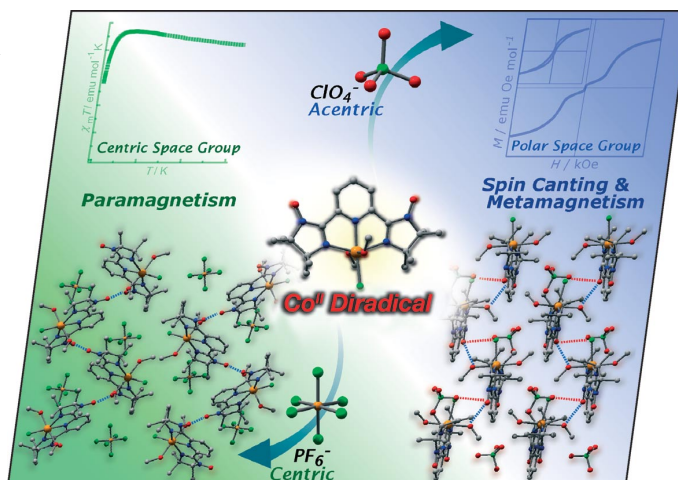




A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further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

COVER PICTURE

The cover picture shows that cobalt(II) diradical complexes with centric and acentric counter anions, $[\text{CoCl}(\text{bisimpy})(\text{MeOH})_2]\text{X}$ ($\text{X} = \text{PF}_6$ and ClO_4), crystallize in the centrosymmetric and polar space groups of $P2_1/c$ and $Pna2_1$, respectively. The PF_6^- salt is paramagnetic down to 1.8 K, whereas the ClO_4^- salt shows a weak ferromagnetic long-range order with metamagnetic behavior at 1.8 K. Spin canting can arise from single-ion magnetic anisotropy and/or antisymmetric exchange interaction (Dzyaloshinsky–Moriya interaction). The noncentrosymmetric space group of the latter complex is compatible with both mechanisms. Details are discussed in the Short Communication by H. Oshio et al. on p. 4851ff.



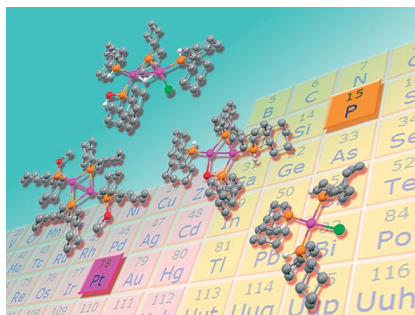
MICROREVIEW

Phosphanido-Bridged Complexes

P. Mastrorilli* 4835–4850

Bridging and Terminal (Phosphanido)-platinum Complexes

Keywords: Terminal phosphides / Bridging phosphides / Platinum / Metalloligands / Clusters



The chemistry of both terminal and bridging (phosphanido)platinum complexes has been surveyed. The structural properties, NMR spectroscopic features and reactivity of the various classes of compounds have been highlighted. Phosphanido-bridged dinuclear complexes are subdivided into Pt^I compounds, hydrido complexes, halido and aryl or alkyl complexes.

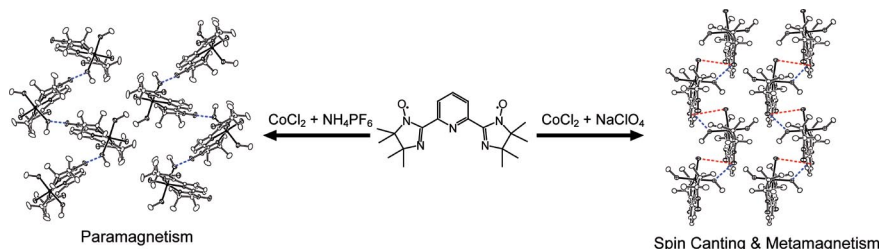
SHORT COMMUNICATIONS

Spin Canting

K. Mitsumoto, T. Shiga, M. Nakano,
M. Nihei, H. Nishikawa,
H. Oshio* 4851–4855

Spin Canting in a Cobalt(II) Radical Complex with an Acentric Counter Anion

Keywords: Cobalt / Spin canting / Crystal engineering / Organic radicals / Metamagnets



The complex cation [CoCl(bisimpy)-(MeOH)]⁺, where bisimpy is an iminonitroxyl diradical with a triplet ground state, crystallizes in the centric (*P2₁/c*) and the polar (*Pna2₁*) space groups, respectively,

with PF₆[−] and ClO₄[−] anions. The PF₆[−] salt is paramagnetic down to 1.8 K, whereas the ClO₄[−] salt shows a weak ferromagnetic long-range order with a metamagnetic behavior below 2.7 K.

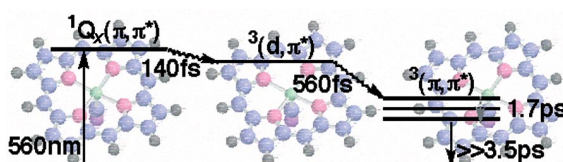
Ultrafast Excited-State Dynamics

I. Iwakura, A. Yabushita,
T. Kobayashi* 4856–4860



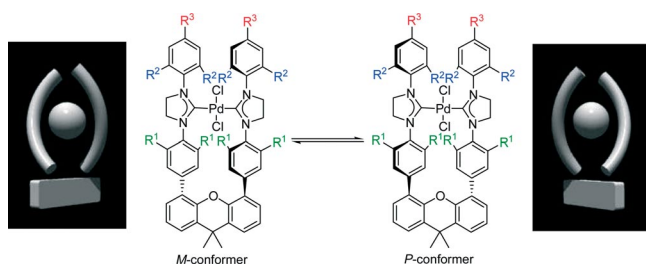
Ultrafast Vibronic Processes in a Ru–Porphyrin Complex

Keywords: Ruthenium / Photochemistry / Luminescence / Femtochemistry / Laser spectroscopy



Analysis of the six-coordinate complexes of Ru^{II}(TPP)(CO)(acetone) (TPP = tetraphenylporphyrin) by using a sub-5-fs pulse revealed that ¹Q_x(π, π^*) had a lifetime of 140 ± 20 fs and the lifetime of ³(d, π^*) was

560 ± 150 fs. Stimulated emission due to a spin-forbidden transition from ³(π, π^*) to the ground state was observed for the first time.



We synthesized a series of new bidentate bis(NHC)-Pd complexes with xanthene skeleton. The complexes crystallized in twisted conformations and therefore were chiral at solid state. Homochiral crystals

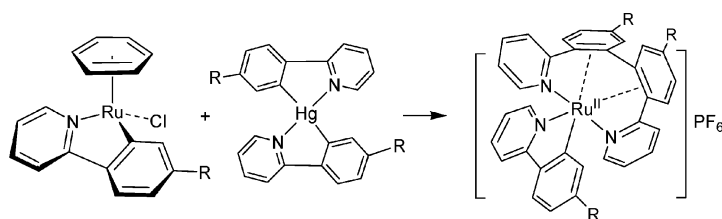
were obtained when cyclic ether was used as the solvent. X-ray analyses indicated that the interaction between the complex and the solvent contributed to formation of the homochiral crystals.

**T. Makino, H. Masu, K. Katagiri,
R. Yamasaki, I. Azumaya,*
S. Saito*** 4861–4865

Synthesis, Structure, and Solvent-Induced Spontaneous Homochiral Assembly of Bidentate Bis(*N,N'*-diaryl-*N*-heterocyclic carbene)-Palladium Complexes

Keywords: Carbene ligands / Palladium / Nitrogen heterocycles / Chiral resolution / X-ray diffraction

Intra-C–C Coupling at Ruthenium



The reaction between $[\text{Ru}(\eta^6\text{-C}_6\text{H}_6)(\text{phpy})\text{-Cl}]$ and $\text{Hg}(\text{phpy})_2$ in methanol, where $\text{phpy} = 2\text{-(2-pyridinyl)phenyl}$, leads to the unexpected octahedral $[\text{Ru}^{\text{II}}(\text{phpy})(\text{pbbp})]\text{-PF}_6$ complex { $\text{pbbp} = 2,2'\text{-bis(2-pyridinyl)-}$

$1,1'\text{-biphenyl}$ }; pbbp forms a nine-membered chelate providing $\eta^6\text{-tetradentate N/}\eta^2\text{-C=C/}\eta^2\text{-C=C/N}$ coordination. The C=C units are weakly bound to the Ru^{II} center and are readily replaced by CO.

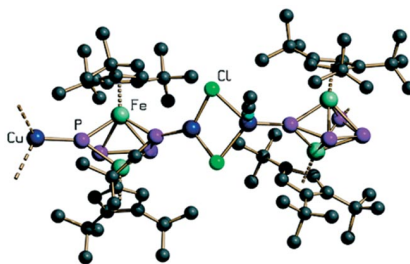
**O. Saavedra-Díaz, R. Cerón-Camacho,
S. Hernández, A. D. Ryabov,*
R. Le Lagadeuc*** 4866–4869

Denial of $\text{Tris(C,N-cyclometalated) Ru-thenacycle}$: Nine-Membered $\eta^6\text{-N,N-trans}$ or $\eta^2\text{-N,N-cis Ru}^{\text{II}}$ Chelates of $2,2'\text{-Bis(2-pyridinyl)-1,1'-biphenyl}$

Keywords: C–C coupling / N ligands / Metallocycles / Ring expansion / Ruthenium / Cyclometalation

Phosphaferrocene Reactivity

The coordination behaviour of 1,2,4-triphosphaferrocenes towards Cu^{I} chloride is decisively influenced by the substitution pattern of the Cp ring attached to iron. For the Cp-substituted derivative a dimeric complex is obtained. In the case of a tri-*t*Bu-substituted Cp''' ligand complex, the triphosphole is fragmented and rearranges into a tetraphosphabutadiene moiety in an iron triple-decker sandwich complex embedded in a CuCl polymer matrix.



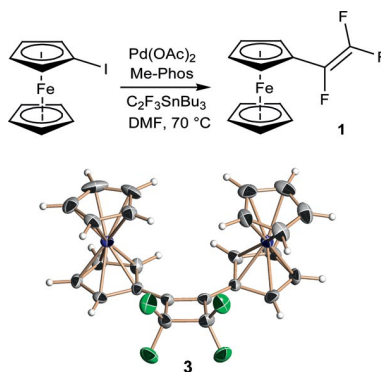
**S. Deng, C. Schwarzmaier, U. Vogel,
M. Zabel, J. F. Nixon,
M. Scheer*** 4870–4874

Unexpected Differences in the Coordination Behaviour of 1,2,4-Triphosphaferrocenes towards Cu^{I} Chloride

Keywords: Supramolecular chemistry / Copper / Fragmentation reactions / Triphosphaferrocenes / Tetraphosphabutadiene ligand

Trifluorovinylferrocene

Excellent reactivity towards nucleophiles, [2+2] cycloaddition, defluorination and CF_2 group transformation: The first metallocene with a trifluorovinyl substituent is an extremely versatile reagent allowing an easy access to dinuclear ferrocenes like **3**.



M. Roemer, D. Lentz* 4875–4878

Synthesis and Reactions of Trifluorovinylferrocene

Keywords: Trifluorovinyl group / Ferrocene / Stille coupling / Hexafluorocyclobutane / Cycloadditions

CONTENTS

FULL PAPERS

Metal–Metal Bonds

T. Pankewitz, W. Kloppe*, P. Henke,
H. Schnöckel* 4879–4890

Isomeric Al_2R_4 , Mg_2R_2 Species and Oligomerisation Products: Investigation of Al–Al and Mg–Mg σ Bonding

Keywords: Aluminum / Magnesium / Metal–metal σ bonding / Diradicals / Ab initio calculations / Stability analysis / Low-valent metal compounds



From recent results for compounds that contain metal–metal σ bonds (Mg–Mg, Zn–Zn, Al–Al) and are stable at room temperature, the question arises whether there are diradical intermediates resulting from

MgR , AlR or ZnR . Calculations on this subject as well as on oligomeric $(\text{AlR}_2)_x$ and $(\text{MgCl})_x$ species show that the synthesis of the metastable solid MgCl , for example, may be possible.

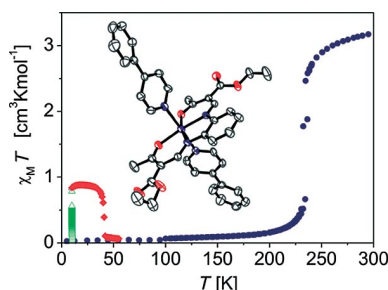
Spin-Crossover Complexes

B. Weber*, E. S. Kaps, C. Desplanches,
J.-F. Létard*, K. Achterhold,
F. G. Parak 4891–4898



Synthesis and Characterisation of Two New Iron(II) Spin-Crossover Complexes with N_4O_2 Coordination Spheres – Optimizing Preconditions for Cooperative Interactions

Keywords: Iron / N,O ligands / Magnetism



The magnetic and photomagnetic properties of two new spin-crossover complexes with N_4O_2 coordination are presented. From the data for six spin-crossover complexes, an initial explanation was given with regard to which parameters are responsible for the extent of intermolecular interactions in this type of complex.

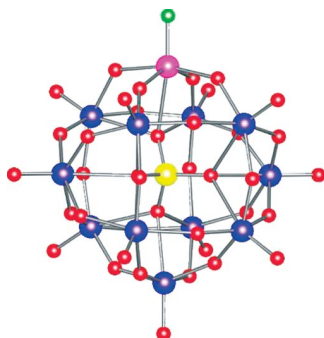
(Nitrido)chromium Functionalized POM

V. Lahootun, J. Karcher, C. Courillon,
F. Launay, K. Mijares, E. Maatta*,
A. Proust* 4899–4905



A (Nitrido)chromium(V) Function Incorporated in a Keggin-Type Polyoxometalate: $[\text{PW}_{11}\text{O}_{39}\text{CrN}]^{5-}$ – Synthesis, Characterization and Elements of Reactivity

Keywords: Polyoxometalates / Nitrido compounds / Chromium



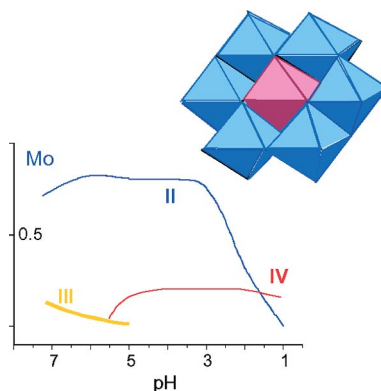
The synthesis of a (nitrido)chromium derivative of a Keggin-type POM is reported. Its characterization is illustrated by various spectroscopic methods and nucleophilic reactivity towards trifluoroacetic anhydride has been established.

Polyoxometalate Complexes

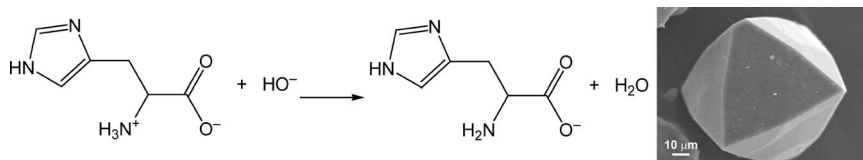
R. I. Maksimovskaya*, V. M. Bondareva,
G. I. Aleshina 4906–4914

NMR Spectroscopic Studies of Interactions in Solution during the Synthesis of MoVTenb Oxide Catalysts

Keywords: Molybdenum / Vanadium / Tellurium / Polyoxometalates / NMR spectroscopy




Three novel polyoxometalate anions, $\text{V}_9\text{TeO}_{28}^{5-}$ (I), $\text{V}_3\text{Mo}_3\text{O}_{24}^{9-}$ (III), and $\text{V}_5\text{Mo}_3\text{TeO}_{27}^{5-}$ (IV), have been observed, in addition to $\text{TeMo}_6\text{O}_{24}^{6-}$ (II), in aqueous Mo^{VI} - V^{V} - Te^{VI} solutions in the pH range 8–1, by using ^{51}V , ^{95}Mo , ^{17}O , and ^{125}Te NMR spectroscopy. Upon adding Nb oxalate, the Mo and V oxalates also form.



Dodecasil 3C was prepared in the presence of the amino acid DL-histidine as large, single crystals with sizes up to 140 μm.

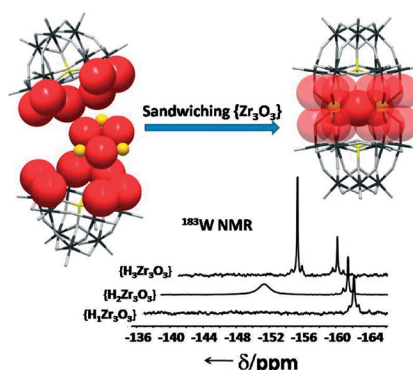
J. J. Seral, S. Uriel,
J. Coronas* 4915–4919

Controlling the Crystal Growth of Dodecasil 3C by Buffering with DL-Histidine 

Keywords: Crystal growth / Zeolites / Sol-gel / Amino acids

Polyoxometalate Chemistry

Reaction of ZrOCl_2 with $\text{A-}\alpha\text{-[SiW}_9\text{O}_{34}]^{9-}$ leads to a “sandwich” complex which consists of a central triangular $\{\text{Zr}_3\text{O}_3\}$ core closely embedded between two $\{\text{SiW}_9\text{O}_{34}\}$ subunits. Structural characterisation shows that the central $\{\text{Zr}_3\text{O}_3\}$ core becomes protonated as a result of a remarkably slow proton transfer within the central triangle.

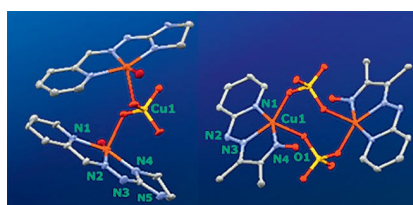


N. Leclerc-Laronze, J. Marrot,
M. Haouas, F. Taulelle,
E. Cadot* 4920–4926


Slow-Proton Dynamics within a Zirconium-Containing Sandwich-Like Complex Based on the Trivalent Anion $\alpha\text{-[SiW}_9\text{O}_{34}]^{10-}$ – Synthesis, Structure and NMR Spectroscopy

Keywords: Polyoxometalate / Zirconium / Tungsten / ^{183}W NMR spectroscopy

The synthesis and characterisation (X-ray, FTIR, UV/Vis, emission spectroscopy, electrochemistry) of sulfate-bridged dimeric copper(II) complexes with a 3D network using *N*-heterocyclic ligands are reported. Electrochemistry shows metal-centred oxidation in both cases. DFT and TDDFT calculations provide useful information on the electronic structures and spectroscopic transitions of the complexes.



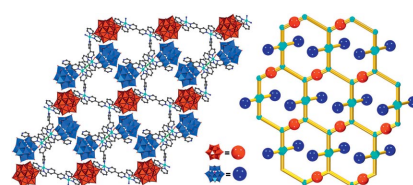
C. Basu, S. Biswas, A. P. Chattopadhyay,
H. Stoeckli-Evans,
S. Mukherjee* 4927–4935

Sulfate-Bridged Dimeric Copper(II) Complexes with Three-Dimensional Network: Synthesis, Structure and DFT Studies 


Keywords: Dimeric copper(II) / Electrochemistry / Density functional calculations

Polyoxometalate-Based Hybrids

Two unusual polyoxometalate hybrids with copper ions and mixed ligands have been hydrothermally prepared. In one case, dangling polyanion clusters are arranged in a mutual *anti* orientation about the 2D keleton (see the picture).



L. Yuan, C. Qin, X. Wang, E. Wang,*
S. Chang 4936–4942

Two Extended Organic-Inorganic Assemblies Based on Polyoxometalates and Copper Coordination Polymers with Mixed 4,4'-Bipyridine and 2,2'-Bipyridine Ligands 

Keywords: Polyoxometalates / Hydrothermal synthesis / Organic-inorganic hybrids / Mixed ligands

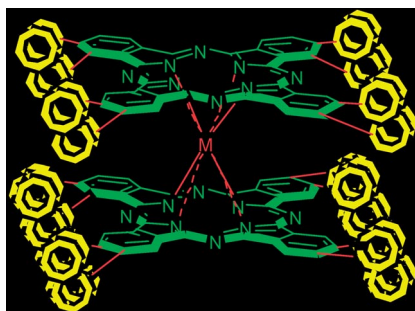
CONTENTS

Phthalocyaninatolanthanides

T. Ceyhan, M. A. Özdağ, B. Salih,
M. K. Erbil, A. Elmalı, A. R. Özkaya,
Ö. Bekaroğlu* 4943–4950

Synthesis, Characterization, Nonlinear Absorption and Electrochromic Properties of Double-Decker Octakis(mercaptopropylisobutyl-POSS)phthalocyaninatolanthanide(III) Complexes

Keywords: Phthalocyanines / Lanthanides / Nonlinear optics / Optical limiting / Electrochromism



The double-decker phthalocyaninatolanthanide(III) complexes MPc2 (M = Lu, Gd) with eight polyhedral oligomeric silsesquioxanes (POSSs) have been prepared and characterized. Nonlinear absorption and optical limiting properties of **2** and **3** are investigated by means of Z-scan technique.

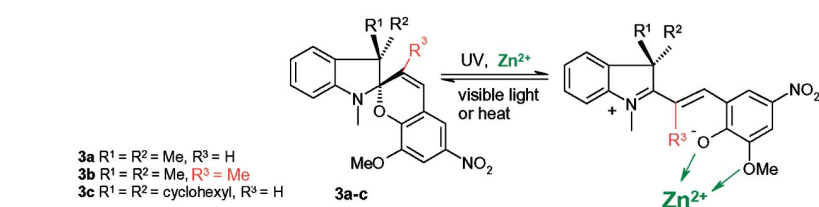
Photoreversible Ion Transportation

C. J. Roxburgh* P. G. Sammes,
A. Abdullah 4951–4960



Photoreversible Zn^{2+} Ion Transportation Across an Interface Using Ion-Chelating Substituted Photochromic 3,3'-Indolospirobenzopyrans: Steric and Electronic Controlling Effects

Keywords: Photochromism / Zinc ion transportation / Chelation / Photoreversibility / Spiro compounds



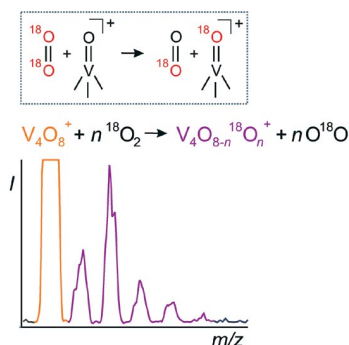
Demonstration of photoreversible zinc ion transportation across an organic/aqueous interface using indolospirobenzopyrans is reported. Biasing of the photodynamic equilibrium, and consequently zinc ion transportation, is further controlled using strategically placed, sterically, and electronically influencing substituents.

Isotopic Exchange Reactions

S. Feyel, D. Schröder,
H. Schwarz* 4961–4967

Gas-Phase Chemistry of Vanadium Oxide Cluster Cations V_mO_n^+ ($m = 1-4$; $n = 1-10$) with Water and Molecular Oxygen

Keywords: Mass spectrometry / Vanadium / Isotopic labeling / Cluster compounds



$^{16}\text{O}/^{18}\text{O}$ exchange reactions of gaseous vanadium oxide cluster cations with oxygen-labeled water and molecular oxygen were probed by mass spectrometry. Degenerate $^{16}\text{O}/^{18}\text{O}$ exchange with water is primarily obtained for the V_mO_n^+ cluster cations with a medium valence state of vanadium, whereas V_3O_6^+ and V_4O_8^+ are the only cluster cations to activate O_2 .

Bimetallic Palladium Complexes

J. Flapper, P. Wormald, M. Lutz,
A. L. Spek, P. W. N. M. van Leeuwen,
C. J. Elsevier, P. C. J. Kamer* 4968–4976

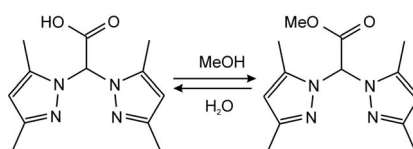
cis, *trans* – or Both: Steric Bulk Determines Coordination Mode of Dimeric Palladium Complexes with Bridging Pyridine-Phosphane Ligands

Keywords: Bimetallic complexes / Coordination modes / N,P ligands / Palladium / Solid-state NMR



Unique binding mode: A series of bimetallic complexes is synthesized, in which the configuration around the two palladium centers can be *cis-cis*, *trans-trans*, or even *trans-cis*, although both centers are surrounded by the same ligands. The coordination mode can be tuned by variation of the steric bulk of the ligands.

Two complexes, $[\text{CuCl}_2(\text{Mebdmpza})]$ and $[\text{Cu}_2(\mu\text{-O}_4\text{C}_2)\text{Cl}_2(\text{Mebdmpza})_2]$, were synthesized by reaction of CuCl_2 with the precursor ligand bis(3,5-dimethylpyrazol-1-yl)-acetic acid (Hbdmpza) in methanol. The transformation of the ligand Hbdmpza is reversible. $[\text{CuCl}_2(\text{Mebdmpza})]$ in water yields $[\text{Cu}(\text{bdmpza})_2] \cdot 2\text{H}_2\text{O}$ and/or water-free $[\text{Cu}(\text{bdmpza})_2]$.



B. Kozlevčar,* T. Pregelj, A. Pevec,
N. Kitanovski, J. Sánchez Costa,
G. van Albada, P. Gamez,
J. Reedijk 4977–4982

Copper Complexes with the Ligand Methyl Bis(3,5-dimethylpyrazol-1-yl)acetate (Mebdmpza), Generated by In Situ Methanolic Esterification of Bis(3,5-dimethylpyrazol-1-yl)acetic Acid



Keywords: Copper / Pyrazole ligands /
 Magnetic properties / Ligand design / Anti-
 ferromagnetism

* 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 30 were published online on October 10, 2008