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The EUChemSoc Societies have taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry.* Three further EUChemSoc Societies (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows the result of the electrochemical oxidation of a square-planar nickel(II) complex. The oxidation state of the metal remains largely unchanged, and the phenoxy ligand is oxidized to the depicted radical cation. Details are discussed in the Short Communication by J. Reedijk et al. on p. 637ff.

CONTENTS

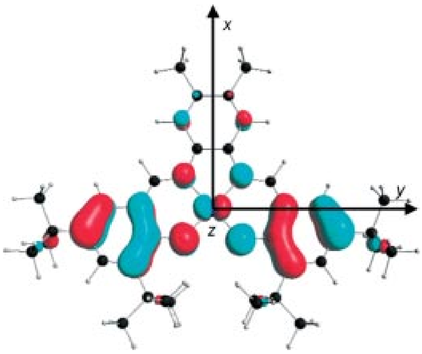
SHORT COMMUNICATIONS

Monoradical Complexes

L. Benisvy, R. Kannappan, Y.-F. Song, S. Milikisyants, M. Huber, I. Mutikainen, U. Turpeinen, P. Gamez, L. Bernasconi, E. J. Baerends, F. Hartl, J. Reedijk* 637–642

A Square-Planar Nickel(II) Monoradical Complex with a Bis(salicylidene)diamine Ligand

Keywords: Phenoxyl radicals / Nickel(II) complexes / Redox chemistry / Spectroelectrochemistry / EPR spectroscopy / Density functional calculations



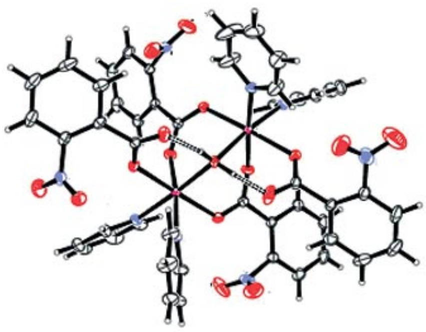
The square complex $[\mathrm{Ni}(^{\mathrm{Me}}\mathrm{L})]$ ($\mathbf{1}^{\mathrm{Me}}$) [$^{\mathrm{Me}}$L = the dianionic phenolato form of *N*,*N′*-bis(3,5-di-*tert*-butylsalicylidene)-4,5-dimethyl-1,2-phenylenediamine ($^{\mathrm{Me}}\mathrm{LH}_2$)] has been synthesised and characterised. Electrochemical one-electron oxidation of $\mathbf{1}^{\mathrm{Me}}$ produces thermally stable $(\mathbf{1}^{\mathrm{Me}})^+$ [10–295 K]. UV/Vis and EPR spectroscopy, supported by DFT calculations, indicate that $(\mathbf{1}^{\mathrm{Me}})^+$ is best described as a $\mathrm{Ni}^{\mathrm{II}}$ monoradical complex and does NOT exist in a $\mathrm{Ni}^{\mathrm{III}}$ ground state, in contrast to its demethylated counterpart $[\mathrm{Ni}(^{\mathrm{H}}\mathrm{L})]^+$ $(\mathbf{1}^{\mathrm{H}})^+$ below 170 K.

Polymorphism

A. Karmakar, R. J. Sarma, J. B. Baruah* 643–647

Polymorphism in an Aqua-Bridged, Dinuclear 2-Nitrobenzoate Complex of Cobalt(II)

Keywords: Dinuclear cobalt complexes / Aqua-bridged complexes / Polymorphism / Conformers



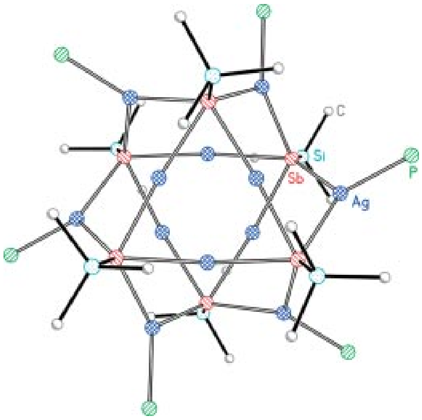
Three polymorphs of a dinuclear, aqua-bridged cobalt complex $[\mathrm{Co}_2(\mu\text{-}\mathrm{OH}_2)(\mathrm{C}_5\mathrm{H}_5\mathrm{N})_4(\mu\text{-}\mathrm{O}_2\mathrm{CC}_6\mathrm{H}_4\text{-}2\text{-}\mathrm{NO}_2)_2(\mathrm{O}_2\mathrm{CC}_6\mathrm{H}_4\text{-}2\text{-}\mathrm{NO}_2)_2]$ are structurally characterised. Selective crystallisation of the polymorphs is achieved by controlling the reaction conditions and the crystallisation processes. Reaction of cobalt(II) acetate tetrahydrate with 2-nitrobenzoic acid followed by treatment with excess pyridine leads to the mononuclear complex $[\mathrm{Co}(\mathrm{H}_2\mathrm{O})_2(\mathrm{C}_5\mathrm{H}_5\mathrm{N})_2(\mathrm{O}_2\mathrm{CC}_6\mathrm{H}_4\text{-}2\text{-}\mathrm{NO}_2)_2]$.

Antimony Anions

D. Fenske,* A. Rothenberger, S. Wieber 648–651

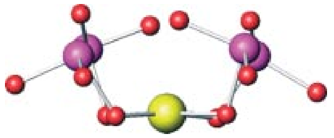
Synthesis and Characterization of the First Silver Complexes with Antimony Anions

Keywords: Silver / Antimony / Clusters



The synthesis and characterization of the silver antimony complexes $[\mathrm{Ag}_{12}\{\mathrm{Sb}(\mathrm{SiMe}_3)\}_6(\mathrm{P}i\mathrm{Pr}_3)_6]$ (**1**), $[\mathrm{Ag}_4(\mathrm{Sb}_4\mathrm{Ph}_4)_2(\mathrm{P}i\mathrm{Pr}_3)_4]$ (**2**) and $[\mathrm{Ag}_4(\mathrm{Sb}_6\mathrm{Ph}_6)_2(\mathrm{P}n\mathrm{Bu}_3)_4]$ (**3**) is reported.

K^+ salts of the square-planar noble metal iodate $[M(IO_3)_4]^{n-}$ (M = Pd^{II}, Au^{III}; n = 2, 1) anions have been prepared under mild hydrothermal conditions, and the structures elucidated to demonstrate that while both are highly polar anions, polar and centrosymmetric extended architectures can form using these building units.



Noble Metal Iodates

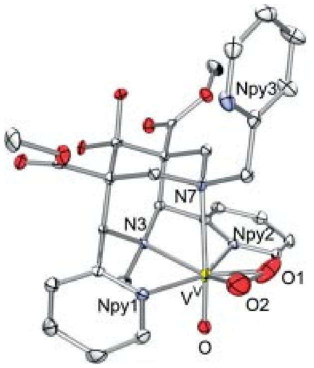
J. Ling,
T. E. Albrecht-Schmitt* **652–655**

Square-Planar Noble Metal Iodate $[M(IO_3)_4]^{n-}$ (M = Pd^{II}, Au^{III}; n = 2, 1) Anions and Their Ability to Form Polar and Centrosymmetric Architectures

Keywords: Gold / Palladium / Iodate / Oxo ligands

FULL PAPERS

Peroxidovanadium(V) or superoxidovanadium(IV)? Crystallography, spectroscopy and oxidation reactivity are used to answer this question.

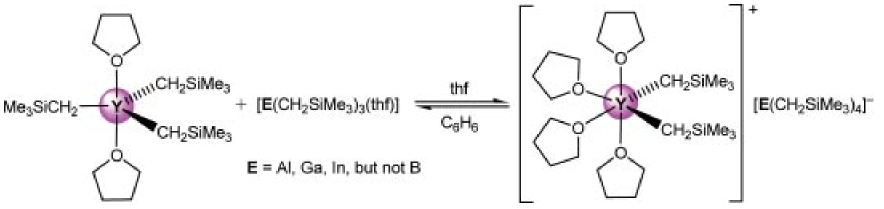


Vanadium Bispidine Complexes

P. Comba,* S. Kuwata, G. Linti, M. Tarnai, H. Wadepohl **657–664**

Synthesis and Oxidation of Vanadyl Complexes Containing Bispidine Ligands

Keywords: Peroxido complexes / Superoxido complexes / Rigid ligand / Bispidine



The alkyl abstraction reaction of $[YR_3(thf)_2]$ (R = CH_2SiMe_3) with group-13 trialkyl complexes $[(ER_3)_n]$ (E = B, Ga, In: n = 1; E = Al: n = 2) leading to cationic yttrium species $[YR_2(thf)_4]^+[ER_4]^-$ (E = Al, Ga, In) shows a strong dependence on the solvent basicity.

Cationic Alkylyttrium

M. U. Kramer, D. Robert,
Y. Nakajima, U. Englert, T. P. Spaniol,
J. Okuda* **665–674**

Alkyl Abstraction from a Trialkylyttrium Complex $[YR_3(thf)_2]$ (R = CH_2SiMe_3) Using a Group-13 Element Lewis Acid ER_3 (E = B, Al, Ga, In) – Structural Characterisation of the Ion Pair $[YR_2(thf)_4]^+[GaR_4]^-$ and of ER_3 (E = B, Al, Ga)

Keywords: Yttrium / Lewis acids / Alkyl abstraction / Group-13 elements / Cationic complexes

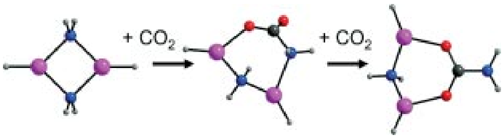
CONTENTS

CO_2 Fixation

H.-J. Himmel* 675–683

CO_2 Fixation by Alkylzinc Amides: A Quantum Chemical Study Motivated by Recent Experimental Results

Keywords: CO_2 fixation / Zinc / Reaction mechanisms / Quantum chemical calculations



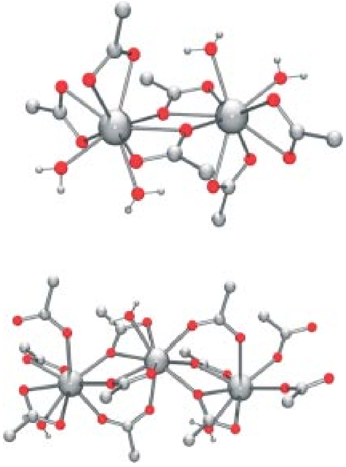
The mechanism of CO_2 fixation by monomeric as well as dimeric alkylzinc amides was studied by quantum chemical calculations. The results of this work help us in the understanding of CO_2 fixation by synthesized alkylzinc amides and also shed light on enzymatic reactivity.

Metal-Organic Polymers

M. C. Bernini, E. V. Brusau, G. E. Narda,*
G. E. Echeverria, C. G. Pozzi, G. Punte,
C. W. Lehmann 684–693

The Effect of Hydrothermal and Non-Hydrothermal Synthesis on the Formation of Holmium(III) Succinate Hydrate Frameworks

Keywords: Lanthanides / Hydrothermal synthesis / Hybrid frameworks / Coordination polymers



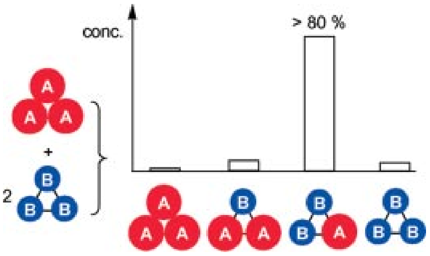
Holmium(III) succinates $[Ho_2(C_4H_4O_4)_3(H_2O)_4]\cdot 6H_2O$ (**1**) and $[Ho_2(C_4H_4O_4)_3(H_2O)_2]\cdot H_2O$ (**2**) have been synthesized under ambient and hydrothermal conditions, respectively. Single-crystal XRD shows that **1** is a 2D hybrid polymer and **2** presents a 3D architecture showing that hydrothermal conditions favor increasing dimensionality. They were characterized by FTIR and Raman spectroscopy, thermal analysis and magnetic measurements.

Supramolecular Chemistry

Z. Grote, R. Scopelliti,
K. Severin* 694–700

Controlled Formation of Mixed-Metal Macrocycles Using Dynamic Exchange Processes and Steric Constraints

Keywords: Dynamic combinatorial chemistry / Metallamacrocycle / Organometallic complex / Rhodium / Ruthenium



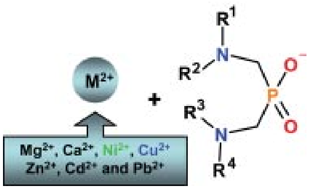
Size matters: Steric interactions in combination with dynamic exchange processes can be used to generate mixed-metal macrocycles in high yield. This is demonstrated by the controlled formation of organometallic macrocycles containing different (π-ligand)M fragments (M = Rh, Ru).

Phosphinic Acid Derivatives

G. Tircsó,* A. Bényei, R. Király, I. Lázár,
R. Pál, E. Brücher 701–713

Complexation Properties of the Di-, Tri-, and Tetraacetate Derivatives of Bis(aminomethyl) Acid

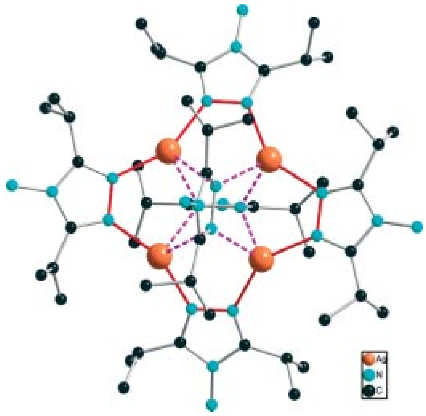
Keywords: Phosphinic acid derivatives / Divalent metal ions / Synthesis / Protonation constants / Stability constants



Acetate derivatives of bis(aminomethyl)phosphinic acid are synthesized and the stability of the complexes formed with these diamino-di-, -tri-, and -tetracarboxylates involving some endogenous (Mg^{2+}, Ca^{2+}, Cu^{2+}, Zn^{2+}) and toxic (Ni^{2+}, Pb^{2+}, and Cd^{2+}) doubly charged metal ions, are reported. The structure of the ligand L^3 (tricarboxylate) and the Cu^{2+} complex of L^1 are studied in the solid state.

Anion-Dependent Structural Diversity

Reactions of silver(I) salts with 4-amino-3,5-diisopropyl-1,2,4-triazole (L) yield, based on the anion used, dinuclear, triangular or cyclic tetranuclear complexes. Shown here is the tetranuclear cation $[Ag_4L_6]^{4+}$, anions (not shown) are BF_4^-.

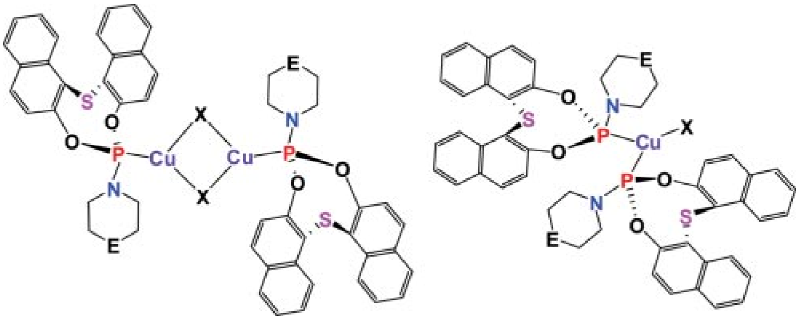


G. Yang,* Y.-L. Wang, J.-P. Li, Y. Zhu, S.-M. Wang, H.-W. Hou, Y.-T. Fan, S. W. Ng 714–719

Anion-Dependent Structural Diversity in Silver(I) Complexes of 4-Amino-3,5-diisopropyl-1,2,4-triazole

Keywords: Silver / Triazole / Anions

Thioether Aminophosphonite Complexes



The reactivity of thioether aminophosphonites (L) with group 11 metal derivatives is described. A series of three-coordinate monomeric and dimeric complexes with or without the sulfur coordination are reported. Halogen exchange is observed between [LAuCl] and CuI to form [LAuI] and CuCl.

B. Punji, J. T. Mague, M. S. Balakrishna* 720–731

Group 11 Metal Complexes of the Mesocyclic Thioether Aminophosphonites $[-OC_{10}H_6(\mu\text{-}S)C_{10}H_6O-]PNC_4H_8E$ (E = O, NMe)

Keywords: Thioether-aminophosphonites / P,S ligands / Copper / Gold

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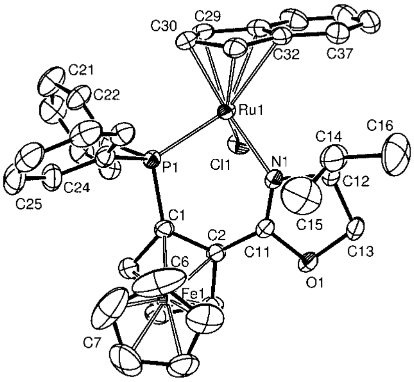
Half-Sandwich Ruthenium(II) Complexes

Chiral-at-metal indenyl- and areneruthenium(II) complexes containing the chiral ligand (4*S*)-2-[(*S*$_P$)-2-(diphenylphosphanyl)ferrocenyl]-4-(methylethyl)oxazoline (FcPN) have been synthesised diastereoselectively. The reported complexes include those containing alkynyl, allenylidene, and Fischer-type carbene ligands. The absolute configuration of the ruthenium atoms in representative complexes has been determined by X-ray analyses.



A. García-Fernández, J. Gimeno, E. Lastra,* C. A. Madrigal, C. Graiff, A. Tiripicchio 732–741

Half-Sandwich η^5-Indenyl- and η^6-Areneruthenium(II) Complexes Bearing the Chiral Ligand (4*S*)-2-[(*S*$_p$)-2-(Diphenylphosphanyl)ferrocenyl]-4-(methylethyl)oxazoline (FcPN)

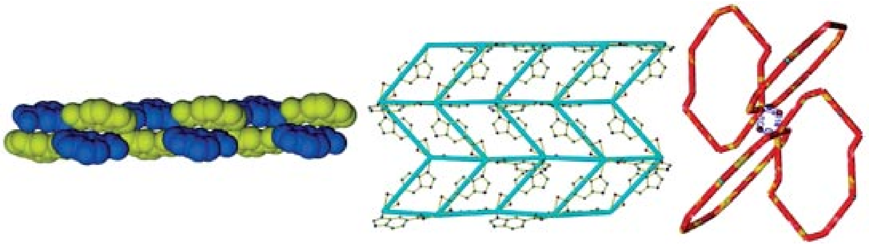
Keywords: N,P ligands / Phosphanes / Indenyl complexes / Arene complexes / Ruthenium

Cadmium Coordination Polymers

Z. Guo, R. Cao,* X. Li, D. Yuan, W. Bi, X. Zhu, Y. Li 742–748

A Series of Cadmium(II) Coordination Polymers Synthesized at different pH Values

Keywords: Cadmium / Polymers / Self-assembly / Photoluminescence



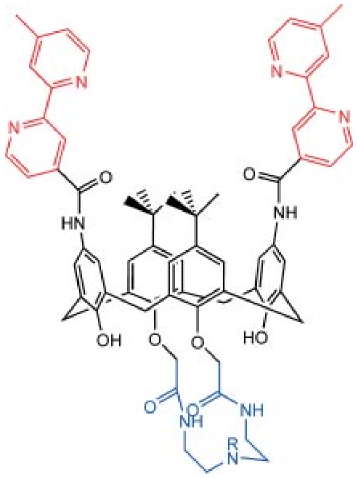
A new family of cadmium(II) coordination polymers has been hydrothermally prepared by the assembly of Cd^{II} with 1H-benzimidazole-5-carboxylic acid. A change in the pH values resulted in a series of compounds with different compositions and dimensionalities.

Ruthenium/Manganese Complexes

A. D. Bond, B. S. Creaven, D. F. Donlon, T. L. Gernon, J. McGinley,* H. Toftlund 749–756

Metal Complexation of Calix[4]azacrown Derivatives – Evidence for Communication Between Upper and Lower Functionalised Rims

Keywords: Calix[4]arene / Macrocyclic ligands / Heterometallic compounds / Copper(II) / Manganese(II) / Ruthenium(II) / EPR spectroscopy



The first example of a binuclear ruthenium(II)/manganese(II) complex, involving the calix[4]arene framework as the bridging ligand (showing two different metal binding centres), is reported.