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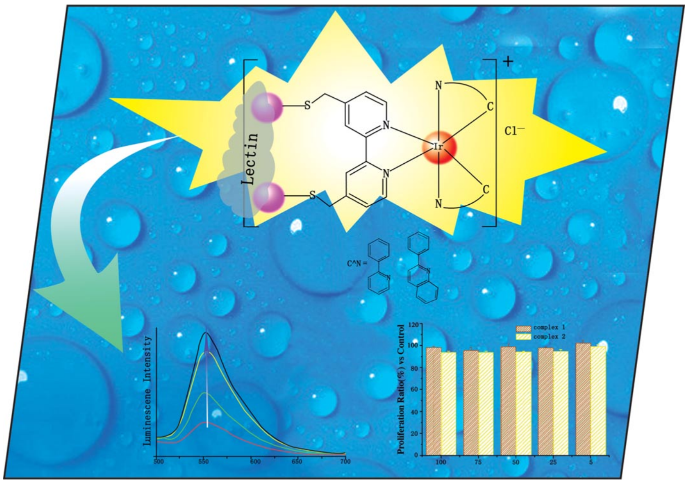
COVER PICTURE

The cover picture shows the structures of two novel water-soluble cyclometalated iridium(III) complexes with good water solubility, high quantum efficiency and biocompatibility. Preliminary experiments of cell viability and sensing of lectin show that iridium(III) complexes with appended sugar groups provide advantages of reducing the toxicity and of improving the solubility in water, and open up the possibility of molecular targeting of carbohydrate-binding domains in cells and tissues. Details are discussed in the Short Communication by M.-J. Li, G.-N. Chen et al. on p. 197ff.



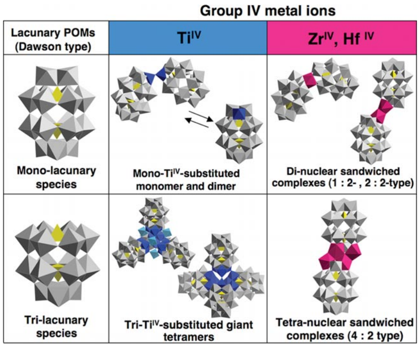
MICROREVIEW

Modified Polyoxometalates

K. Nomiya,* Y. Sakai,
S. Matsunaga **179–196**

Chemistry of Group IV Metal Ion-Containing Polyoxometalates

Keywords: Titanium / Zirconium / Hafnium / Polyoxometalates



Site-selective lacunary species of W^{VI} atoms in polyoxometalates (POMs) can be utilized as a support for various metal ions and cationic species. This microreview is focused on the syntheses, molecular structures and properties of Group IV metal ion-containing POMs, which were prepared by the reactions of various lacunary species of POMs with Ti^{IV}, Zr^{IV} and Hf^{IV} atoms.

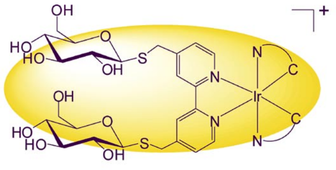
SHORT COMMUNICATION

Glycoconjugated Iridium Complexes

M.-J. Li,* P. Jiao, W. He, C. Yi,
C.-W. Li, X. Chen, G.-N. Chen,*
M. Yang **197–200**

Water-Soluble and Biocompatible Cyclometalated Iridium(III) Complexes: Synthesis, Luminescence and Sensing Application

Keywords: Iridium / Luminescence / Biosensors / Water-soluble complexes / Lectin



water-soluble, luminescent, bio-compatible

New water-soluble, highly efficient and biocompatible cyclometalated iridium(III) diimine complexes were synthesized and characterized and their potential application as lectin sensor was also studied. The new iridium(III) complexes might open up their application as bio- and chemosensors.

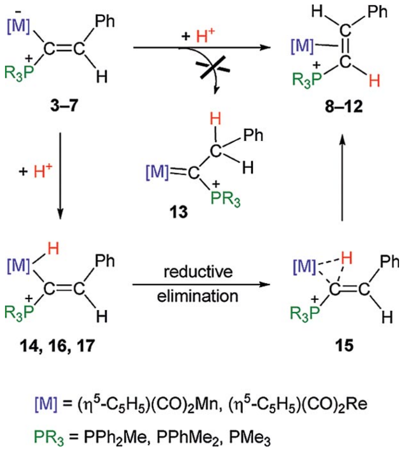
FULL PAPERS

Mechanism of Protonation

V. V. Krivykh,* D. A. Valyaev,
K. I. Utegenov, A. M. Mazhuga,
E. S. Taits, O. V. Semeikin,
P. V. Petrovskii, I. A. Godovikov,
I. V. Glukhov, N. A. Ustynyuk*.... **201–211**

Protonation of Zwitterionic Manganese and Rhenium Phosphoniostyryl Complexes (η^5-C_5H_5)(CO)$_2$M$^-$–C($^+$PR$_3$)=C(H)Ph: Experimental and DFT Study

Keywords: Vinylidene complexes / Manganese / Rhenium / Protonation / Zwitterions / X-ray diffraction / Density functional calculations



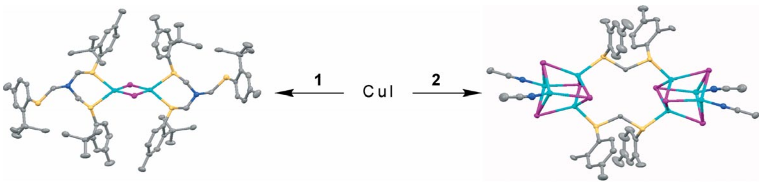
Protonation of Mn and Re *Z*-σ-phosphoniostyryl complexes **3**–**7** with $HBF_4 \cdot OEt_2$ leads to the *E*-η^2-phosphonioalkene derivatives **8**–**12** rather than the phosphoniocarbene complexes **13**. According to DFT calculations, protonation of Mn complex **5** proceeds at the metal atom followed by fast conversion of the resulting *cis*-hydride **14** into the agostic intermediate **15** and the final product **10**. Quantitative formation of the *cis*-hydride intermediates **16** and **17** was evidenced by low-temperature protonation of the rhenium *Z*-σ-phosphoniostyryl complexes **6** and **7** with triflic acid.

Copper–Thioether Complexes

P. R. Martínez-Alanis,
V. M. Ugalde-Saldívar,
I. Castillo* **212–220**

Electrochemical and Structural Characterization of Tri- and Dithioether Copper Complexes

Keywords: Copper / Sulfur / Tripodal ligands / Voltammetry



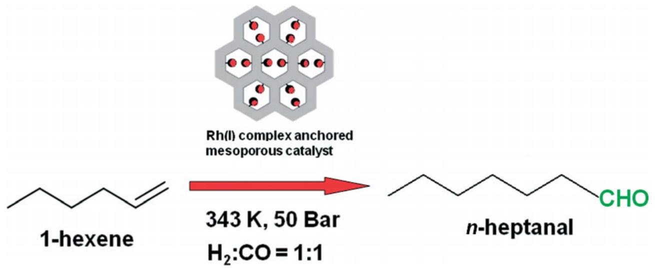
The nitrilotrithioether **1** behaves like a chelating ligand toward CuI, whilst the dithioether **2** bridges Cu_4I_4 clusters. The redox potentials of all the thioether ligands **1–3** are below those of the Cu^{2+}/Cu^{+} couples of their complexes, resulting in Cu^{2+}-promoted oxidation. Electrochemical oxidation of the thioethers affords the same decomposition products.

Mesoporous Rh Catalyst

M. Nandi, P. Mondal, M. Islam,
A. Bhaumik* **221–227**

Highly Efficient Hydroformylation of 1-Hexene over an *ortho*-Metallated Rhodium(I) Complex Anchored on a 2D-Hexagonal Mesoporous Material

Keywords: Functionalisation / Heterogeneous catalysis / Hydroformylation / Mesoporous silica / Rhodium



An *ortho*-metallated Rh^I complex has been immobilised on a functionalised 2D-hexagonal mesoporous silica, and the resulting material showed very good catalytic efficiency in the hydroformylation reaction of 1-hexene to *n*-heptanal.

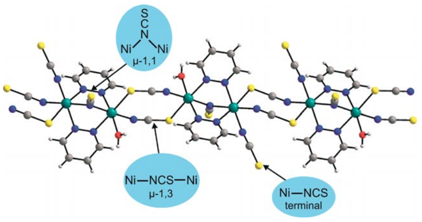
Thiocyanato Coordination Diversity

M. Wriedt, C. Näther* **228–234**

Dimorphic Modifications of the Thiocyanato-Bridged Coordination Polymer $[Ni(NCS)_2(pyridazine)(H_2O)_{0.5}]_n$ with Different Magnetic Properties

Keywords: Nickel / Thiocyanate ligands / Coordination polymers / Coordination modes / Thermal properties / Magnetic properties

The first coordination polymer, in which the three most common thiocyanato coordination modes are combined, has been prepared and investigated for its thermal and magnetic properties. On heating, this compound transforms quantitatively into a new anhydrate, which transforms on rehydration to a new polymorphic hemihydrate modification.

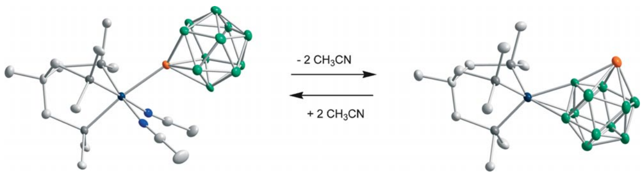


closo-Dodecaborate Clusters

J.-A. Dimmer, L. Wesemann* **235–240**

Germa-*closo*-dodecaborate: An Ambident and Flexible Coordinating Ligand

Keywords: Germanium / Germylenes / Boranes / Coordination chemistry / Iron / Ruthenium



Germa-*closo*-dodecaborate $[GeB_{11}H_{11}]^{2-}$ coordinated at iron or ruthenium triphos fragments $[(triphos)M]^{2+}$ [triphos = MeC-$(CH_2PPh_2)_3$; M = Fe, Ru] shows a reversible η^1(Ge) to η^3(B–H) rearrangement. Coordinated through the three B–H units, the germanium vertex is still nucleophilic enough to react with $[Mo(CO)_5thf]$ under complexation.

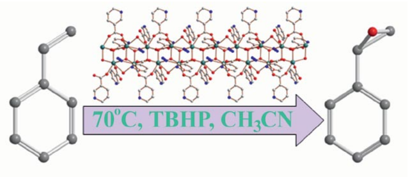
CONTENTS

MOF Epoxidation Catalysts

R. Sen, S. Koner,* D. K. Hazra, M. Helliwell, M. Mukherjee 241–248

Heterogeneous Catalytic Epoxidation of Olefins Over Hydrothermally Synthesized Lanthanide Containing Framework Compounds

Keywords: Heterogeneous catalysis / Hydrothermal synthesis / Lanthanides / Epoxidation / Framework solids



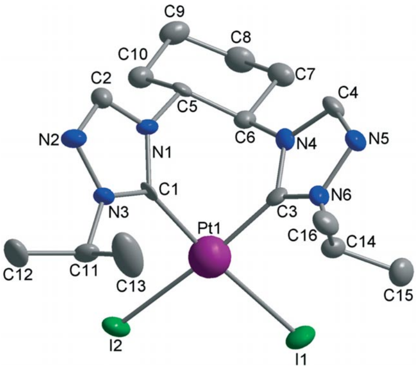
A series of novel compounds $[Ln_2(N_3)(nic)_2(OH)_3(Hnic)(H_2O)]_n$ (Ln = Y^{III} **1** and Gd^{III} **2**; Hnic = nicotinic acid) and $[Sm_4(N_3)_2(nic)_4(OH)_6(Hnic)_2(H_2O)_2]_n$, **3**, have been hydrothermally synthesized and structurally characterized. The overall structures of complexes **1**, **2** and **3** are ribbon-like 1D infinite chains. All the compounds exhibit excellent catalytic performance in olefin epoxidation reactions.

(Biscarbene)platinum(II) Complexes

S. K. U. Riederer, B. Bechlars, W. A. Herrmann,* F. E. Kühn*.... 249–254

Synthesis and Structural Characterization of New Chiral (Biscarbene)platinum(II) Complexes

Keywords: Chiral N-heterocyclic carbene metal complexes / Carbene ligands / 1,2,4-Triazole / Platinum / Hydrosilylation



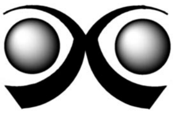
Novel chiral (biscarbene)platinum(II) complexes $[Pt\{bis(NHC)\}X_2]$ (X = Br, I) have been prepared and fully characterized. They were successfully tested as catalysts for hydrosilylation reactions. One of the new complexes has also been characterised by X-ray crystallography. These complexes were shown to be efficient precatalysts for the hydrosilylation of 1-octene.

Copper Complexes

D. Utz, S. Kisslinger, F. W. Heinemann, F. Hampel, S. Schindler* 255–267

Syntheses, Characterization and Properties of Open-Chain Copper(I) Complexes

Keywords: Copper / Macrocycles / Oxidation / Oxygen / Helical structures / Anion effect



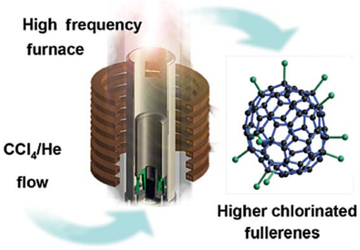
A mononuclear complex, $[Cu(\mathbf{L}^1)(CH_3CN)]PF_6$, is formed from the reaction of a tridentate imine ligand ($\mathbf{L}^1$) with $[Cu(CH_3CN)_4]PF_6$. In contrast, use of $[Cu(CH_3CN)_4]ClO_4$ led to the formation of a dinuclear helical complex, $[Cu_2(\mathbf{L}^1)_2](ClO_4)_2$, due to an anionic effect.

Chlorinated Fullerenes

A. Mueller, K. Ziegler, K. Y. Amsharov, M. Jansen* 268–272

In Situ Synthesis of Chlorinated Fullerenes by the High-Frequency Furnace Method

Keywords: Chlorine / Fullerenes / Synthetic methods / Mass spectrometry



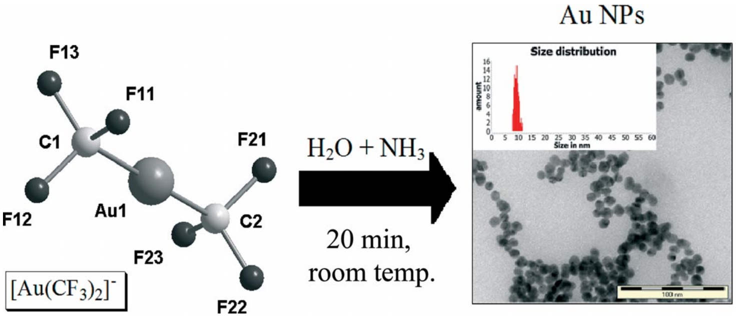
Chlorinated fullerenes have been synthesized by the high-frequency furnace method in the presence of CCl_4. In particular, several isomers of chlorinated higher fullerenes, namely C_{72}, C_{74} and C_{78} species, were obtained in high yields by using this approach.

Au Nanoparticle Precursor

D. Zopes, S. Kremer, H. Scherer, L. Belkoura, I. Pantenburg, W. Tyrra, S. Mathur* **273–280**

Hydrolytic Decomposition of Tetramethylammonium Bis(trifluoromethyl)aurate(I), $[NMe_4][Au(CF_3)_2]$: A Route for the Synthesis of Gold Nanoparticles in Aqueous Medium

Keywords: Gold / Nanoparticles / Hydrolysis / Plasmons



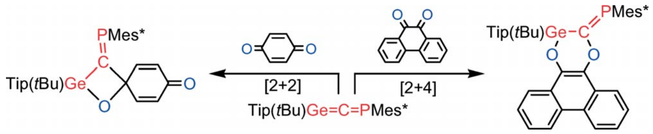
Time-dependent NMR and UV/Vis spectroscopic studies revealed the chemical species and reaction cascade involved in the decomposition of a molecular species into gold clusters. The size and stability of the naked AuNPs was modulated simply by changing the precursor concentration.

Reactivity of Phosphagermaallene

D. Ghereg, H. Gornitzka, J. Escudié **281–288**

Reactivity of Quinones with Phosphagermaallene Tip(*t*Bu)Ge=C=PMes* Leading to Four- and Six-Membered Heterocycles with an Exocyclic P=C Double Bond

Keywords: Main group elements / Germanium / Phosphorus / Cumulenes / Quinones / Cycloaddition



The reaction of phosphagermaallene Tip(*t*Bu)Ge=C=PMes* with one equivalent of *p*-quinone leads to 1-oxa-2-germacyclobutane with an exocyclic −P=C< double bond by [2 + 2] cycloaddition. Benzil and 9,10-phenanthrenequinone react with **1** by [2 + 4] cycloaddition, involving oxygen atoms of the O=C−C=O unit to afford 1,4-dioxa-2-germacyclo-hex-5-ene.

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* Author to whom correspondence should be addressed.

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