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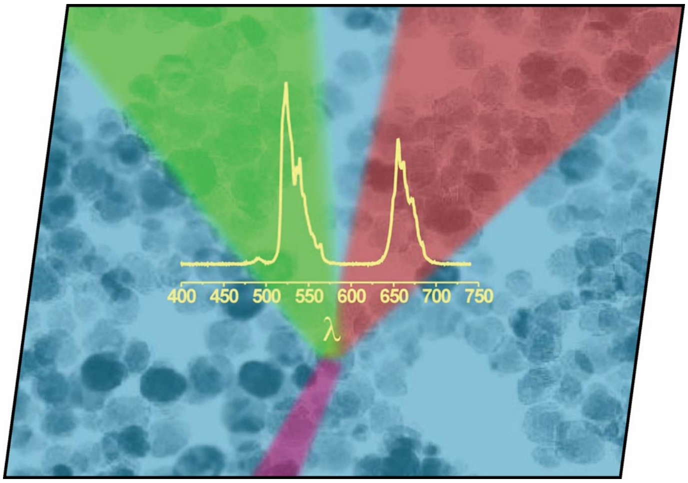
A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further members of ChemPubSoc Europe (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows spherical nanoparticles consisting of $NaYF_4$ co-doped with Er^{3+}/Yb^{3+}, which have been synthesised through a procedure simpler and less harmful than other methods previously reported, since it does not require the use of surfactant or capping additives. As illustrated in the picture, these nanoparticles emit visible light in the green and red regions when irradiated with infrared (980 nm) radiation. This property, known as up-conversion fluorescence, confers on the nanophosphors potential applications in several fields, including biotechnology. Details are discussed in the article by M. Ocaña et al. on p. 4517ff.



CONTENTS

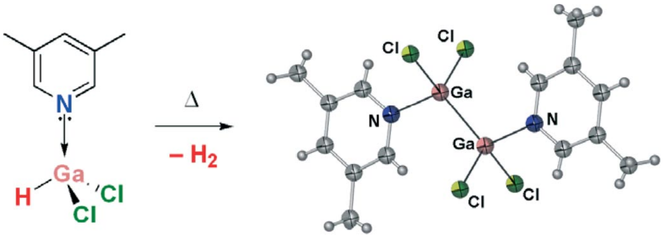
MICROREVIEW

Group 13 Halometallanes

S. G. Alexander, M. L. Cole* 4493–4506

Lewis Base Adducts of Heavier Group 13 Halohydrides – *Not Just Aspiring Trihydrides!*

Keywords: Main group elements / Halides / Hydrides / Lewis bases



Partially halide-substituted heavier group-13 trihydrides have been studied mainly as curiosities in association with their more illustrious metal trihydride cousins. This review collates the known syntheses, reactivities and properties of these compounds with a focus toward their unique reactivities.

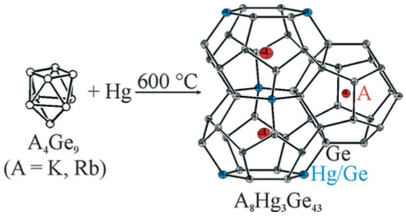
SHORT COMMUNICATIONS

Mercury–Germanium Clathrates

A. Kaltzoglou, S. Ponou,
T. F. Fässler* 4507–4510

A$_4$Ge$_9$ (A = K, Rb) as Precursors for Hg-Substituted Clathrate-I Synthesis: Crystal Structure of A$_8$Hg$_3$Ge$_{43}$

Keywords: Clathrates / Germanium / Mercury / Zintl phases



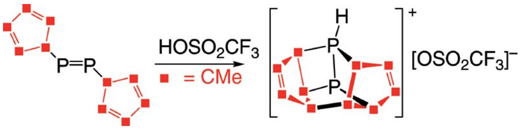
The Hg-substituted type-I clathrates K$_8$Hg$_{3.19(5)}$Ge$_{42.81(5)}$ and Rb$_8$Hg$_{3.03(7)}$-Ge$_{42.97(7)}$ were obtained by solid-state reactions starting with the corresponding Zintl phases A$_4$Ge$_9$. The crystal structure was refined from powder and single-crystal X-ray diffraction data. The Ge framework is partially substituted by Hg at the 6*c* sites.

Inorganic Cascade Reaction

O. C. Presly, T. J. Davin, M. Green,*
R. J. Kilby, S. M. Mansell, J. E. McGrady,
C. A. Russell* 4511–4515

A Proton-Triggered Cascade Reaction Involving a Heavy p-Block Multiple Bond: Transformation of the Diphosphene C$_5$Me$_5$P=PC$_5$Me$_5$ into the Cationic Cage [C$_{10}$Me$_{10}$P$_2$H]$^+$

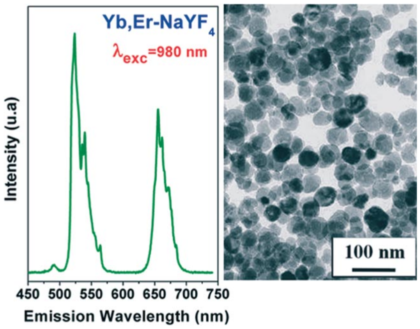
Keywords: Cascade / Heavy p-block multiple bonds / Phosphorus / Cage compounds



A remarkable cascade reaction involving a heavy main group multiple bond is triggered by protonation of the diphosphene C$_5$Me$_5$P=PC$_5$Me$_5$ leading to the direct formation of a C$_{10}$P$_2$ cage. The proximity of a C=C π-system to a developing positive charge on one of the phosphorus centers is suggested by calculations to be the key mechanistic feature.

Tunable Nanophosphors

$NaYF_4$-based nanophosphors with down-conversion (doped with Eu^{III} or Tb^{III}) and up-conversion (codoped with Er^{III}/Yb^{III}) luminescence and consisting of particles with nearly spherical shape and tunable size have been synthesised through a procedure simpler and less harmful than other methods previously reported.



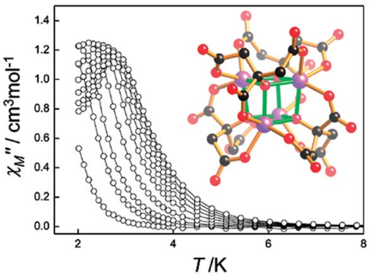
N. O. Nuñez, H. Míguez, M. Quintanilla, E. Cantelar, F. Cussó, M. Ocaña* **4517–4524**

Synthesis of Spherical Down- and Up-Conversion $NaYF_4$-Based Nanophosphors with Tunable Size in Ethylene Glycol without Surfactants or Capping Additives

Keywords: Nanoparticles / Luminescence / Rare earth / Fluorides

Magnetisation Reversal in Co Cluster

Variable-frequency ac-susceptibility studies on our recently reported cubane-containing clusters $[C(NH_2)_3]_8[Co_4(cit)_4]\cdot 8H_2O$, cit = citrate, and $[Co_8(C_4O_7)_4(H_2O)_{12}]\cdot 24H_2O$ reveal slow relaxation and single-molecule magnetic behaviour, with blocking temperatures of below 4 K.



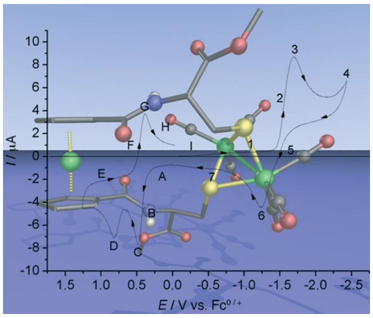
B. Moubaraki, K. S. Murray,* T. A. Hudson, R. Robson **4525–4529**

Tetranuclear and Octanuclear Cobalt(II) Citrate Cluster Single Molecule Magnets

Keywords: Cobalt(II) / Tetranuclear / Citrate-bonded cluster / Single-molecule magnetism / AC susceptibilities / Frequency dependence

Hydrogenase Mimics

A peptidic cysteine-based macrocyclic ligand with a ferrocene backbone is introduced, which combines key features of the natural enzyme in a hydrogenase mimic, namely an electro-active group in spatial proximity to a diiron active-site mimic, and coordination of this active-site mimic to naturally occurring cysteine ligands.

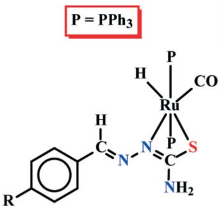


X. de Hatten, E. Bothe, K. Merz, I. Huc, N. Metzler-Nolte* **4530–4537**

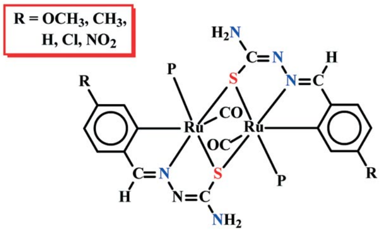
A Ferrocene–Peptide Conjugate as a Hydrogenase Model System

Keywords: Bioorganometallic chemistry / Cofactors / Enzyme models / Metallocenes / Hydrogenase / Peptides / Spectroelectrochemistry

Thiosemicarbazone Ru Complexes



I



II

Reactions of benzaldehyde thiosemicarbazones with $[Ru(PPh_3)_2(CO)_2Cl_2]$, carried out in refluxing ethanol, afforded monomeric complexes of type **I**, whereas similar reactions in refluxing toluene yielded a family of dimeric complexes of type **II**.

S. Dutta, F. Basuli, A. Castineiras, S.-M. Peng, G.-H. Lee, S. Bhattacharya* **4538–4546**

Variable Coordination Modes of Benzaldehyde Thiosemicarbazones – Synthesis, Structure, and Electrochemical Properties of Some Ruthenium Complexes

Keywords: Thiosemicarbazones / S ligands / N ligands / Ruthenium / Coordination modes

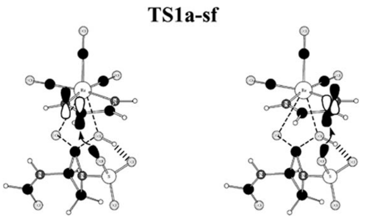
CONTENTS

β-Lactam Cleavage

V. Yeguas, P. Campomanes, R. López* 4547–4554

A Theoretical Study on the Reactivity of a Rhenium Hydroxo-Carbonyl Complex Towards β-Lactams

Keywords: β-Lactams / Cleavage reactions / Hydroxo complexes / Rhenium / Density functional calculations



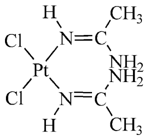
The presence of a sulfonato group is crucial for the cleavage of the β-lactam N1–C2 bond by the Re complex thanks to the interaction of the sulfonato group with the hydroxy and bidentate ligands of the complex.

Amidineplatinum(II) Complexes

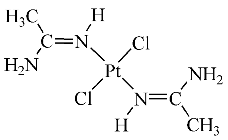
F. P. Intini, R. Z. Pellicani, A. Boccarelli, R. Sasanelli, M. Coluccia, G. Natile* 4555–4561

Synthesis, Characterization, and In Vitro Antitumor Activity of New Amidineplatinum(II) Complexes Obtained by Addition of Ammonia to Coordinated Acetonitrile

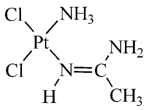
Keywords: Platinum / Amidine ligands / Antitumor agents / Activation of *trans* geometry



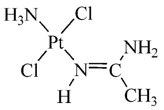
cis-**1**



trans-**1**



cis-**2**



trans-**2**

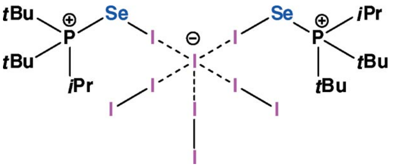
After the discovery that iminoether and ketimine ligands are able to activate the *trans* geometry of platinum(II) complexes towards antitumor activity, investigations have been extended to amidines which represent a third class of bioisosters. Greater stability and water solubility are two major advantages of the new compounds.

Continuum of Se–I Interactions

W.-W. du Mont,* M. Bätcher, C. Daniliuc, F. A. Devillanova, C. Druckenbrodt, J. Jeske, P. G. Jones,* V. Lippolis, F. Ruthe, E. Seppälä 4562–4577

Soft–Soft Interactions Involving Iodoselenophosphonium Cations: Supramolecular Structures of Iodine Adducts of Bulky Trialkylphosphane Selenides

Keywords: Phosphane selenides / Iodine / Soft–soft interactions / Supramolecular structures / X-ray crystallography / FT-Raman spectroscopy



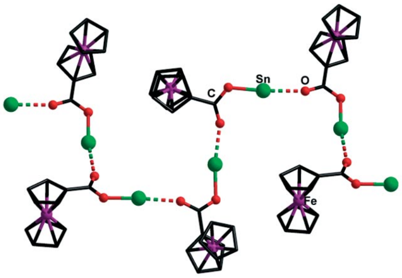
Supramolecular structures of iodoseleno(trialkyl)phosphonium and of iodobis[seleno(trialkyl)phosphonium] polyiodides in compounds R_3PSeI_n ($n = 2-7$) exhibit a continuum of interactions from weak Se···I, I···I, and Se···Se soft–soft contacts to nearly undisturbed covalent Se–I and I–I bonds.

Ferrocenecarboxylates

V. Chandrasekhar,* R. Thirumoorthi 4578–4585

Facile, Ambient Temperature, Double Sn–C Bond Cleavage: Synthesis, Structure, and Electrochemistry of Organotin and Organotellurium Ferrocenecarboxylates

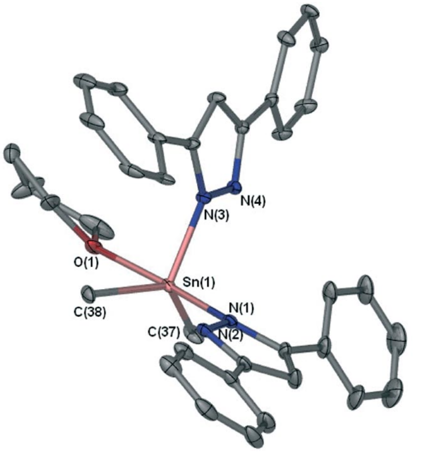
Keywords: Carboxylate ligands / Cyclic voltammetry / Electrochemistry / Metallocenes / Organostannoxanes



The reaction of ferrocenecarboxylic acid with organotin halides or organotellurium oxides/halides affords organotin and -tellurium ferrocenecarboxylates. In one instance, an unusual ambient temperature double Sn–C bond cleavage occurred in the conversion of Bn_3SnO_2CFc into $[BnSn(O)O_2CFc]_6$ (Bn = benzyl; Fc = C_5H_4-Fe-C_5H_5).

New Transmetallation Syntheses

Reaction of $SnMe_2Cl_2$ with $[Li(Ph_2pz)]$ (Ph_2pz = 3,5-diphenylpyrazolate) afforded the new transmetallation reagent $[SnMe_2(Ph_2pz)_2]$. Treatment of $[SnMe_2(Ph_2pz)_2]$ with Ln metals provided a new route to the divalent $[Ln(Ph_2pz)_2(dme)_2]$ (Ln = Sm, Eu, Yb) and the trivalent $[La(Ph_2pz)_3(dme)_2]$ and $[Yb(Ph_2pz)_3(thf)_2]$ complexes.



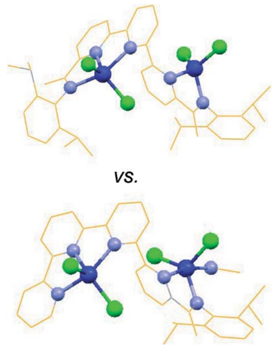
S. Beaini, G. B. Deacon,* E. E. Delbridge, P. C. Junk,* B. W. Skelton, A. H. White **4586–4596**

Dimethyltin(IV) Bis(3,5-diphenylpyrazolate) as a Synthetic Reagent in the Preparation of Rare-Earth Pyrazolate Complexes

Keywords: Redox transmetallation / Lanthanoids / Dimethyltin reagents / Organotin(IV) / Pyrazolate / Rare-earth elements

Ethylene Oligomerisation

N-Aryl- and bis(*N*-aryl)pentaaza 2,6-oligopyridylimine-type ligands have been employed as effective scaffolds to generate bimetallic Fe_2, Co_2 and Ni_2 complexes in which the metal centres are compartmentalised into inequivalent binding sites; depending on oligopyridylimine and metal centre their activation with MAO can lead to active catalysts for the oligomerisation of ethylene.



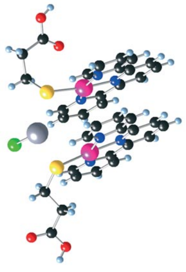
A. P. Armitage, Y. D. M. Champouret, H. Grigoli, J. D. A. Pelletier, K. Singh, G. A. Solan* **4597–4607**

Probing the Effect of Binding Site and Metal Centre Variation in Pentadentate Oligopyridylimine-Bearing Bimetallic (Fe_2, Co_2, Ni_2) Ethylene Oligomerisation Catalysts

Keywords: Bis(imino)terpyridine / Iminoquaterpyridine / Diiron / Dicobalt / Dinickel / C_2 Oligomerisation / α-Olefins

Molecular Lego

The incorporation of a terpyridine-platinum(II) into a sequence-selective polyamide has been explored, with the aim of producing cytotoxic molecules that display DNA sequence specificity. To facilitate this a terpyridineplatinum(II)-based metallointercalator has been developed, which can be incorporated into sequence-selective polyamides using standard machine-assisted peptide coupling techniques.

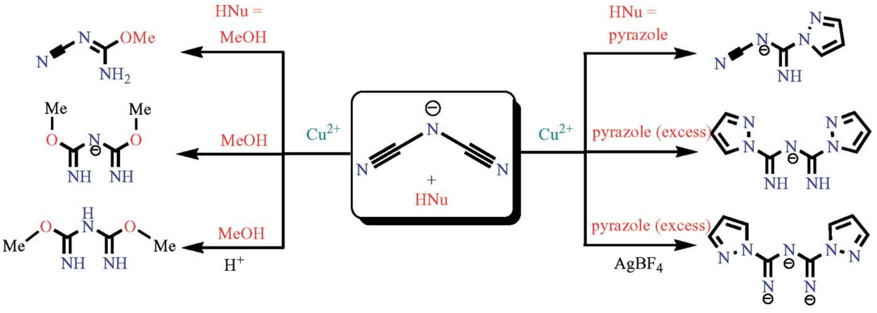


M. van Holst,* D. Le Pevelen, J. Aldrich-Wright **4608–4615**

Terpyridineplatinum(II) Incorporation in *N*-Methylpyrrole-Based Polyamides by Solid Phase Techniques

Keywords: Polyamides / Anticancer agents / Platinum / Terpyridine / Solid phase synthesis

Reactivity of Dicyanamide



The Cu^{2+}-mediated nucleophilic additions of different nucleophiles to dicyanamine lead to five 1:1 and 1:2 addition products, which are captured in mononuclear, trinuclear, hexanuclear and polymeric copper(II) complexes, respectively.

L.-L. Zheng, J.-D. Leng, W.-T. Liu, W.-X. Zhang, J.-X. Lu, M.-L. Tong* **4616–4624**

Cu^{2+}-Mediated Nucleophilic Addition of Different Nucleophiles to Dicyanamide – Synthesis, Structures, and Magnetic Properties of a Family of Mononuclear, Trinuclear, Hexanuclear, and Polymeric Copper(II) Complexes

Keywords: Copper(II) / Polydentate ligands / Nucleophilic addition / Magnetic properties

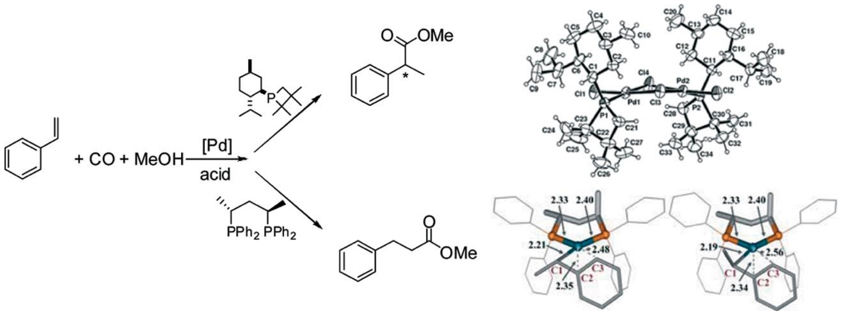
CONTENTS

Palladium Catalysis

B. K. Muñoz, E. Santos Garcia, C. Godard,* E. Zangrando, C. Bo, A. Ruiz, C. Claver* 4625–4637

HP-NMR Study of the Pd-Catalyzed Methoxycarbonylation of Styrene Using Monodentate and Bidentate Phosphane-Modified Systems

Keywords: Palladium / Methoxycarbonylation / Styrene / Mechanisms / Monodentate and bidentate phosphane



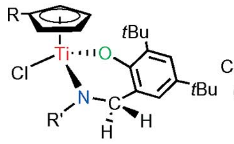
The reactivity of Pd catalysts bearing mono- and bidentate phosphane ligands towards the reagents involved in the methoxycarbonylation of styrene was investigated using high-pressure NMR spectroscopic techniques. The detection and characterization of several new palladium species formed during this process is described.

Asymmetric Titanium Derivatives

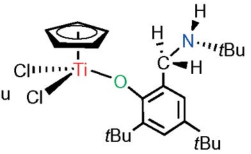
G. Alesso, M. Sanz, M. E. G. Mosquera, T. Cuenca* 4638–4649

Monocyclopentadienyl Phenoxido–Amino and Phenoxido–Amido Titanium Complexes: Synthesis, Characterisation, and Reactivity of Asymmetric Metal Centre Derivatives

Keywords: Titanium / Asymmetry / N,O ligands / Polymerisation



3, **4**



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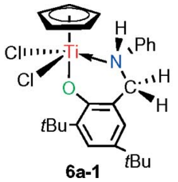
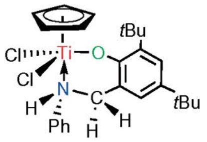


6a-1



6a-2

A series of mononuclear phenoxido–amido derivatives with asymmetric metal centres and phenoxido–amino complexes of titanium has been prepared by different synthetic pathways. Preliminary studies on ethylene polymerisation for the monocyclopentadienyl phenoxido–amido compounds in the presence of solid methylaluminoxane as cocatalyst are described.

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* Author to whom correspondence should be addressed.

Supporting information on the WWW (see article for access details).

If not otherwise indicated in the article, papers in issue 28 were published online on September 22, 2008