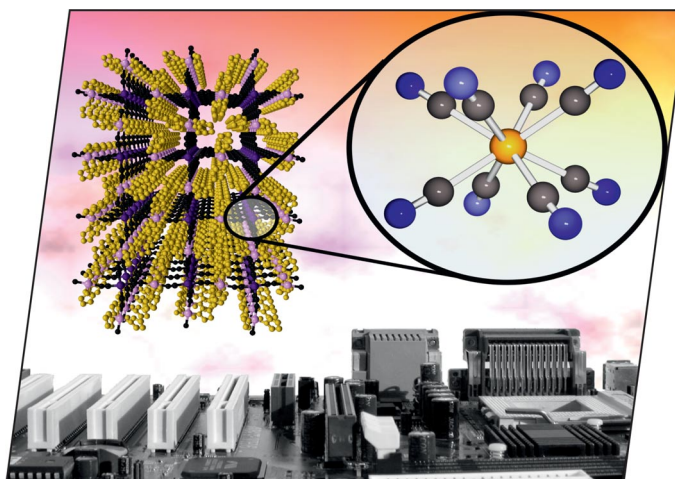


EurJIC is a journal of ChemPubSoc Europe, a union of 16 European chemical societies formed for the purpose of publishing high-quality science. All owners merged their national journals to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*.

Other ChemPubSoc Europe journals are *Chemistry – A European Journal*, *ChemBioChem*, *ChemPhysChem*, *ChemMedChem*, *ChemSusChem* and *ChemCatChem*.

## COVER PICTURE

The cover picture shows the fragment of the cyanido-bridged framework of a series of 3D isostructural  $\{[M'^{II}(\text{pyrazole})_4]_2[\text{Nb}^{\text{IV}}(\text{CN})_8] \cdot 4\text{H}_2\text{O}\}_n$  ( $M' = \text{Mn, Fe, Co, Ni}$ ) molecular magnets illuminating the landscape of the old-fashioned ABIT-VH6 electronic motherboard. The Microreview by B. Sieklucka et al. on p. 305ff. presents different types of functionality of octacyanidometallate-based assemblies with special attention devoted to the tuning of the magnetic properties by physical and chemical stimuli. Examples of advanced properties comprise single-molecule and single-chain magnets, magnetization-induced second harmonic generation and chirality, spin crossover and luminescence. The potential of development towards addressable, multifunctional molecular materials for future application is discussed.



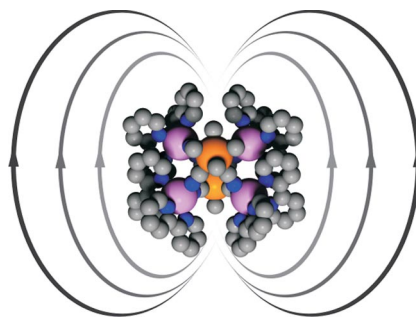
## MICROREVIEW

### Octacyanide-Bridged Hybrid Networks

B. Sieklucka,\* R. Podgajny, T. Korzeniak,  
B. Nowicka, D. Pinkowicz,  
M. Koziel ..... 305–326

A Decade of Octacyanides in Polynuclear  
Molecular Materials

**Keywords:** Cyanides / Heterometallic complexes / Crystal engineering / Solid-state structures / Structure–activity relationships



A complete overview of octacyanometallate-based coordination frameworks obtained in the first decade of the 21st century is presented, giving detailed classification of known topologies and demonstrating the variety of functionalities observed. The potential of octacyanometallate-based coordination assemblies as addressable, multifunctional molecular materials for future application is discussed.

## SHORT COMMUNICATION

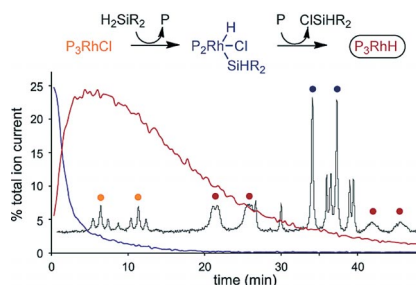
### Reactive Intermediates

S. M. Jackson, D. M. Chisholm,  
J. S. McIndoe,\* L. Rosenberg\* .... 327–330



Using NMR and ESI-MS to Probe the  
Mechanism of Silane Dehydrocoupling  
Catalyzed by Wilkinson's Catalyst

**Keywords:** Silanes / Reaction mechanisms / NMR spectroscopy / Electrospray ionization mass spectrometry



The combination of  $^{31}\text{P}$  NMR and ESI-MS provides detailed insight into the dynamics of the activation of a secondary silane by  $\text{Rh}(\text{PPh}_3)_3\text{Cl}$ , with strong evidence pointing to the role of  $\text{Rh}(\text{PPh}_3)_3\text{H}$  as the active catalyst for silane dehydrocoupling and to the deleterious effect of trace water in this system.

## FULL PAPERS

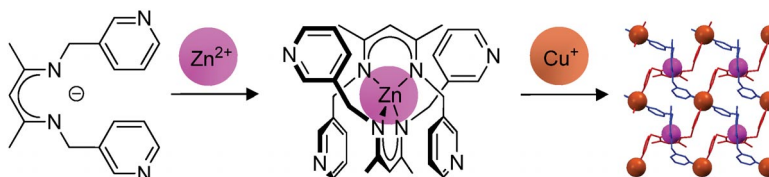
### Bifunctional Ligands

É. Rousset, T. J. J. Whitehorne, V. Baslon,  
C. Reber, F. Schaper\* ..... 331–335



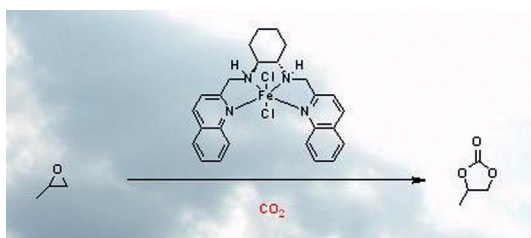
A Bifunctional Diketimine Ligand for Secondary Building Blocks: Formation of a 2D Copper–Zinc Coordination Polymer

**Keywords:** Zinc / Copper / Coordination polymers / Luminescence / Bifunctional ligands / Diketimines



Zinc complexes of a new bifunctional diketimine ligand with pendant pyridine donor ligands can serve as building blocks for polynuclear or supramolecular assemblies.

Reaction of the building block with  $\text{Cu}^{\text{I}}$  cations affords a bimetallic, luminescent Cu–Zn coordination polymer.



Carbon dioxide can be used as a C<sub>1</sub> feedstock in several reactions. The iron compound presented herein catalyses the cyclization of epoxides with CO<sub>2</sub>. The iron-based

catalyst represents an economic and ecological alternative to commonly used cobalt or aluminium compounds.

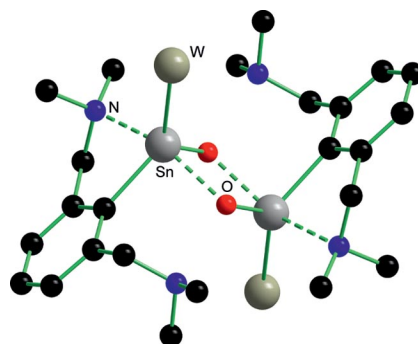
**J. E. Dengler, M. W. Lehenmeier, S. Klaus, C. E. Anderson, E. Herdtweck, B. Rieger\*** ..... 336–343

A One-Component Iron Catalyst for Cyclic Propylene Carbonate Synthesis

**Keywords:** Carbon dioxide fixation / Iron / Homogeneous catalysis / Cyclic carbonates / Epoxides

## Organotin Complex

Intramolecular N→Sn interactions and O–H···N hydrogen bonds stabilize a dimeric pentacarbonyltungsten-complexed organotin hydroxide.



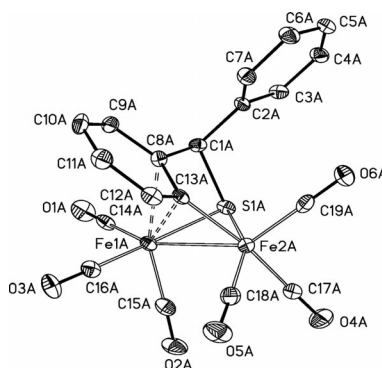
**R. Jambor,\* S. Herres-Pawlis, M. Schürmann, K. Jurkschat\*** ... 344–348

[{2,6-(Me<sub>2</sub>NCH<sub>2</sub>)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>}Sn(μ-OH)W(CO)<sub>5</sub>]<sub>2</sub>: A Transition-Metal-Coordinated Organotin(II) Hydroxide

**Keywords:** Tin / Tungsten / X-ray diffraction / Density functional calculations / Organotin hydroxides / Hydrogen bonds

## [FeFe]-Hydrogenases

Treatment of aromatic thioketones with dodecarbonyltriiron gave the *ortho*-metalated complexes **9a–d**. The molecular structures of these complexes show that the aromatic thioketones are bonded to the iron centers through the sulfur atom and through one aromatic ring (the sulfur atom is sigma bonded to one iron atom and π-bonded to the other).



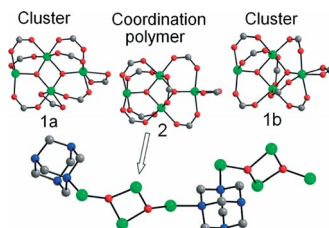
**A. Q. Daraosheh, H. Görls, M. El-khateeb,\* G. Mloston,\* W. Weigand\*** ..... 349–355

Reactions of Selected Aromatic Thioketones with Dodecarbonyltriiron

**Keywords:** Iron / Enzyme models / Hydrogenase / S ligands / Structure elucidation

## Iron(III) Complexes

Different synthetic routes have been used for the preparation of three new tetranuclear Fe<sub>4</sub> complexes, all of which have a common “butterfly” metal ion topology: [Fe<sub>4</sub>O<sub>2</sub>(O<sub>2</sub>CCMe<sub>3</sub>)<sub>8</sub>(bpm)] cluster (**1**) with two structural isomers, **1a** and **1b**, and a one-dimensional coordination polymer [Fe<sub>4</sub>O<sub>2</sub>(O<sub>2</sub>CCMe<sub>3</sub>)<sub>8</sub>(hmta)]<sub>n</sub> (**2**), in which bpm = 2,2′-bipyrimidine and hmta = hexamethylenetetramine.



**S. G. Baca,\* I. G. Filippova, T. D. Keene, O. Botezat, I. L. Malaestean, H. Stoeckli-Evans, V. Ch. Kravtsov, I. Chumacov, S.-X. Liu,\* S. Decurtins** ..... 356–367

Iron(III)-Pivalate-Based Complexes with Tetranuclear {Fe<sub>4</sub>(μ<sub>3</sub>-O)<sub>2</sub>}<sup>8+</sup> Cores and *N*-Donor Ligands: Formation of Cluster and Polymeric Architectures

**Keywords:** Coordination polymers / Iron / Carboxylate ligands / N ligands / Magnetic properties

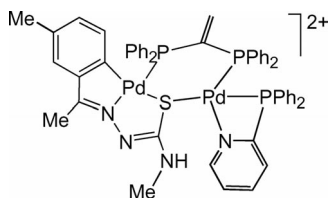
# CONTENTS

## Bimetallic Palladacycles

J. M. Antelo, L. Adrio, M. T. Pereira,  
J. M. Ortigueira, A. Fernández,  
J. M. Vila\* ..... 368–376



Synthesis and Structural Characterization of New Bimetallic [C,N,S] Palladacycles with Mixed Bridging [P,P] and Chelating [P,P] or [P,N] Phosphane Ligands



New bimetallic palladacycles with bridging [P,P] and chelating [P,P], [P,N], and [C,N,S] donors are reported.

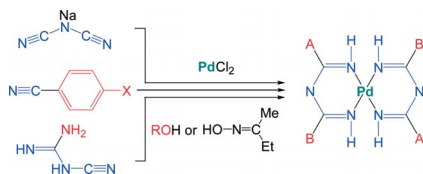
**Keywords:** Palladium / Metallacycles / Phosphanes / Bimetallics / Crystal elucidation

## Palladium Complexes

M. N. Kopylovich, J. Lasri,  
M. F. C. Guedes da Silva,  
A. J. L. Pombeiro\* ..... 377–383



Pd<sup>II</sup>-Promoted Single-Pot Template Transformations of Benzonitriles, Cyanoguanidine and Sodium Dicyanamide with the Formation of Symmetrical and Asymmetrical (1,3,5-Triazapentadienate)palladium(II) Complexes



Symmetrical and asymmetrical 1,3,5-triazapentadienate-Pd<sup>II</sup> complexes have been synthesized by the template transformations of benzonitriles, cyanoguanidine and sodium dicyanamide bound to Pd<sup>II</sup> centers.

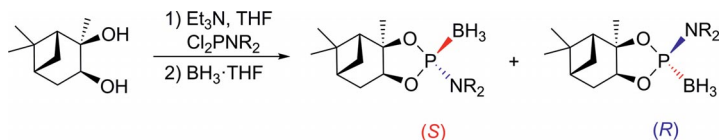
**Keywords:** Palladium / N ligands / Template synthesis

## Catalytic Conjugate Addition

D. Hobuß, A. Baro, K. V. Axenov,  
S. Laschat,\* W. Frey ..... 384–392



P-Stereogenic Pinene-Derived Phosphoramidites and Their Use in Copper-Catalyzed Conjugate Additions



A series of new (–)-pinane-based P-stereogenic phosphoramidite ligands has been synthesized. These ligands were employed

in catalytic conjugate additions of cyclic and acyclic enone substrates.

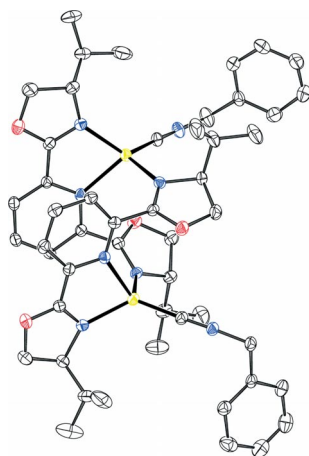
**Keywords:** Asymmetric catalysis / Copper / Phosphoramidite / Chirality / Conjugate addition

## Enantiopure Copper(I) Complexes

M. Panera, J. Díez, I. Merino, E. Rubio,  
M. P. Gamasa\* ..... 393–404



Reactivity of Dinuclear Copper(I)/pybox Complexes towards Isocyanides and Phosphanes

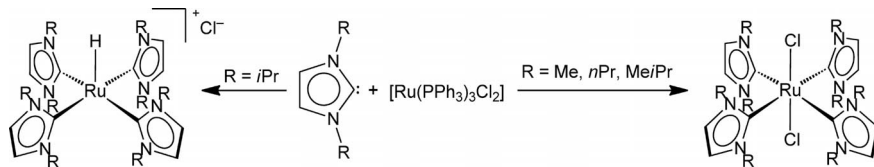


The dinuclear complexes **1** and **2** are efficient precursors for the synthesis of derivatives containing isocyanide or phosphane ligands. The structures of complexes **3**, **7**, **10**, and **13** have been determined. <sup>1</sup>H, <sup>31</sup>P, and <sup>19</sup>F DOSY NMR spectroscopy provided evidence that the solid-state nuclearity of these compounds is maintained in solution and confirmed that these compounds exist in solution as stable, discrete, cationic complexes.

**Keywords:** Copper / Isocyanide ligands / Phosphane ligands / Pybox complexes



## (NHC)ruthenium(II) Complexes



The synthesis of different ruthenium(II) complexes,  $[\text{Ru}(\text{NHC})_4\text{Cl}_2]$  and  $[\text{Ru}(\text{NHC})_4(\text{H})\text{Cl}]$ , featuring an  $[\text{Ru}(\text{NHC})_4]^{2+}$  core is reported. These complexes are available

from the reaction of  $[\text{Ru}(\text{PPh}_3)_3\text{Cl}_2]$  with different 1,3-dialkylimidazolin-2-ylidenes (dialkyl =  $\text{Me}_2$ ,  $n\text{Pr}_2$ ,  $\text{Me}/\text{Pr}$ ,  $i\text{Pr}_2$ ).

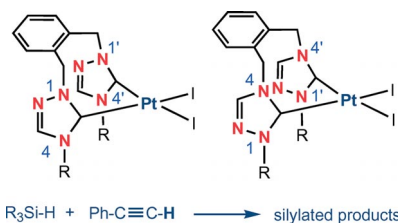
**M. Würtemberger, T. Ott, C. Döring, T. Schaub, U. Radius\*** ..... 405–415

Synthesis and Characterization of Tetrakis-(carbene)ruthenium(II) Complexes Featuring an  $[\text{Ru}(\text{NHC})_4]^{2+}$  Core

**Keywords:** Ruthenium / Carbenes / Chlorido complexes / Hydride ligands / C-H activation

## Triazole-Based Ligands

Two new bis(triazolium) salts have been prepared and used as N-heterocyclic carbene (NHC) precursors. The new Pt compounds have been tested in the hydrosilylation of terminal alkynes.

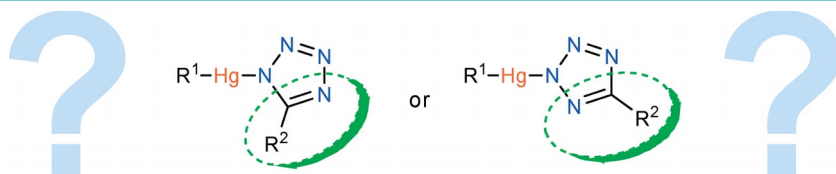


**A. Zanardi, J. A. Mata,\* E. Peris\*** ..... 416–421

A Simple Route to Chelating, Structurally Different Triazole-Based Bis(N-heterocyclic carbene) Ligands and Their Coordination to  $\text{Pt}^{\text{II}}$

**Keywords:** Platinum / Hydrosilylation / Homogeneous catalysis / N-Heterocyclic carbenes

## Tetrazole Formation



**Click with solvent:** Solutions of organomercury(II) azides in organonitriles form organomercury(II) tetrazoles upon being stirred at room temperature! The reactions

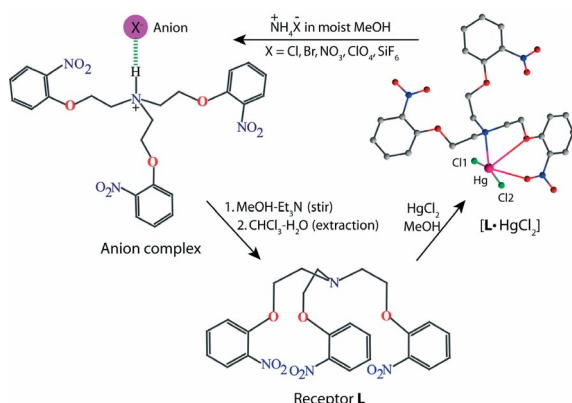
furnish quantitatively the pure products without the need of a catalyst, which is a perfect example of the ideal “click chemistry”.

**T. M. Klapötke,\* B. Krumm, R. Moll** ..... 422–428

Convenient Room-Temperature, Mercury-Assisted Synthesis of Tetrazoles by 1,3-Dipolar Cycloaddition

**Keywords:** Crystal structure / Cycloaddition / Mercury / NMR spectroscopy / Tetrazole

## Anion-Directed Assembly



The strategic use of anion binding as a driving force for the templated assembly of the tripodal ligand **L** has been accomplished by the reversible complexation

and decomplexation of  $[\text{L} \cdot \text{HgCl}_2]$  extruding  $\text{HgCl}_2$  by employing mildly acidic ammonium salts.

**S. K. Dey, G. Das\*** ..... 429–438

Binding of  $\text{HgCl}_2$  by a Nitro Functionalized Tripodal Receptor and Its Decomplexation Controlled by Anion Complexation

**Keywords:** Mercury / Hydrogen bonds / Anions / Anionic templates / Tripodal receptor / Molecular transformation

\* Author to whom correspondence should be addressed.

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