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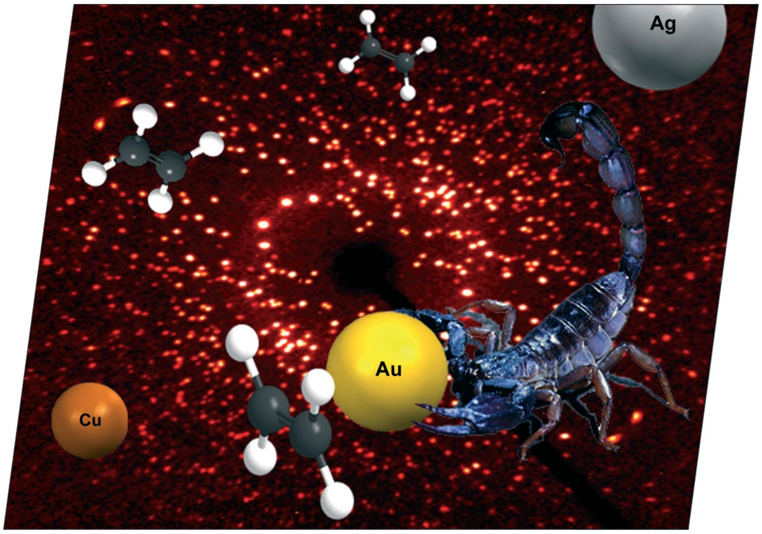
The EUChemSoc Societies have taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry.* Three further EUChemSoc Societies (Austria, Czech Republic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

COVER PICTURE

The cover picture shows the formation of coinage metal (copper, silver, gold) complexes of ethylene supported by scorpionate ligands on an X-ray diffraction background (because the article focuses on the structurally characterized molecules). Thermally stable molecules containing bonds between coinage metal atoms and ethylene are still rare but have grown in number significantly over the last few years. Tris(pyrazolyl)borate (commonly known as scorpionate) ligands have played a major role in this chemistry. Indeed, they have served as the supporting ligands in the isolation of the first ethylene adduct of all three coinage metal ions. Most of the resulting complexes feature κ^3-bonded scorpionate ligands, while a few others show rare κ^2-coordination (as depicted here, a gold atom held by a scorpion with the scorpion's tail up). Details are presented in the Microreview by H. V. R. Dias and J. Wu on p. 509ff. H. V. R. D. gratefully acknowledges the Robert A. Welch Foundation (grant Y-1289) for providing financial support for his research.



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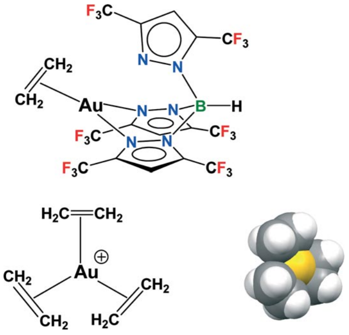
MICROREVIEW

Metal–Ethylene Complexes

H. V. R. Dias,* J. Wu 509–522

Structurally Characterized Coinage-Metal–Ethylene Complexes

Keywords: Ethylene / Crystallography / Gold / Silver / Copper



Thermally stable Cu^I, Ag^I, and Au^I complexes of ethylene are limited and get increasingly sparse as one descends the group 11 triad towards gold. Recently, there have been some notable developments in this field, including the isolation of coinage-metal adducts with more than one ethylene molecule on a metal center. This article focuses on such adducts that have been synthesized and characterized by X-ray crystallography.

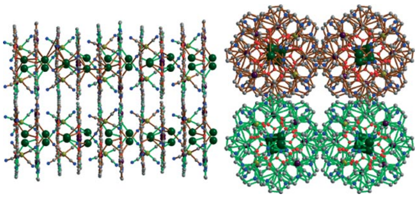
FULL PAPERS

Platinum-Salen Complexes

X. Lü, W.-Y. Wong,
W.-K. Wong* 523–528

Self-Assembly of Luminescent Platinum-Salen Schiff-Base Complexes

Keywords: Platinum / Schiff bases / Photoluminescence / Self assembly



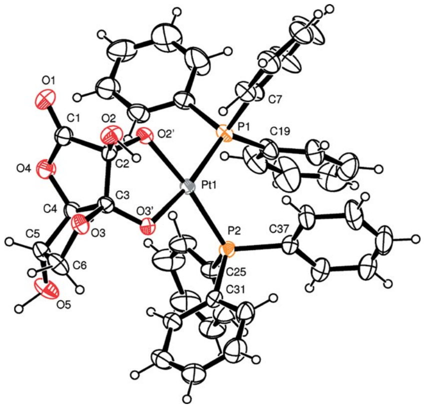
The hydrogen-bonding interactions from two different solvate forms of the platinum(II) MeO-salen Schiff-base complex together with various coordination bonds were shown to induce the self-assembly of such transition-metal Schiff base systems and the formation of 3-D heterometallic structures.

Antitumour Platinum Complexes

P. Bergamini,* E. Marchesi, V. Bertolasi,
M. Fogagnolo, L. Scarpantonio,
S. Manfredini, S. Vertuani,
A. Canella 529–537

New Coordination Modes of L-Ascorbic Acid and Dehydro-L-ascorbic Acid as Dianionic Chelating Ligand for Platinum

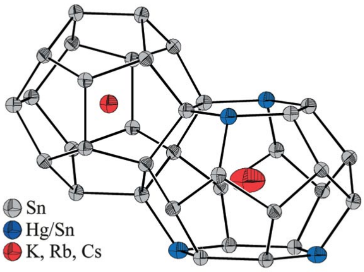
Keywords: Ascorbic acid / Dehydroascorbic acid / Platinum / Antitumour agents / Drug delivery / Drug design



A variety of coordination modes of L-ascorbic acid as an anionic bidentate ligand to Pt^{II} are described, including the new mode as a O5,O6-diolate chelating ligand. The first platinum complex containing dehydro-L-ascorbic acid and its X-ray crystal structure are reported. Its antiproliferative activity in vitro was found to be superior to cisplatin on both a cisplatin-sensitive and a cisplatin-resistant cell line.

Hg-Substituted Clathrates

The Hg-substituted type-I clathrates $A_8Hg_4Sn_{42}$ (A = K, Rb or Cs) crystallize in the cubic space group $Pm\bar{3}n$ and constitute diamagnetic, charge-balanced Zintl phases without homogeneity range. Differential thermal analyses show that the stability of the title compounds increases significantly with increasing size of the encaged alkali-metal atoms.



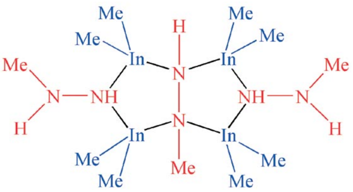
A. Kaltzoglou, S. Ponou,
T. F. Fässler* .... 538−542

Synthesis and Crystal Structure of Mercury-Substituted Type-I Clathrates $A_8Hg_4Sn_4$ (A = K, Rb, Cs)

Keywords: Clathrate / Differential thermal analysis / Mercury / Stannides / Crystal structure / Zintl phases

Group 13 Hydrazides

Three different structural motifs were obtained by the reactions of methylhydrazine with the trimethyl compounds of aluminum, gallium, and indium: a simple adduct $Me_3Ga{\leftarrow}N(H)(Me)-NH_2$, a sesqui compound $(Me_2Al)_3[\mu\text{-}NH-N(H)Me]_6Al$ together with its dissociated dinuclear form, and bicyclic compounds of the general composition $(EMe_2)_4(HN-NMe)[N(H)-N(H)-Me)]_2$ (E = Ga, In).

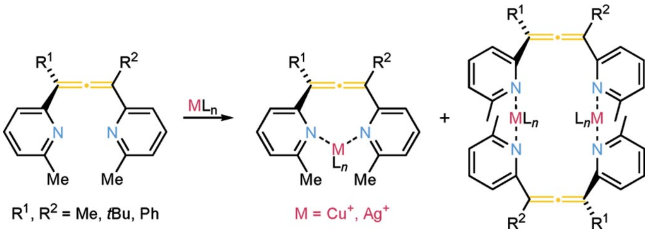


W. Uhl,* T. Abel, A. Hepp, S. Grimme,
M. Steinmetz .... 543−551

Different Reactivity Patterns in the Reactions of the Homologous Trimethylelement Compounds EMe_3 (E = Al, Ga, In) with Methylhydrazine

Keywords: Aluminum / Gallium / Indium / Hydrazides / Heterocycles

Allenic Ligands



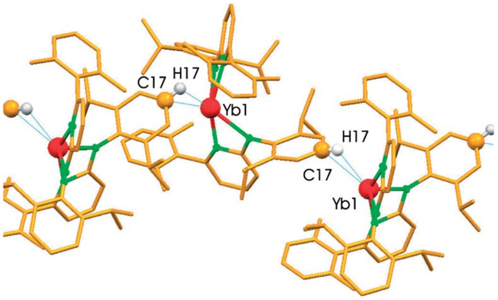
Allenic bipyridines are novel, axially chiral ligands for transition metal catalysis. They form 1:1- or 2:2 complexes with Cu^+ and Ag^+ ions that were characterized in solution and in the solid state.

S. Löhr, J. Averbeck, M. Schürmann,
N. Krause* .... 552−556

Synthesis and Complexation Properties of Allenic Bipyridines, a New Class of Axially Chiral Ligands for Transition Metal Catalysis

Keywords: Allenes / Axial chirality / Bipyridines / Catalysis / Transition metal complexes

Agostic Interaction



Strong intermolecular $C_{Aryl}-H$ agostic interactions have been observed for a sterically engineered Yb^{II} amidopyridine complex. The compound could only be stabilized in a small steric and synthetic “window” because small variations of the ligand’s bulkiness and the synthetic procedure result in a drastically different chemistry.

S. Qayyum, K. Haberland, C. M. Forsyth,
P. C. Junk, G. B. Deacon,*
R. Kempe* .... 557−562

Small Steric Variations in Ligands with Large Synthetic and Structural Consequences

Keywords: Agostic interactions / Amidopyridine ligands / Aminopyridinato ligands / N ligands / Ytterbium

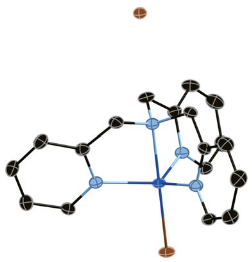
CONTENTS

Cu-Mediated Radical Additions

W. T. Eckenhoff, S. T. Garrity,
T. Pintauer* 563–571

Highly Efficient Copper-Mediated Atom-Transfer Radical Addition (ATRA) in the Presence of Reducing Agent

Keywords: Catalysis / Copper / ATRA / Reducing agent



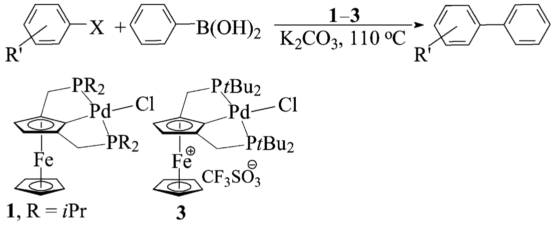
The synthesis, characterization and exceptional activity of Cu^{I}(TPMA)Br and [Cu^{II}(TPMA)Br][Br] complexes in ATRA reactions of polybrominated compounds to alkenes in the presence of reducing agent (AIBN) was reported.

Pd Pincer Catalysts

A. M. Sheloumov,* P. Tundo,
F. M. Dolgushin,
A. A. Koridze* 572–576

Suzuki Aryl Coupling Catalysed by Palladi-um Bis(phosphane) Pincer Complexes Based on Ferrocene; X-ray Structure Determination of {PdCl[{2,5-(*t*BuPCH)C_5H}Fe(C_5H_5)]}OTf

Keywords: Metallocenes / Homogeneous catalysis / Phase-transfer catalysis / Cross-coupling reactions / X-ray diffraction



1, R = *i*Pr
2, R = *t*Bu
3

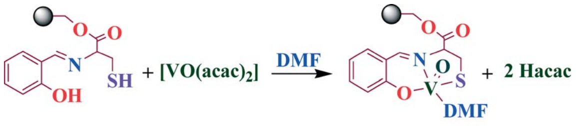
Palladium P,C,P pincer complexes **1**–**3** catalyse Suzuki aryl coupling under homogeneous conditions as well as in multiphase systems (triphase system: organic/Aliquat 336/aqueous solvent); the X-ray structure of complex **3**, in which the iron atom is oxidised, has been determined and compared with that of its neutral precursor **2**.

Polymer-Anchored $V^{IV}O$ Complexes

M. R. Maurya,* U. Kumar, I. Correia,
P. Adão, J. Costa Pessoa 577–587

A Polymer-Bound Oxidovanadium(IV) Complex Prepared from an L-Cysteine-Derived Ligand for the Oxidative Amination of Styrene

Keywords: Polymer-anchored vanadium complex / Heterogeneous catalysis / Oxidative amination of styrene / EPR spectroscopy



PS-H_2sal-cys **PS-[VO(sal-cys)·DMF]**

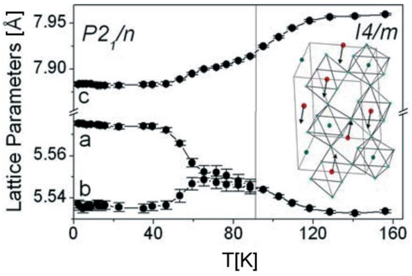
The oxidovanadium(IV) complex, PS-[VO(sal-cys)·DMF], has been prepared from polystyrene-bound ligand PS-H_2sal-cys, characterized, and used for the oxidative amination of styrene, in mild basic conditions, with secondary amines (diethylamine, imidazole, and benzimidazole).

Rhenium Perovskites

M. Retuerto,* M. J. Martínez-Lope,
M. García-Hernández,
M. T. Fernández-Díaz,
J. A. Alonso 588–595

Crystal and Magnetic Structure of Sr_2MReO_6 (M = Ni, Co, Zn) Double Perovskites: A Neutron Diffraction Study

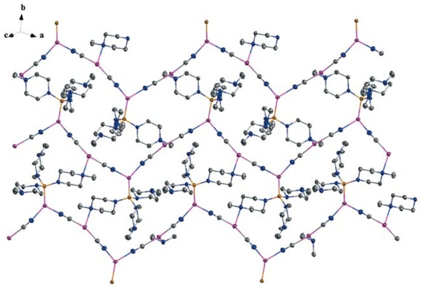
Keywords: Perovskite phases / Rhenium / Neutron diffraction / Crystal structure / Magnetic structure / Antiferromagnetism



Sr_2MReO_6 (M = Ni, Co, Zn) double perovskites were studied by neutron powder diffraction (NPD) analysis. The crystal structure at room temperature is tetragonal, but at low temperatures, Co and Zn oxides undergo structural transition to monoclinic symmetry. The magnetic structures of Sr_2NiReO_6 and Sr_2CoReO_6 display different arrangements of the Ni^{2+} and Co^{2+} spins.

Carbon–Carbon Coupling

The reactions of tris(4-methylpiperazin-1-yl)phosphane, $P(NC_4H_8NMe)_3$ (**1**) with Group 10 and 11 metal derivatives are described. The formation and crystal structures of tetranuclear Cu_4X_4 cubane-type complexes and a two-dimensional Ag^ICN polymeric sheet are reported. The catalytic utility of **1** in Suzuki cross coupling reactions of aryl bromides with phenylboronic acid is also described.



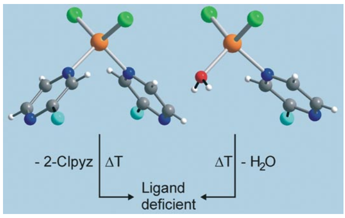
C. Ganesamoorthy, J. T. Mague, M. S. Balakrishna* **596–604**

Tris(4-methylpiperazin-1-yl)phosphane, $P(NC_4H_8NMe)_3$: Synthesis, Structural Studies, Group 10 and 11 Metal Complexes and Catalytic Investigations

Keywords: Phosphanes / Group 10 and 11 metal complexes / Cubane-like structure / Homogeneous catalysis / C–C coupling

Thermal Behavior of Zn Complexes

Five new zinc(II) halide coordination compounds with 2-chloroprazine as ligand were prepared and were structurally characterized and investigated for their thermal reactivity. It is shown that the same ligand-deficient intermediates are independently prepared if the pure 2-chloropyrazine complexes or the mixed 2-chloropyrazine/water complexes are decomposed.



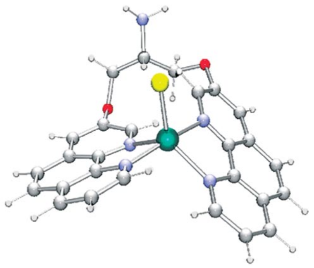
G. Bhosekar, I. Jeß, N. Lehnert, C. Näther* **605–611**

Synthesis, Crystal Structure and Thermal Reactivity of [ZnX(2-chloropyrazine)] (X = Cl, Br, I) Coordination Compounds

Keywords: Coordination compounds / Synthesis / Crystal structure / Thermal reactivity / Zinc / Halides

Computational Study of Nucleases

DFT calculations have been carried out to investigate the in vacuo structures of six different Cu(3-Clip-Phen) complexes. It has been found that the length of the bridge connecting the two phenanthroline ligands is crucial for the consequent copper geometry. In addition, the cleavage ability of these complexes is associated with their coordination environment.



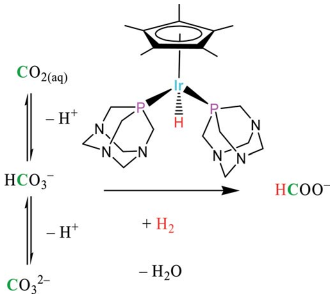
P. de Hoog, M. J. Louwerse, P. Gamez, M. Pitié, E. J. Baerends, B. Meunier, J. Reedijk* **612–619**

Influence of the Copper Coordination Geometry on the DNA Cleavage Activity of Clip-Phen Complexes Studied by DFT

Keywords: 3-Clip-Phen / DNA cleavage / Design / DFT / Reorganization energy

Iridium-Catalysed CO_2 Reduction

The new compounds, $[Cp^*Ir(PTA)Cl_2]$ (**1**) and $[Cp^*Ir(PTA)_2Cl]Cl$ (**2**), have been synthesised and characterised in solution and the solid state. Complex **2** operates as a pre-catalyst in the hydrogenation of hydrogen carbonate in aqueous solution, the catalytically active $[Cp^*Ir(PTA)_2H]^+$ has been identified.



M. Erlandsson, V. R. Landaeta, L. Gonsalvi,* M. Peruzzini, A. D. Phillips, P. J. Dyson, G. Laurenczy* **620–627**

(Pentamethylcyclopentadienyl)iridium-PTA (PTA = 1,3,5-Triaza-7-phosphaadamantane) Complexes and Their Application in Catalytic Water Phase Carbon Dioxide Hydrogenation

Keywords: Reduction / Iridium(III) complexes / Water-soluble ligands / Hydrogenation / Catalysis

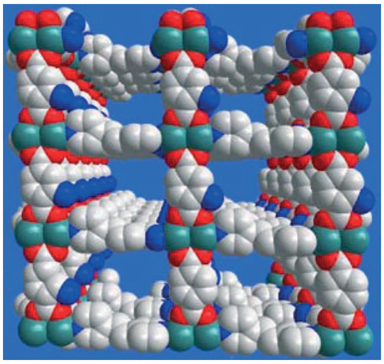
CONTENTS

Crystal Engineering

Z. Fu,* J. Yi, Y. Chen, S. Liao,
N. G. J. Dai,* G. Yang, Y. Lian,
X. Wu* 628–634

From Interwoven to Noninterpenetration: Crystal Structural Motifs of Two New Manganese–Organic Frameworks Mediated by the Substituted Group of the Bridging Ligand

Keywords: Supramolecular frameworks / Crystal engineering / Manganese / Bimetallic units



The syntheses and structures of two novel manganese–organic compounds, $[\mathrm{Mn}(2\text{-atp})(\text{bipy-eta})_{0.5}]_n$ and $\{[\mathrm{Mn}(\mathrm{tp})(\text{bipy-eta})_{1.5}]\cdot 2\mathrm{H_2O}\}_n$, are described. The experimental results indicate that variations in the molecular self-assembly are influenced by the substituted group in the bridging ligands.

CORRECTION

M. Jakonen, P. Hirva, T. Nivajärvi,
M. Kallinen, M. Haukka* 635

Surface-Assisted Synthesis and Behavior of Dimetallic Mixed-Metal Complexes $[\mathrm{M_2Cl_2}(\mu\text{-Cl})_4(\mathrm{CO})_6\mathrm{M'}(\mathrm{L})_2]$ (M = Ru, Os; M′ = Fe, Co; L = $\mathrm{CH_3CH_2OH}$, $\mathrm{H_2O}$)

Keywords: Ruthenium / Osmium / Cobalt / Iron / Synthesis design