PERGAMON

Available online at www.sciencedirect.com
SCIENCE DIRECT®

Volume 22, Number 11, 1 June 2003

POLYHEDRON

www.elsevier.com/locate/poly

Contents

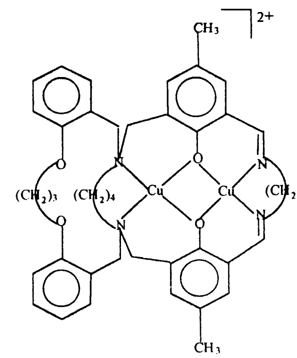
Papers

P. Akilan, M. Thirumavalavan, M. Kandaswamy

Polyhedron 22 (2003) 1407

Lateral macrobicyclic tricompartmental ligands: synthetic, spectral, magnetic, electrochemical and kinetic aspects of binuclear copper(II) complexes

A series of lateral macrobicyclic compartmental ligands and their binuclear copper(II) complexes were synthesized. Spectral, magnetic, electrochemical and catalytic studies of the complexes were carried out. Magnetic studies rationalize the presence of antiferromagentic coupling in binuclear complexes. Cyclic voltammetric studies show quasireversible one electron reduction waves in cathodic region. The catalytic activities of the complexes towards catechol oxidation increase with macrocyclic ring size. The more distortion in the geometry around the metal centres due to increase in ring size is evidenced by spectral, electrochemical and catalytic studies.

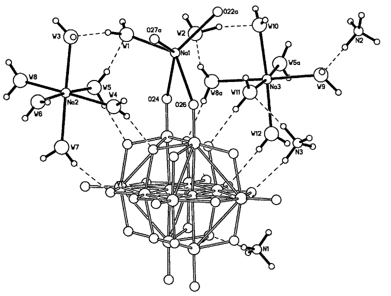


Gabriela Maciejewska, Monika Nosek, Tadeusz Głowiak, Jan Starosta, Maria Cieslak-Golonka

Polyhedron 22 (2003) 1415

Catalytical decomposition of L-glutamic acid and L-glutamine with vanadium species. Electronic spectra of ammonium–sodium oligovanadates isolated from the system: $[NaVO_3(VOSO_4)–Glu(Gln)]$. Crystal structure of $Na_3(NH_4)_3[V_{10}O_{28}]\cdot 12H_2O$

Polyvanadates (tetra-, penta and decamers) with the sodium and NH_4^+ cations have been isolated from systems [V(V)/V(IV)–L-glutamic acid (L-glutamine)]. Three basic processes: the oxidation of V(IV) → V(V), decomposition of Glu and Gln and precipitation of polyvanadates have been observed. The species have been studied with crystallographic and spectroscopic methods. Spectral analyses allowed the assignment of the electronic bands to particular transitions in the polyvanadate anions.

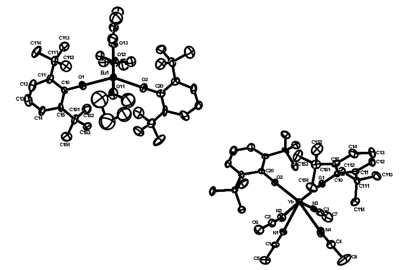


José Carretas, Joaquim Branco, Joaquim Marçalo, Ângela Domingos, António Pires de Matos

Polyhedron 22 (2003) 1425

Europium(II) and ytterbium(II) aryloxide chemistry: synthesis and crystal structure of $[Eu(OC_6H_3Bu^t_2\text{-}2,6)_2(THF)_3]\cdot 0.75C_7H_8$ and $[Yb(OC_6H_3Bu^t_2\text{-}2,6)_2(NCMe)_4]$

The lanthanide complexes $[Eu(OC_6H_3Bu^t_2\text{-}2,6)_2(THF)_3]\cdot 0.75C_7H_8$ and $[Yb(OC_6H_3Bu^t_2\text{-}2,6)_2(NCMe)_4]$ were synthesized by the metal vapour synthesis technique and by metal dissolution in liquid ammonia. Both methods proved to be convenient routes to synthesize monomeric divalent aryloxides. The crystal structures of these complexes show a coordination geometry around the europium atom described as distorted trigonal-bipyramidal, whereas the ytterbium complex has a distorted octahedral geometry.



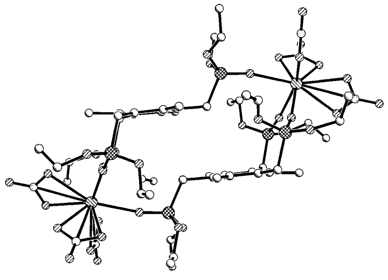
Elsevier Science B.V.

John Fawcett, Andrew W.G. Platt, Steven Vickers

Polyhedron 22 (2003) 1431

Synthesis of tripodal *tris*-phosphonate ligands and the structure of the dimeric complex $[Ce(NO_3)_3\{(EtO)_2P(O)CH_2)_3C_6Me_3]_2$

The *tris*-phosphonates $1,3,5[(RO)_2P(O)CH_2]_3 2,4,6\ Me_3C_6$ $R = Me$, Et, ^{i}Pr and Bu are synthesised by reaction of *Tris*(bromomethyl)mesitylene and $P(OR)_3$. Coordination complexes with lanthanide nitrates have dimeric structures in the solid state with bidentate nitrate and bridging phosphonate ligands. In solution ESMS results indicate loss of the dimeric structure with extensive ionisation apparent.



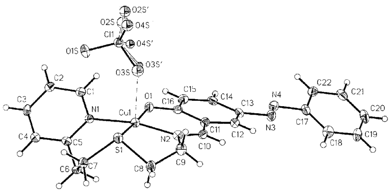
$[Ce(NO_3)_3\{(EtO)_2P(O)CH_2\}_3C_6Me_3]_2$

Nezameddin Daneshvar, Ali A. Entezami, Ali A. Khandar, L.A. Saghatforoush

Polyhedron 22 (2003) 1437

Synthesis and characterization of copper(II) complexes with dissymmetric tetradentate Schiff base ligands derived from aminothioether pyridine. Crystal structures of $[Cu(pytIsal)]ClO_4 \cdot 0.5CH_3OH$ and $[Cu(pytAzosal)]ClO_4$

The copper(II) complexes of dissymmetric tetradentate Schiff base ligands containing a mixed donor set of NSNO ($[Cu(pytXsal)]ClO_4$) were prepared and characterized by analytical methods and their electrochemical behaviors were studied. The crystal structures of two complexes were determined. The copper atom in both complexes lies in a slightly tetrahedrally distorted square planar coordination.

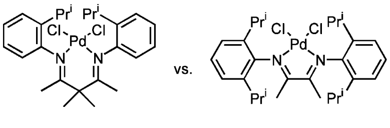


Elaine K. Cope-Eatough, Francis S. Mair, Robin G. Pritchard, John E. Warren, Rebecca J. Woods

Polyhedron 22 (2003) 1447

Palladium co-ordination chemistry of β-diimines: a preparative and structural comparison with α-diimines

β-Diimines are less effective than α-diimines as ligands to palladium. Synthetic and structural comparisons suggest that the π-acceptor role of α-diimines is important in stabilising alkylpalladium species, but is of marginal significance in the $PdCl_2$ precursors, where bulk and entropic factors limit the ligating efficacy of β-diimines.

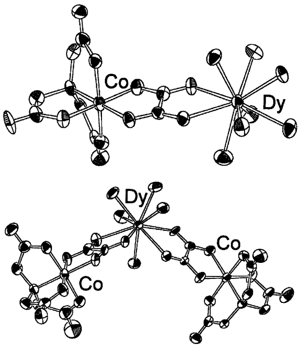


Yasunori Yamada, Masakazu Tanabe, Yoshitaro Miyashita, Ken-ichi Okamoto

Polyhedron 22 (2003) 1455

Oxalato-bridged di- and trinuclear Co(III)–Dy(III) complexes derived from mononuclear Co(III) complex with nitrilotriacetate

Stoichiometric additions of $[Co(nta)(ox)]^{2-}$ (nta = nitrilotriacetate, ox = oxalate) to aqueous solutions of Dy^{3+} ions gave novel oxalato-bridged heteronuclear Co(III)–Dy(III) complexes, $[Dy\{Co(nta)(\mu\text{-}ox)\}(H_2O)_7]^+$ and $[Dy\{Co(nta)(\mu\text{-}ox)\}_2(H_2O)_5]^-$. Each of the Dy atoms in these complexes takes a nine-coordinated tricapped trigonal-prismatic geometry. Diffuse reflectance spectral behaviors were discussed in relation to their structures.

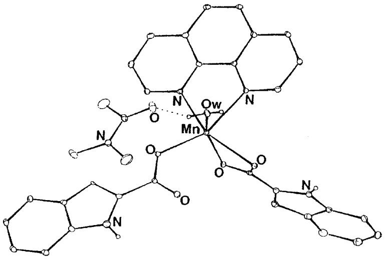


Vincente Viossat, Pascale Lemoine,
Elie Dayan, Nguyen-Huy Dung,
Bernard Viossat

Polyhedron 22 (2003) 1461

Synthesis, crystal structure and IR spectroscopy of $Mn^{II}(2\text{-}IC)_2(NC)(DMSO)$ and $[Mn^{II}(2\text{-}IC)_2(phen)(H_2O)]\cdot DMA$; (2-HIC, indole-2-carboxylic acid; phen, 1,10-phenanthroline; NC, 2,9-dimethyl-1,10-phenanthroline; DMSO, dimethyl sulfoxide; DMA, dimethylacetamide); catalysts for the disproportionation of hydrogen peroxide

Two ternary complexes of manganese(II) indole-2-carboxylate with phenanthroline and its neocuproine derivative were synthesized, their X-ray crystal structure and IR spectroscopy determined. $Mn^{II}(2\text{-}IC)_2(NC)(DMSO)$ (**1**) shows a seven-coordinate Mn(II) configuration (distorted capped octahedron). In the $[Mn^{II}(2\text{-}IC)_2(phen)(H_2O)]\cdot DMA$ (**2**), Mn(II) exhibits a very distorted octahedron. The two complexes were shown to be catalysts for the disproportionation of H_2O_2 in the presence of added imidazole.

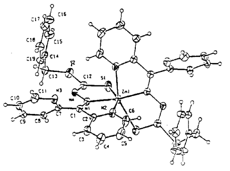


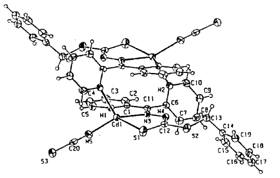
Mohammad Akbar Ali, Aminul Huq Mirza,
Mohammad Nazimuddin, Raju Ahmed,
Lawrence R. Gahan, Paul V. Bernhardt

Polyhedron 22 (2003) 1471

Synthesis and characterization of mono- and bis-ligand zinc(II) and cadmium(II) complexes of the di-2-pyridylketone Schiff base of *S*-benzyl dithiocarbazate (Hdpksbz) and the X-ray crystal structures of the $[Zn(dpksbz)_2]$ and $[Cd(dpksbz)NCS]_2$ complexes

The complexes $[M(dpksbz)NCS]_2$ and $[M(dpksbz)_2]$ ($M = Zn^{II}$ and Cd^{II}) have been prepared and characterized. X-ray crystallographic structural analysis shows that the $[Zn(dpksbz)_2]$ complex is monomeric and octahedral but the $[Cd(dpksbz)NCS]_2$ complex is a dimer in which each of the cadmium(II) ions adopts a five-coordinate geometry.



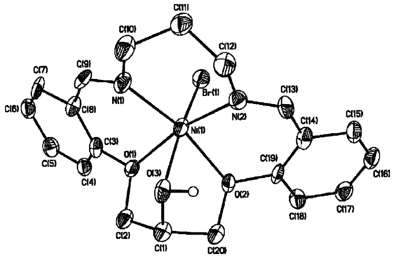


Ali Akbar Khandar,
Seyed Abolfazl Hosseini-Yazdi

Polyhedron 22 (2003) 1481

Synthesis, X-ray crystal structure, and solution properties of nickel(II) complexes of new 16-membered mixed-donor macrocyclic Schiff base ligand incorporating a pendant alcohol function

A series of new nickel(II) complexes of the mixed-donor macrocyclic Schiff base ligand have been synthesized and their structural, spectroscopic, and conductivity properties determined.

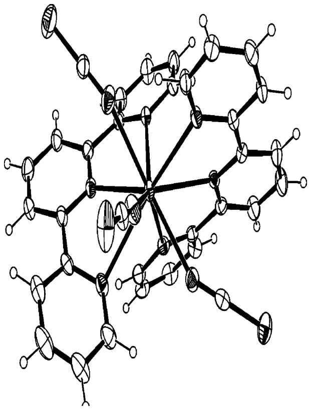


Simon A. Cotton, Vilius Franckevicius,
Rachel E. How, Birte Ahrens, Li Ling Ooi,
Mary F. Mahon, Paul R. Raithby,
Simon J. Teat

Polyhedron 22 (2003) 1489

Synthesis of complexes of 2,2′:6′,2″-terpyridine and 1,10-phenanthroline with lanthanide thiocyanates; the molecular structures of $[Ln(terpy)_2(NCS)_3]$ ($Ln = Pr$, Nd), $[Nd(terpy)_2(NCS)_3]\cdot 2EtOH$ and $[Ln(phen)_3(NCS)_3]\cdot EtOH$ ($Ln = Pr$, Nd)

The complexes $[Ln(terpy)_2(NCS)_3]$ ($Ln = Pr$, Nd) and their tris-phenanthroline analogues $[Ln(phen)_3(NCS)_3]$ have been prepared and structurally characterised. The complexes are mononuclear with nine co-ordinate metals. Three thiocyanate ligands are co-ordinated to each metal centre, and they adopt a meridional arrangement with the two pseudo-axial ligands showing a significant bending at the co-ordinated nitrogen centres while the equatorial shows less deviation from linearity.



Claire J. Carmalt, Ivan P. Parkin,
Emily S. Peters

Polyhedron 22 (2003) 1499

Atmospheric pressure chemical vapour deposition of WS_2 thin films on glass

The deposition of WS_2 thin-films on glass was carried out by atmospheric pressure chemical vapour deposition over a range of temperatures (350–600 °C). A selection of tungsten precursors ($W(CO)_6$, $WOCl_4$, WCL_6) and sulfur precursors ($HS(CH_2)_2SH$, $HSC(CH_3)_3$) gave uniform, nanocrystalline films showing characteristics of an island growth mechanism.