H_8]$ with *fac,cis*-[MBr(CO)_3L_2] under photolytic conditions. Single-crystal X-ray diffraction studies of [Re(CO)_2(dppf)(B_3H_8)] and [Mn(CO)_2(dppe)(B_3H_8)] are reported.



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