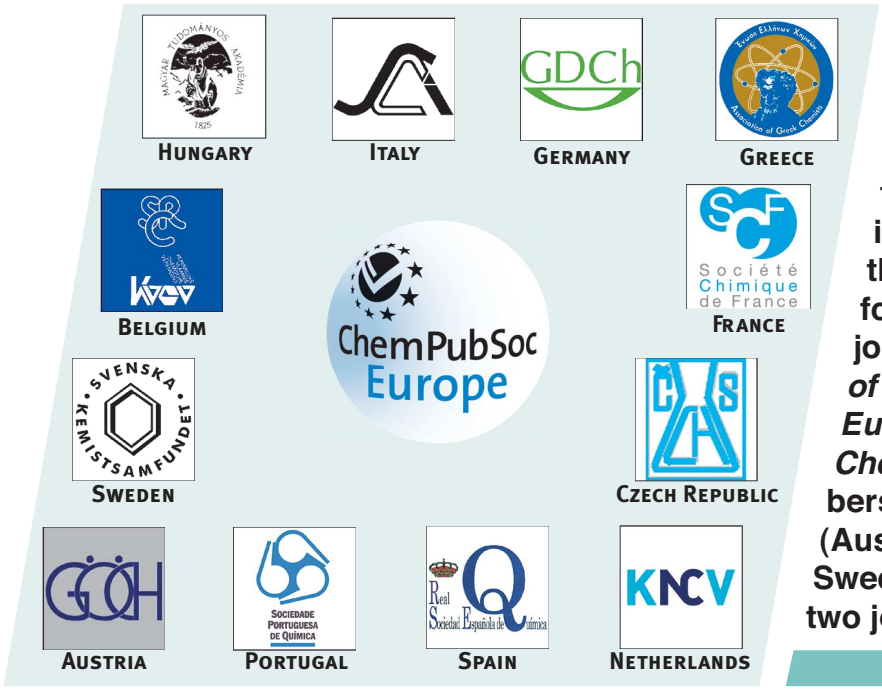
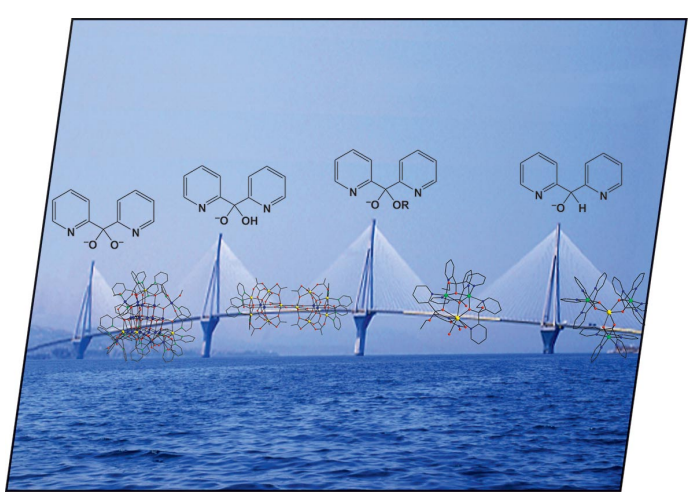


A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further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

COVER PICTURE

The cover picture shows the famous bridge that connects Patras (and Peloponissos) with Central Greece, one of the largest in the world. The bridge is fixed to four pylons in the same manner that a myriad of polynuclear metal complexes and coordination polymers is based on various forms of di-2-pyridyl ketone shown on the top of the pylons. Some of the complexes have exciting structures and interesting properties. The activation of this and related ligands is an emergent area of synthetic inorganic chemistry. The structural diversity of the compounds stems from the ability of the deprotonated diol- and hemiketal-type ligands to adopt a number of bridging coordination modes, depending on the number of carbonyl groups, the nature of the extra donor sites in the molecule and on the reaction conditions. Details are presented in the Microreview by S. P. Perlepes et al. on p. 3361ff.



CONTENTS

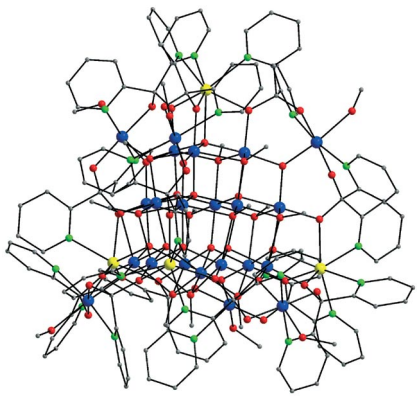
MICROREVIEW

Carbonyl Group Activation

T. C. Stamatatos, C. G. Efthymiou, C. C. Stoumpos, S. P. Perlepes* 3361–3391

Adventures in the Coordination Chemistry of Di-2-pyridyl Ketone and Related Ligands: From High-Spin Molecules and Single-Molecule Magnets to Coordination Polymers, and from Structural Aesthetics to an Exciting New Reactivity Chemistry of Coordinated Ligands

Keywords: Cluster compounds / Coordination modes / Coordination polymers / Magnetic properties / N,O ligands



The coordination chemistry of di-2-pyridyl ketone and related ligands is discussed in detail. The activation of the carbonyl group(s) of some of the ligands toward further reactions is an important area of synthetic inorganic chemistry. Emphasis is placed on structural features and magnetic properties of the resulting metal clusters and coordination polymers.

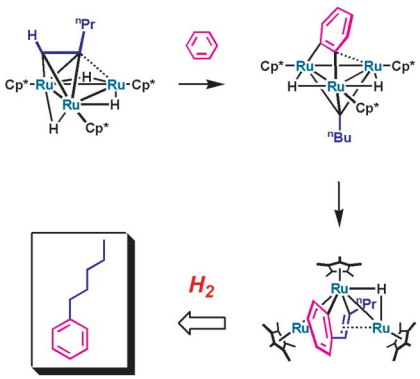
SHORT COMMUNICATIONS

Stoichiometric Alkane Arylation

M. Moriya, A. Tahara, T. Takao, H. Suzuki* 3393–3397

Arylation of Hydrocarbyl Ligands Formed from *n*-Alkanes through C–H Bond Activation of Benzene Using a Triruthenium Cluster

Keywords: C–H activation / C–C coupling / Cluster compounds / Ruthenium / Benzyne complexes



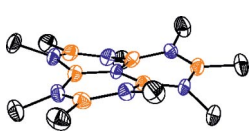
Stoichiometric arylation of *n*-alkanes was performed on a triruthenium cluster. A triruthenium complex containing a perpendicularly coordinated pentyne ligand, which was formed from *n*-pentane, reacted with benzene to yield a *closo*-ruthenacyclopentadiene complex through the formation of a μ_3-benzyne complex. Subsequent hydrogenation exclusively eliminated *n*-pentylbenzene from the triruthenium plane.

Heptaazahexaboraphenalenes

H. P. Ederle, H. Nöth* 3398–3402

Synthesis and Structure of *per*-Methylated B_6N_7-Azaboraphenalene

Keywords: Boron / NMR spectroscopy / Structure elucidation

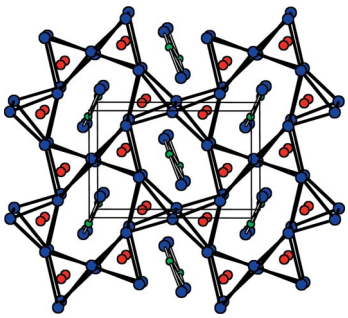


Nonamethylheptaazahexaboraphenalene was prepared from $N(BCl_2)_3$ and $MeB(NHMe)_2$. Its borazine rings are not planar and are twisted against each other. This compound is thermally quite stable, as shown by mass spectrometry.

FULL PAPERS

Antimonides

The partial substitution of Si or Ge for Sb atoms centred within RE_6 trigonal prisms stabilizes the formation of the β-Yb_5Sb_3-type structure in these ternary rare-earth antimonides. The site preferences in $RE_5Tt_xSb_{3-x}$ (Tt = Si, Ge) differ from those in $RE_5M_xSb_{3-x}$ (M = Fe, Co, Ni, Cu).

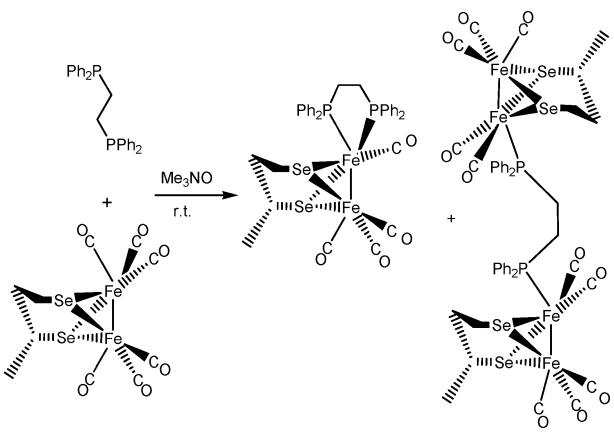


H. Bie, A. Mar* **3403–3413**

Rare-Earth Tetrel Antimonides $RE_5Tt_xSb_{3-x}$ (RE = La–Nd; Tt = Si, Ge)

Keywords: Rare earths / Group 14 elements / Antimony / Intermetallic phases / Magnetic properties

[FeFe]-Hydrogenases



M. K. Harb, J. Windhager, A. Daraosheh, H. Görls, L. T. Lockett, N. Okumura, D. H. Evans,* R. S. Glass,* D. L. Lichtenberger,* M. El-khateeb, W. Weigand* **3414–3420**

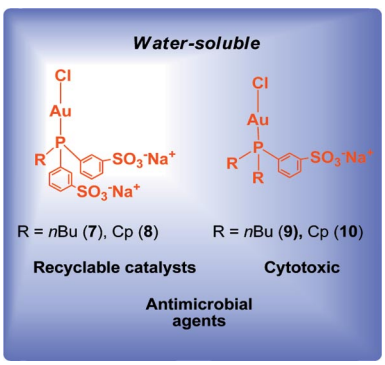
Phosphane- and Phosphite-Substituted Di-iron Diselenolato Complexes as Models for [FeFe]-Hydrogenases

Keywords: Iron / Hydrogenases / Substitution / Electrocatalysis / Ligand effects / Enzyme catalysis / Selenium

The displacement of terminal CO ligands in the diiron diselenolato complex by triphenylphosphane, trimethylphosphite, and 1,2-bis(diphenylphosphanyl)ethane (dppe) has been investigated, and the products have been fully characterized. Complex **2** is a catalyst for the electrochemical reduction of protons from weak acetic acids leading to molecular hydrogen.

Water-Soluble Gold(I) Compounds

Water-soluble compounds of the type [AuCl(PR_3)] with alkyl-bis(*m*-sulfonated-phenyl) ($mC_6H_4SO_3Na)_2$ and dialkyl-(*m*-sulfonated-phenyl) ($mC_6H_4SO_3Na$) (R = *n*Bu, Cp) phosphanes find applications in homogeneous catalysis (a A^3 coupling reaction), while displaying interesting biological (antimicrobial and anticancer) properties. Some complexes produce water-soluble nanoparticles.



B. T. Elie, C. Levine, I. Ubarretxena-Belandia, A. Varela-Ramírez, R. J. Aguilera, R. Ovalle, M. Contel* **3421–3430**

Water-Soluble (Phosphane)gold(I) Complexes – Applications as Recyclable Catalysts in a Three-Component Coupling Reaction and as Antimicrobial and Anticancer Agents

Keywords: Gold / Nanoparticles / Recyclable catalysts / Antimicrobial agents / Cytotoxicity / Apoptosis

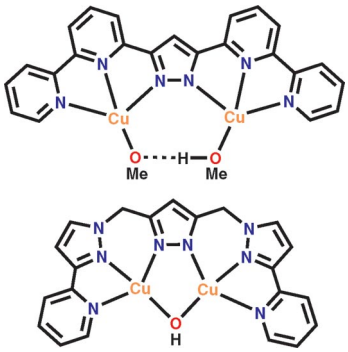
CONTENTS

Pyrazolate-Bridged Copper Complexes

A. Kumar Singh, J. I. van der Vlugt, S. Demeshko, S. Dechert, F. Meyer* 3431–3439

Bis(terdentate) Pyrazole/Pyridine Ligands: Synthesis, Crystal Structures and Magnetic Properties of Bridged Binuclear and Tetranuclear Copper(II) Complexes

Keywords: N ligands / Copper / Dinuclear complexes / Magnetic properties



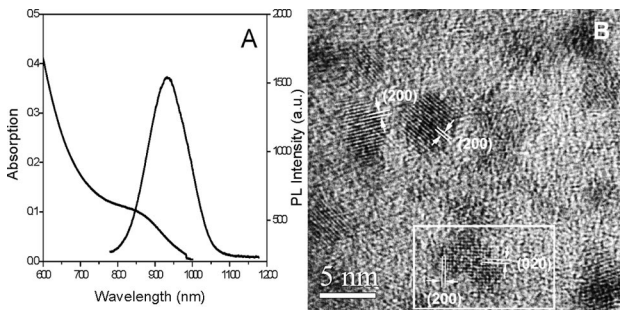
The synthesis and Cu^{2+} coordination chemistry of two distinct pyrazolate-derived binucleating ligands with terdentate binding sites are described. The rigid ligand HL^1 enforces large Cu···Cu separations and gives rise to a MeO···HOMe unit in the bimetallic pocket, whereas the more flexible ligand HL^2 allows short Cu···Cu distances and OH bridging. Magnetic coupling is investigated for the various systems.

PbS Quantum Dots

D. W. Deng,* W. H. Zhang, X. Y. Chen, F. Liu, J. Zhang, Y. Q. Gu,* J. M. Hong 3440–3446

Facile Synthesis of High-Quality, Water-Soluble, Near-Infrared-Emitting PbS Quantum Dots

Keywords: Nanoparticles / Quantum dots / Synthesis design / Fluorescence



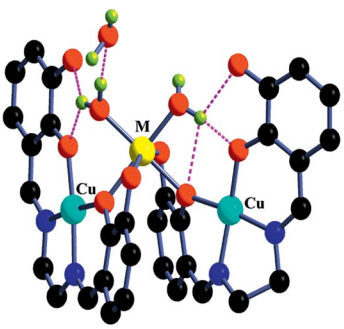
Water-soluble PbS quantum dots (QDs) with strong near-infrared fluorescence (ca. 870–1010 nm) have been prepared successfully by using dihydrolipoic acid (DHLA) as a stabilizer under ambient conditions. The as-prepared PbS QDs still exhibited excellent face-centered cubic crystal structure although they were extremely small in diameter (< 4 nm).

Cu(II)–M(II)–Cu(II) Compounds

S. Majumder, R. Koner, P. Lemoine, M. Nayak, M. Ghosh, S. Hazra, C. R. Lucas,* S. Mohanta* 3447–3457

Role of Coordinated Water and Hydrogen-Bonding Interactions in Stabilizing Monophenoxido-Bridged Triangular $Cu^{II}M^{II}$-Cu^{II} Compounds (M = Cu, Co, Ni, or Fe) Derived from *N*,*N*′-Ethylenebis(3-methoxysalicylaldimine): Syntheses, Structures, and Magnetic Properties

Keywords: Magnetic properties / Bridging ligands / Hydrogen bonds / Schiff bases / Copper



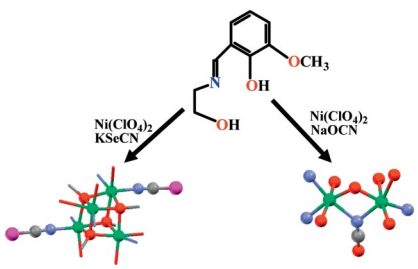
The syntheses, structures, and magnetic properties of trinuclear triangular $Cu^{II}M^{II}$-Cu^{II} compounds (M = Ni, Co, Fe) derived from *N*,*N*′-ethylenebis(3-methoxysalicylaldimine) are described. The role of the coordinated water and hydrogen-bonding interactions in stabilizing these monophenoxido-bridged compounds is investigated.

Multinuclear Ni(II) Complexes

S. Hazra, R. Koner, P. Lemoine, E. C. Sañudo,* S. Mohanta* ... 3458–3466

Syntheses, Structures and Magnetic Properties of Heterobridged Dinuclear and Cubane-Type Tetranuclear Complexes of Nickel(II) Derived from a Schiff Base Ligand

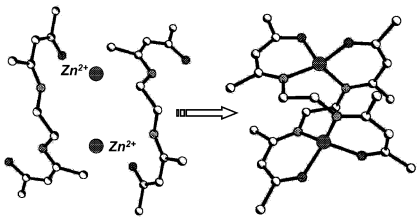
Keywords: Magnetic properties / Bridging ligands / Schiff bases / Cage compounds / Structure elucidation



Syntheses, structures and magnetic properties of a heterobridged dinuclear compound $[Ni^{II}_2(HL)_3(\mu\text{-}NCO)_2]\cdot 2H_2O$ (**1**) and a cubane-type tetranuclear compound $[Ni^{II}_4(L)_2(HL)_2(SeCN)_2(H_2O)_2]\cdot C_3H_7NO\cdot 4H_2O$ (**2**) derived from a Schiff base ligand are described. The overall exchange interaction in both compounds is weak ferromagnetic, and the spin ground state of **2** is unusual $S_T = 3$.

Zn Helicates

The synthesis, crystal structure, and thermal and optical characteristics of new zinc complexes with N,O-donor Schiff base derivatives of β-diketone or β-keto esters are described. The flexibility of the ligands leads to double-helical, binuclear Zn_2L_2 structures, in which both zinc centers lie in a tetrahedral coordination environment. The ligands and complexes emit in the blue spectral range.

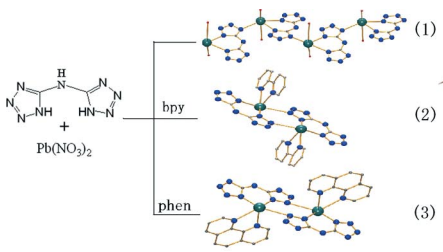


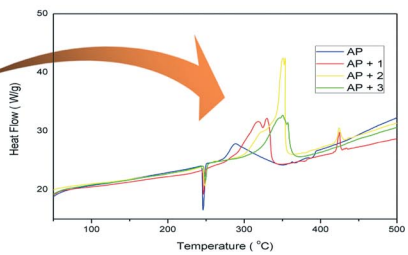
O. Kotova,* S. Semenov, S. Eliseeva, S. Troyanov, K. Lyssenko, N. Kuzmina 3467–3474

New Helical Zinc Complexes with Schiff Base Derivatives of β-Diketonates or β-Keto Esters and Ethylenediamine

Keywords: Zinc / Schiff bases / Helical structures / Chelates / Luminescence

Catalytic Thermodecomposition





Three lead(II) *N*,*N*-bis[1(2)*H*-tetrazol-5-yl]-amine compounds were synthesized, and their effects on the decomposition of ammonium perchlorate were studied. All of the synthesized compounds exhibit good catalytic activity to the decomposition of ammonium perchlorate.

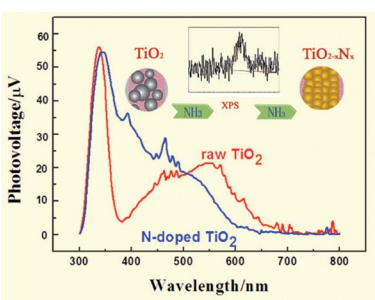
W. Wang, S. Chen, S. Gao* ... 3475–3480

Syntheses and Characterization of Lead(II) *N*,*N*-Bis[1(2)*H*-tetrazol-5-yl]amine Compounds and Effects on Thermal Decomposition of Ammonium Perchlorate

Keywords: Lead / Nitrogen heterocycles / Perchlorates / Luminescence

N-Doped Titanium Dioxide

N-Doped TiO_2 with controllable concentrations is prepared by adjusting NH_3 under pressure. The performance of the photoelectrodes for dye-sensitized solar cells improved as a function of the narrowing band gap resulting from the amount of N doped into the TiO_2.



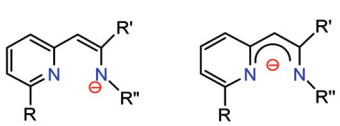
X. Wang, Y. Yang,* Z. Jiang, R. Fan 3481–3487

Preparation of TiN_xO_{2-x} Photoelectrodes with NH_3 Under Controllable Middle Pressures for Dye-Sensitized Solar Cells

Keywords: Doping / Nanotechnology / Solar cells / Structure-activity relationships / Titanium / Metal oxynitride

Asymmetric Li Azaallyl Dimers

A family of pyridyl-substituted 1-azaallyl ligands and their corresponding metal complexes have been synthesized from lithiated 2-methylpyridine or 2,6-dimethylpyridine followed by a 1,2-insertion of a suitable nitrile. These monoanionic ligands form complexes through both of their nitrogen atoms and are expected to be good σ- and π-donors.



X. Chen,* L. Guan, M. S. Eisen, H. Li, H. Tong, L. Zhang, D. Liu* ... 3488–3495

Synthesis, Insertion Reactivity, and Transmetalation Reactions of the Lithium Complex $[\{2\text{-}(6\text{-R-Pyr})(Me_3Si)\}CHLi{\cdot}OEt_2]_2$ (R = H or Me)

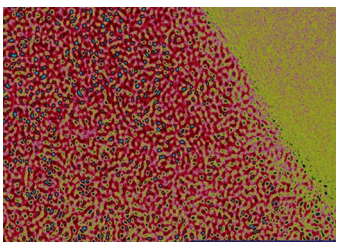
Keywords: N ligands / Insertion / Nitriles / Coordination chemistry / Structure elucidation

CONTENTS

1D-Ceramic Materials

M. Pashchanka, J. Engstler, J. J. Schneider,* V. Siozios, C. Fasel, R. Hauser, I. Kinski, R. Riedel* S. Lauterbach, H.-J. Kleebe, S. Flege, W. Ensinger 3496–3506

Polymer-Derived SiOC Nanotubes and Nanorods via a Template Approach



Amorphous SiOC 1D-ceramic materials with rod and tube morphology can be synthesized when molecular precursors are templated into porous alumina templates and ceramized up to 1100 °C. Detailed characterization by spectroscopic and microscopic and diffraction techniques shows that during the ceramization process the alumina templates are not innocent towards reaction with the molecular precursors.

Keywords: Porous alumina / Silicon / Carbides / Ceramics / Nanorods / Nanotubes / Nanowires / Template synthesis

* 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 22 were published online on July 20, 2009

