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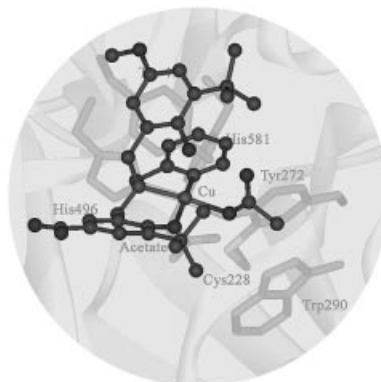
MICROREVIEW

Copper-Based Enzymes

F. Thomas* 2379–2404

Ten Years of a Biomimetic Approach to the Copper(II) Radical Site of Galactose Oxidase

Keywords: Biomimetic chemistry / Copper / Radicals / Bioinorganic chemistry / Enzyme models



Galactose oxidase is an enzyme whose active site exhibits several unusual features, such as a coordinated tyrosyl radical, post-translationally modified amino acids, and π -stacked residues. The structural attributes, reactivity, electronic properties, self-processing, and many more of its properties have been addressed successfully during the last decade using model complexes.

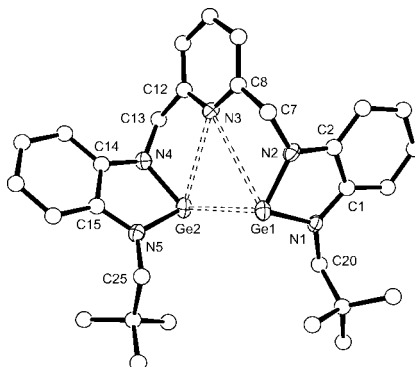
SHORT COMMUNICATION

N-Heterocyclic Germylenes

F. E. Hahn,* A. V. Zabula, T. Pape,
A. Hepp 2405–2408

Preparation and Molecular Structures of Stable Bis(germylenes) with Pincer Topology

Keywords: N-Heterocycles / Germylenes / Pincer ligands



Stable benzannulated bis(germylenes) with pincer topology have been prepared and characterized by X-ray analysis.

FULL PAPERS

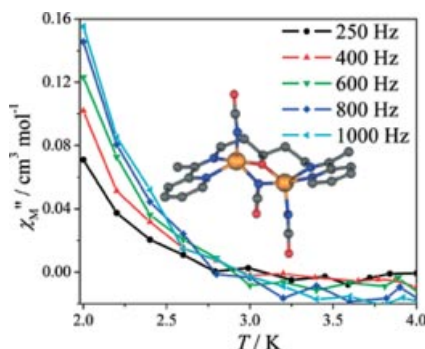
Single-Molecule Magnetism

A. K. Boudalis,* Y. Sanakis,*
J. M. Clemente-Juan, A. Mari,
J.-P. Tuchagues 2409–2415



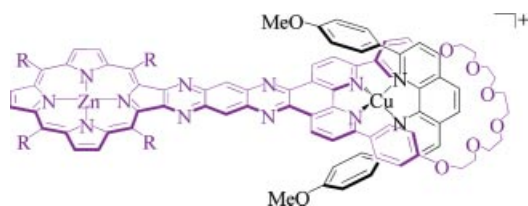
A Diferrous Single-Molecule Magnet

Keywords: Single-molecule studies / Cluster compounds / Magnetic properties / Iron



The dissymmetrical diferrous complex $[\text{Fe}_2(\text{acpyentO})(\text{NCO})_3]$ displays slowly relaxing magnetization due to ferromagnetic coupling and strong uniaxial anisotropy as evidenced by ^{57}Fe Mössbauer spectroscopy and dual-mode X-band EPR spectroscopy.

Porphyrioid Rotaxanes



A novel macrocyclic ligand containing a porphyrin moiety was prepared by a stepwise condensation and used in the preparation of a rotaxane-like structure.

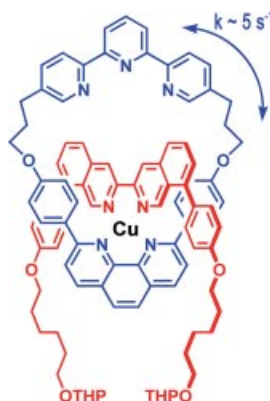
J. Frey, W. Dobbs, V. Heitz,*
J.-P. Sauvage* 2416–2419

A 1,10-Phenanthroline-Containing Ring Connected to a Porphyrin by a Rigid Aromatic Spacer and Its Copper-Complexed Pseudorotaxane

Keywords: Ligand design / Porphyrinoids / Macrocycles / Template synthesis / Rotaxane

Molecular Machines

Three pseudo-rotaxanes have been prepared which incorporate the same two-chelate ring and various threaded diimine ligands. Using electrochemical techniques, the pirouetting motions of the axle within the ring have been studied, evidencing that rigidity of the thread-contained chelate and steric hindrance lead to slowly moving molecular machines.



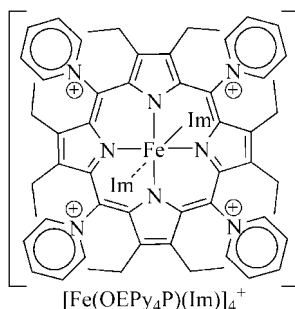
J.-P. Collin, F. Durola, P. Mobian,
J.-P. Sauvage* 2420–2425

Pirouetting Copper(I)-Assembled Pseudo-Rotaxanes: Strong Influence of the Axle Structure on the Motion Rate

Keywords: Pseudo-rotaxanes / Diimine ligands / Copper complexes / Coordination modes / Pirouetting motion

Iron Porphyrins

Fe^{II} porphyrins, [Fe(OEPy₄P)(B)₂]⁴⁺, B = Im or Py, were synthesized in three steps from Zn-β-octaethylporphyrin and characterized by mass spectrometry, UV/Vis spectroscopy, electrochemistry, and X-ray diffraction (B = Py). They are stable in air, show a highly distorted saddle-shape structure, and bear four positive charges close to the metal.



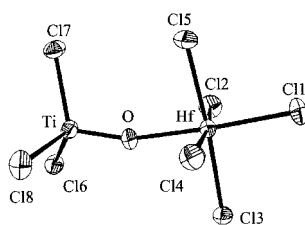
M. W. Renner, C. Bochot, A. Héroux,
D. Mansuy, P. Battioni* 2426–2433

Structural, Electrochemical, and Spectroscopic Properties of a Class of Dodecasubstituted Iron Porphyrins Bearing Four Positive Charges Close to the Metal

Keywords: Iron / Porphyrins / Ligand design / X-ray diffraction / Voltammetry

Ti–Hf Chlorometallate Complexes

The heterodimetallic [TiHfCl₁₀]^{2−} ion exists as a discrete species in solution, in equilibrium with a mixture of the corresponding homodimetallic ions, [Ti₂Cl₁₀]^{2−} and [Hf₂Cl₁₀]^{2−}. Its partial hydrolysis affords a well-defined oxo-bridged heterodimetallic complex, [TiHf(μ-O)Cl₈]^{2−}.



E. Robé, S. Maria, P. Richard,
R. Poli* 2434–2442

Mixed Titanium–Hafnium Chlorometallate Complexes

Keywords: Titanium / Hafnium / Chlorometallate complexes / Mixed-metal complexes

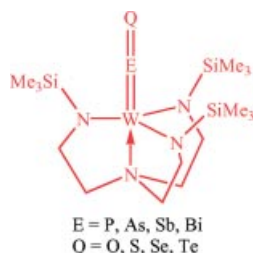
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NO Analogues

G. Balázs, J. C. Green,*
D. M. P. Mingos* 2443–2453



Electronic Structure of Linearly Coordinated EQ Complexes of the Type $[(N_3N)W(EQ)]$ [$N_3N = N(CH_2CH_2NSiMe_3)_3$; E = P, As, Sb, Bi; Q = O, S, Se, Te]: A DFT Study



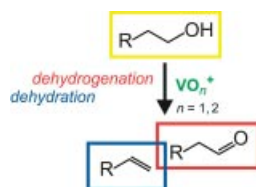
The electronic structure of the terminally coordinated EQ complexes $[(N_3N)W(EQ)]$ [$N_3N = N(CH_2CH_2NSiMe_3)_3$; E = P, As, Sb, Bi; Q = O, S, Se, Te] was analysed by DFT methods. The bonding in the W–E–Q unit and the general trends moving from the lighter to the heavier elements are discussed.

Keywords: Bonding / Pnictogens / Chalcogens / Tungsten / Density functional calculations

Vanadium Oxide Catalysts

M. Engeser, D. Schröder,*
H. Schwarz 2454–2464

Dehydration and Dehydrogenation of Alcohols with Mononuclear Cationic Vanadium Oxides in the Gas Phase and Energetics of $VO_nH^{0/+}$ ($n = 2, 3$)



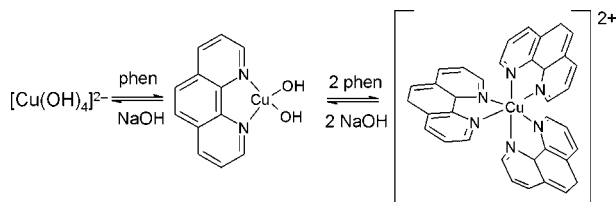
The activation of alkanols by gaseous VO_n^+ cations ($n = 1, 2$) is probed by mass spectrometric experiments, which reveal a competition between dehydrogenation and dehydration to afford the corresponding alkenes and oxidation to carbonyl compounds.

Keywords: Alcohol oxidation / Dehydration / Mass spectrometry / Metal alkoxides / Vanadium

Aqueous-Phase Oxidation

H. Korpi, P. J. Figiel, E. Lankinen, P. Ryan,
M. Leskelä, T. Repo* 2465–2471

On In Situ Prepared Cu–Phenanthroline Complexes in Aqueous Alkaline Solutions and Their Use in the Catalytic Oxidation of Veratryl Alcohol



Keywords: Catalysis / Copper / Dioxxygen / Active species / Oxidation

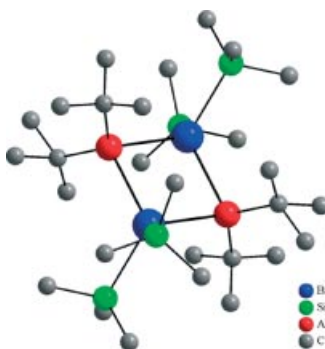
As ligand concentration and pH are interdependent, under optimum reaction conditions, the OH^- concentration needs to be adequate for efficient alcohol oxidation, and the phenanthroline concentration

needs to be high enough to preserve the structure of the $[Cu(phen)(OH)_2]$ species, whose presence is essential for high catalytic activity.

Group 13/15 Heterocycles

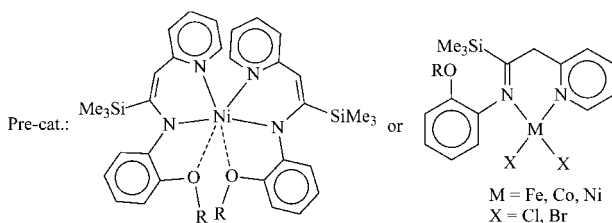
M. Matar, A. Kuczkowski, U. Keffler,
S. Schulz,* U. Flörke 2472–2476

Reactions of tBu_2AlH and $RE(SiMe_3)_2$ ($R = H, SiMe_3$) – Synthesis and X-ray Crystal Structures of $[tBu_2AlP(H)SiMe_3]_2$ and $[tBu_2AlE(SiMe_3)_2]_2$ (E = Sb, Bi)



Keywords: Main group elements / Heterocycles / Solid state structures

tBu_2AlH and $E(SiMe_3)_3$ react with elimination of Me_3SiH and subsequent formation of $[tBu_2AlE(SiMe_3)_2]_2$ (E = Sb, 1; Bi, 2) whereas no reaction was observed with $P(SiMe_3)_3$. In contrast, tBu_2AlH also reacts with $HP(SiMe_3)_2$ with Me_3SiH elimination and formation of $[tBu_2AlP(H)SiMe_3]_2$ (3). Complexes 1–3 were characterized by various spectroscopic methods, elemental analysis and single-crystal X-ray diffraction.



Novel anionic and neutral ligands and their iron, cobalt, and nickel complexes were synthesized and characterized. These com-

plexes showed good catalytic activities for ethylene oligomerization in the presence of appropriate co-catalysts.

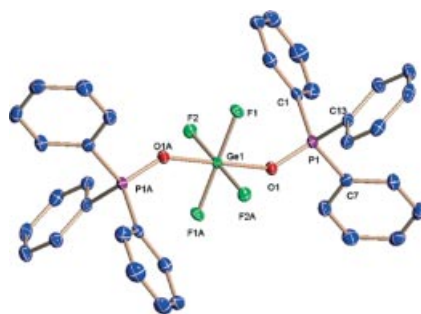
L. Wang, C. Zhang,
Z.-X. Wang* 2477–2487

Synthesis and Characterization of Iron, Cobalt, and Nickel Complexes Bearing Novel *N,N*-Chelate Ligands and Their Catalytic Properties in Ethylene Oligomerization

Keywords: Iron / Cobalt / Nickel / Catalysis / Ethylene / Oligomerization

Germanium Chemistry

The first series of phosphane oxide complexes of germanium(IV) halides have been prepared, including *trans*-[GeF₄(R₃PO)₂] (R = Me, Et or Ph), *trans*-[GeCl₄(Et₃PO)₂], *fac*-[GeCl₃(Me₃PO)₃][GeCl₆], and *cis*-[GeX₂(Me₃PO)₄]₂ (X = Cl or Br).



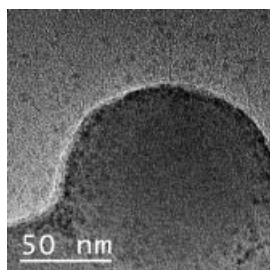
F. Cheng, M. F. Davis, A. L. Hector,
W. Levason,* G. Reid, M. Webster,
W. Zhang 2488–2495

Synthesis, Spectroscopic and Structural Systematics of Complexes of Germanium(IV) Halides (GeX₄, X = F, Cl, Br or I) with Phosphane Oxides and Related Oxygen Donor Ligands

Keywords: Germanium / Coordination complexes / Phosphane oxides

Nanocomposite Particles

Colloidal CdS/SiO₂ nanocomposite particles were made directly from negatively charged silica particles (*d* = 150 nm) and positively charged ligand-stabilised CdS particles (*d* = 3 nm).



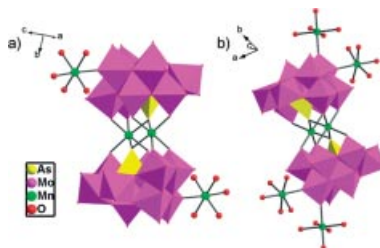
M. Roskamp, A. K. Schaper,
J. H. Wendorff, S. Schlecht* 2496–2499

Colloidal CdS/SiO₂ Nanocomposite Particles from Charged Colloids of CdS and Silica

Keywords: Colloids / Nanostructures / Semiconductors / CdS / Silica particles

Arsenomolybdate Polyoxometalates

Two novel heteropolymolybdates have been synthesized and characterized. The complexes resemble a sandwich-type complex and involve the coordination of two transition metals to two [As^VMo₉O₃₃]⁷⁻ fragments, which derive from the *B*-β-Keggin structure.



Y. Yang, L. Xu,* G. Gao, F. Li, Y. Qiu,
X. Qu, H. Liu 2500–2505

Transition-Metal (Mn^{II} and Co^{II}) Complexes with the Heteropolymolybdate Fragment [As^VMo₉O₃₃]⁷⁻: Crystal Structures, Electrochemical and Magnetic Properties

Keywords: Polyoxometalates / Molybdenum / Arsenic / Magnetic properties