PERGAMON

Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Volume 22, Number 20, 1 September 2003

POLYHEDRON

www.elsevier.com/locate/poly

Contents

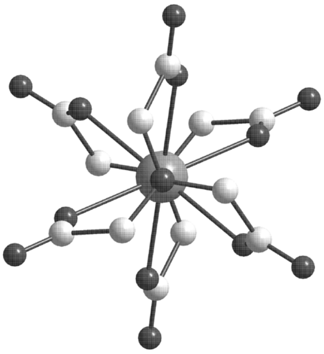
Papers

Przemysław Starynowicz

Polyhedron 22 (2003) 2761

Europium(II) complexes with nitrilotriacetic acid (NTA)

Two complexes of Eu(II) with nitrilotriacetic acid have been obtained. One of them is polymeric and the other contains monomeric, fairly symmetric $[Eu(nta)_2]^{4-}$ anions. The latter compound shows very weak luminescence with maximum at 483 nm.

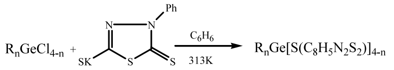


Chunlin Ma, Qin Jiang, Junhong Zhang, Rufen Zhang

Polyhedron 22 (2003) 2767

Syntheses, characterization and crystal structures of new organogermanium complexes with 2,5-dimercapto-4-phenyl-1,3,4-thiodiazole

A series of organogermanium(IV) complexes with 2,5-dimercapto-4-phenyl-1,3,4-thiodiazole of the type, $R_nGe[S(C_8H_5N_2S_2)]_{4-n}$, have been synthesized. Elemental, IR and ^1H NMR analyses of these complexes are carried out. The IR and ^1H NMR spectra data indicate such an inclination that those structures of trialkylgermanium derivatives are apt to be four-coordinated and those dialkylgermanium derivatives are likely in six-coordination.



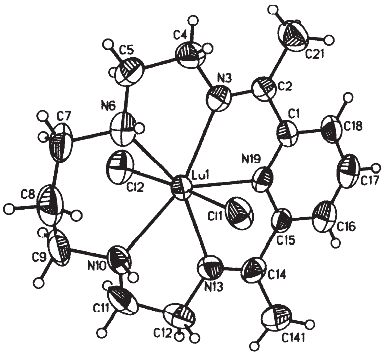
(n=3, R=CH_3, **1**; C_2H_5, **2**; C_4H_9, **3**; C_6H_5, **4**; n=2, R=CH_3, **5**; C_2H_5, **6**; C_4H_9, **7**; C_6H_5, **8**)

Wanda Radecka-Paryzek, Violetta Patroniak, Maciej Kubicki

Polyhedron 22 (2003) 2773

The template synthesis and characterization of pentaaza macrocyclic complexes of rare earth elements. The crystal structure of the 2,14-dimethyl-3,6,10,13,19-pentaazabicyclo[13.3.1]nonadeca-1(19),2,13,15,17-pentaene-dichlorolutetium(III)perchlorate

The yttrium and lanthanide ions were found to act as templates for the cyclic [1+1] condensation of 2,6-diacetylpyridine with 3,7-diazanonane-1,9-diamine to yield 16-membered pentaazadentate Schiff base macrocyclic complexes. The complexes were characterized by spectral (IR, luminescence, ^1H NMR, FAB MS) and elemental analysis data. The crystal structure of the lutetium complex was determined by single X-ray analysis providing the first example of the seven-coordination and pentagonal bipyramidal geometry found among the lutetium macrocyclic compounds.



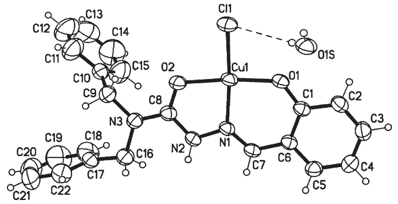
Elsevier B.V.

Peng Foo Lee, Chang-Tong Yang, Daming Fan, Jagadese J. Vittal, John D. Ranford

Polyhedron 22 (2003) 2781

Synthesis, characterization and physicochemical properties of copper(II) complexes containing salicylaldehyde semicarbazone

Copper(II) complexes containing a series of salicylaldehyde semicarbazone ligands have been prepared and characterized by a range of physicochemical techniques. One such compound is formulated as a monomer as illustrated here.

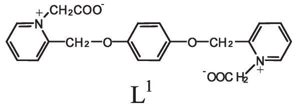


Lin-Ping Zhang, Thomas C.W. Mak

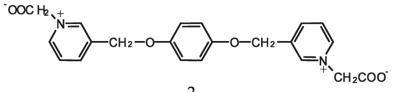
Polyhedron 22 (2003) 2787

Structural diversity in lanthanum(III) coordination polymers constructed with the isomeric flexible double betaines 1,4-bis(n-picolyloxyl)benzene-N,N'-diacetate ($n = 2$, 3)

Lanthanum(III) coordination polymers derived from the flexible double betaine 1,4-bis(2-picolyloxyl)benzene-N,N'-diacetate (L^1) contain mononuclear units that are alternately bridged by L^1 ligands to form a zigzag chain, whereas those constructed with the 1,4-bis(3-picolyloxyl) isomer (L^2) exhibit centrosymmetric, carboxylate-bridged dinuclear building blocks that are inter-connected by one, two or four L^2 ligands to form complex chains.



L^1



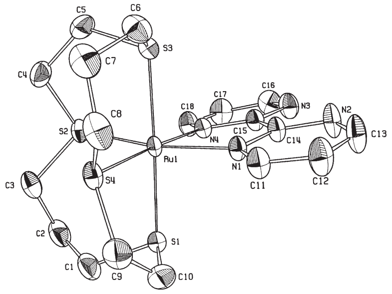
L^2

Carla D. Nunes, Martyn Pillinger, Alan Hazell, Josua Jepsen, Teresa M. Santos, João Madureira, André D. Lopes, Isabel S. Gonçalves

Polyhedron 22 (2003) 2799

Bimetallic transition metal–ruthenium(II) complexes containing bridging bipyrimidine ligands

The bipyrimidine-bridged bimetallic complexes $[\{Ru([14]aneS_4)\}_2(bpym)](BF_4)_4$ and $[\{([14]aneS_4)Ru\}(bpym)\{ReO_3Me\}](BF_4)_2$ have been prepared using the monomeric complex $[Ru([14]aneS_4)(bpym)](BF_4)_2$ as starting material. In the case of the complex containing methyltrioxorhenium(VII), coordination of both metal centres to the bidentate bridging ligand was supported by a combination of Ru K-edge and Re L-edge XAFS spectroscopy, in addition to ^1H NMR.

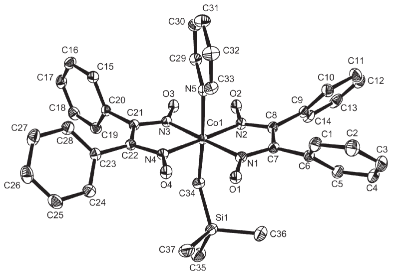


Paul J. Toscano, Linda Lettko, E. James Schermerhorn, John Waechter, Kevin Shufon, Shuncheng Liu, Evgeny V. Dikarev, Jon Zubieta

Polyhedron 22 (2003) 2809

Synthesis and characterization of diphenylglyoximato cobalt(III) complexes. The molecular structures of *trans*-bis(diphenylglyoximato)(alkyl)(pyridine)cobalt(III), with alkyl = CH_2SiMe_3, CH_2CMe_3 and CF_3

A series of Co(III) diphenylglyoximato (dpgh) complexes, $pyCo(dpgh)_2R$, where R is an alkyl group of various steric sizes and electron-donating ability, were prepared and were characterized by NMR spectroscopic methods. X-ray diffraction studies of the complexes with $R = CH_2SiMe_3$, CH_2CMe_3 and CF_3 showed subtle, but detectable structural changes due to interactions of the axial alkyl ligand with the equatorial ligand set.

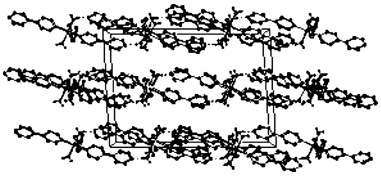


Jonathan D. Woodward, Rénal Backov, Khalil A. Abboud, Hitoshi Ohnuki, Mark W. Meisel, Daniel R. Talham

Polyhedron 22 (2003) 2821

Structural, thermal, and magnetic properties of three transition metal-4,4′-bipyridine coordination polymers: $[Ni(4,4'\text{-bipy})_3(H_2O)_2](ClO_4)_2 \cdot 1.4(4,4'\text{-bipy}) \cdot 3(H_2O)$; $[Co(4,4'\text{-bipy})_3(H_2O)_2](ClO_4)_2 \cdot 1.4(4,4'\text{-bipy}) \cdot 3(H_2O)$; $[Cu(4,4'\text{-bipy})_3(DMSO)_2](ClO_4)_2 \cdot 2(4,4'\text{-bipy})$

Three new coordination polymers based on 4,4′-bipyridine (4,4′-bipy) are described, each consisting of metal-(4,4′-bipy) coordinate covalent chains that pack through a combination of hydrogen bonding and π-stacking interactions to form two-dimensional sheets. The sheets in turn pack to form three-dimensional structures with oblique channels that extend throughout the solid and contain enclathrated guest molecules.

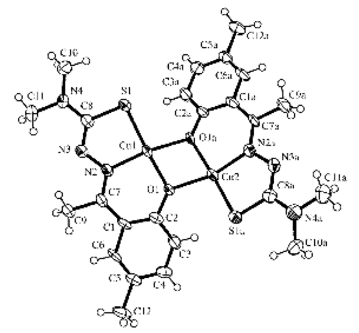


Elena Labisbal, Kristin D. Haslow, Antonio Sousa-Pedrares, Jesús Valdés-Martínez, Simón Hernández-Ortega, Douglas X. West

Polyhedron 22 (2003) 2831

Copper(II) and nickel(II) complexes of 5-methyl-2-hydroxyacetophenone $N(4)$-substituted thiosemicarbazones

Mononuclear and binuclear copper(II) and nickel(II) complexes have been prepared with 5-methyl-2-hydroxyacetophenone $N(4)$-substituted thiosemicarbazones. The structures of the ligand 2-hydroxy-5-methyl $N(4)$-dimethylthiosemicarbazone and its binuclear copper complex have been solved. In the complex each metal atom is coordinated by the thiolate sulfur, imine nitrogen and phenolate oxygen with the latter acting as a bridge to the second copper(II) center.

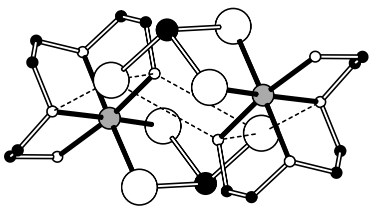


Paz Vaqueiro, Ann M. Chippindale, Anthony V. Powell

Polyhedron 22 (2003) 2839

$[Cr(C_6H_{18}N_4)(SbS_3)]$, a chromium complex containing an unusual bidentate SbS_3^{3-} ligand

$[Cr(C_6H_{18}N_4)(SbS_3)]$, prepared under solvothermal conditions, consists of neutral chromium-centred complexes, which contain the unusual bidentate SbS_3^{3-} ligand.

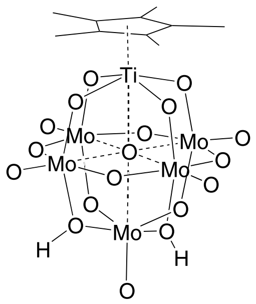


H. Akashi, J. Chen, H. Hasegawa, M. Hashimoto, T. Hashimoto, T. Sakuraba, A. Yagasaki

Polyhedron 22 (2003) 2847

Synthesis and structural characterization of $[H_xCp^*TiMo_5O_{18}]^{(3-x)-}$ ($x = 0$, 1, 2); new insights into protonation patterns in polyoxometalates

$[H_xCp^*TiMo_5O_{18}]^{(3-x)-}$ ($x = 0$, 1, 2) are synthesized and X-ray structural analyses revealed that the acidic protons are attached to the doubly-bridging OMo_2 oxygens, not to the OTiMo oxygens as previously anticipated.

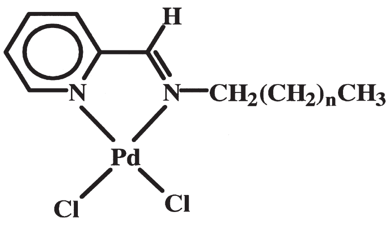


Rui Chen, John Bacsa, Selwyn F. Mapolie

Polyhedron 22 (2003) 2855

{*N*-alkyl-*N*-[pyridin-2-ylmethylene] amine}dichloro palladium(II) complexes: synthesis, crystal structures and evaluation of their catalytic activities for ethylene polymerization

The pyridylimine complexes of palladium, **1**–**3** were prepared via the reaction of $Cl_2Pd(COD)$ with the appropriate *N*-(alkyl)pyridyl-2-methanimine ligand. These complexes were treated with methylaluminoxane resulting in active ethylene polymerization catalysts, capable of producing linear high-molecular weight polymers.



1, n = 3
2, n = 6
3, n = 10

Martin Breza, Stanislav Biskupič, Alena Manová

Polyhedron 22 (2003) 2863

On the structure of lead(II) complexes in aqueous solutions.
Part IV. Binuclear clusters

Geometries of $[Pb_2(\mu\text{-}OH)_n]^q$ and $[Pb_2(\mu\text{-}OH)_n(H_2O)_2]^q$ clusters with total charges $q = 4 - n$, $n = 1 \rightarrow 4$, are optimized within Hartree-Fock, B3LYP and MP2 treatments. Single-bridged clusters are the most stable ones. Pb–Pb and O–O interactions are antibonding. The clusters are held together exclusively by Pb–O bonds.