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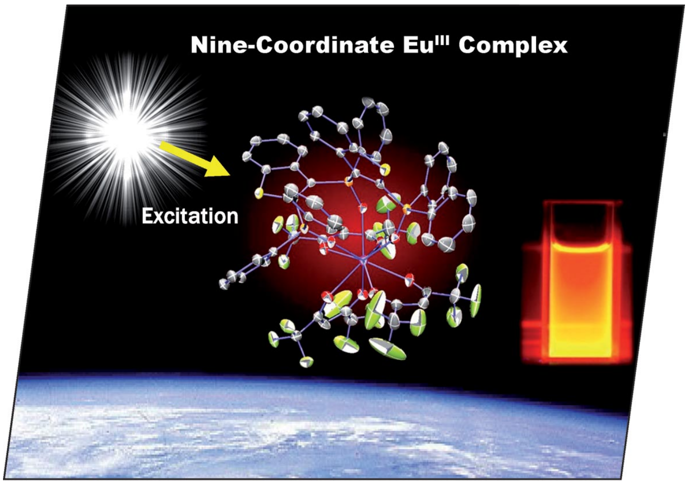
A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further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

COVER PICTURE

The cover picture shows a red-luminescent Eu^{III} complex with a tandem-connected tridentate phosphane oxide ligand. The coordination geometries of Eu^{III} complexes with tridentate phosphane oxides provide characteristic distorted, capped square-antiprism structures with nine coordinating oxygen atoms. Eu^{III} complexes with tridentate phosphane oxides offer relatively high emission quantum yields as a result of their low-symmetric and low-vibrational frequency structures. The characteristic structures and photophysical properties of polyhedral f-block metal complexes, nine-coordinate Eu^{III} complexes with tridentate phosphane oxides, are demonstrated for the first time. Details are discussed in the article by Y. Hasegawa, T. Kawai et al. on p. 4777ff.



CONTENTS

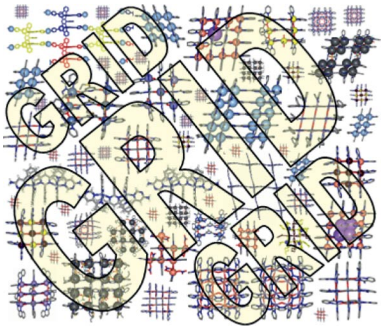
MICROREVIEW

High-Nuclearity Grids

A.-M. Stadler* 4751–4770

Grids with Unusual, High Nuclearity – A Structural Approach

Keywords: Grid-like complexes / High-nuclearity complexes / Supramolecular chemistry / Self-assembly / Coordination chemistry



Self-assembled supramolecular grid-like architectures with nuclearity higher than four, generated by tri-, tetra- and pentatopic ligands, are fascinating and attractive because of their structural and functional features. The present review is focused on their structural diversity and characterization.

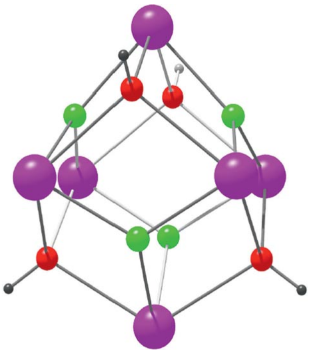
SHORT COMMUNICATION

Actinide Hexamers

S. Takao,* K. Takao, W. Kraus,
F. Emmerling, A. C. Scheinost,
G. Bernhard, C. Hennig 4771–4775

First Hexanuclear U^{IV} and Th^{IV} Formate Complexes – Structure and Stability Range in Aqueous Solution

Keywords: Actinides / Polynuclear species / Formic acid / Bridging ligands



The actinide(IV) hexanuclear $[M_6\{\mu_3\text{-O(H)}\}_8(HCOO)_{12}(L_T)_6]$ complexes were prepared ($L_T = H_2O$ or CH_3OH). $HCOO^-$ acts as a bridging ligand, which prevents the formation of polynuclear hydrolysis species like U^{IV} hydrous oxide colloids at least up to pH = 3.25, and stabilizes the nanosized clusters in solution. The charge of the hexamer is balanced by the O/OH ratio of the μ_3 bridges.

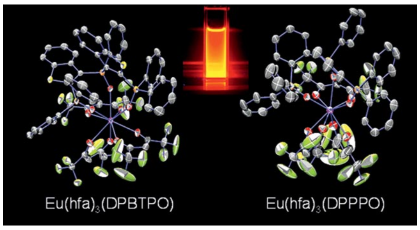
FULL PAPERS

Lanthanide Complexes

K. Miyata, Y. Hasegawa,* Y. Kuramochi,
T. Nakagawa, T. Yokoo,
T. Kawai* 4777–4785

Characteristic Structures and Photophysical Properties of Nine-Coordinate Europium(III) Complexes with Tandem-Connected Tridentate Phosphane Oxide Ligands

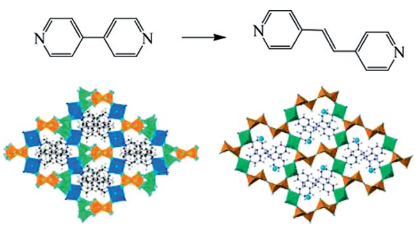
Keywords: Luminescence / Tridentate ligands / Lanthanides / Ligand effects



The characteristic structures and photophysical properties of polyhedral *f*-block metal complexes, nine-coordinate Eu^{III} complexes with tridentate phosphane oxide, are demonstrated for the first time.

Hybrid Vanadates

Two self-catenated hybrid vanadates have been hydrothermally synthesized. Both of them possess a 3D inorganic frameworks stabilized by an organic ligand. Increase of the ligand size enlarges the diameter of the inorganic channels. The thermal behaviour of these rigid architectures shows an irreversible structural transformation due to the removal of coordinated water molecules.



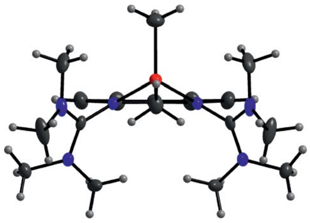
R. Fernandez de Luis, J. L. Mesa,*
M. Karmele Urtiaga, T. Rojo,
M. I. Arriortua 4786–4794

Two Self-Catenated Nickel(II) Hybrid Vanadates with Honeycomb-Like 3D Inorganic Frameworks Stabilized by Crossed Organic Bpe Pillars: Thermal, Spectroscopic and Magnetic Properties

Keywords: Crystal engineering / Hybrid materials / Vanadates / Hydrothermal synthesis / Magnetic properties

Alkyl Complexes

Bisguanidines were used to synthesize several new zinc, magnesium and cationic aluminium alkyl complexes, and their bond properties and dynamic behaviour were studied in detail.



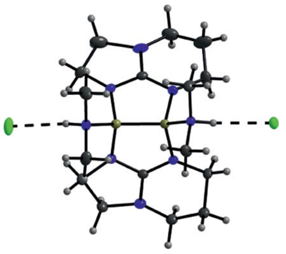
M. Reinmuth, U. Wild, D. Rudolf,
E. Kaifer, M. Enders, H. Wadepohl,
H.-J. Himmel* 4795–4808

Stabilization and Activation: New Alkyl Complexes of Zinc, Magnesium and Cationic Aluminium Featuring Chelating Bisguanidine Ligands

Keywords: Zinc / Magnesium / Aluminum / Alkyl complexes / Guanidine

Dehydrogenation

Fine-tuning of the dehydrogenation process of borane adducts to bicyclic guanidines is possible by variation of the ring size.



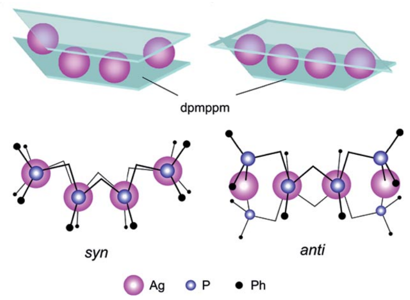
N. Schulenberg, M. Jäkel, E. Kaifer,
H.-J. Himmel* 4809–4819

The Borane Complexes Htbo·BH_3 and Htbn·BH_3 (Htbo = 1,4,6-Triazabicyclo[3.3.0]oct-4-ene, Htbn = 1,5,7-Triazabicyclo[4.3.0]non-6-ene): Synthesis and Dehydrogenation to Dinuclear Boron Hydrides

Keywords: Boron hydrides / Boranes / Nitrogen heterocycles / Guanidine / Dehydrogenation / Cyclization

Linear Tetrasilver(I) Complexes

A tetraphosphane *meso*-bis[(diphenylphosphanylmethyl)phenylphosphanyl]methane (dpmppm) afforded a series of tetranuclear Ag^I complexes, in which two dpmppm ligands are disposed in *syn*- and *anti*-fashions with respect to the fluxional and labile Ag_4 strings.



Y. Takemura, T. Nakajima,
T. Tanase* 4820–4829

Synthesis and Characterization of Linear Tetranuclear Silver(I) Complexes Bridged by Tetraphosphane Ligands

Keywords: Silver / Phosphane ligands / Multinuclear complexes / Isocyanide ligands

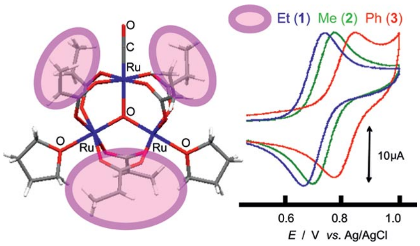
CONTENTS

Ruthenium Cluster Compounds

A. Inatomi, M. Abe,* Y. Hisaeda* 4830–4836

Carboxylato-Modified New Oxo-Centred Triruthenium Cluster Compounds with CO and Solvent Ligands: The X-ray Structure of $[Ru_3O(C_2H_5CO_2)_6(CO)(THF)_2]$

Keywords: Ruthenium / Cluster compounds / Carboxylato ligands / Cyclic voltammetry / Substituent effects



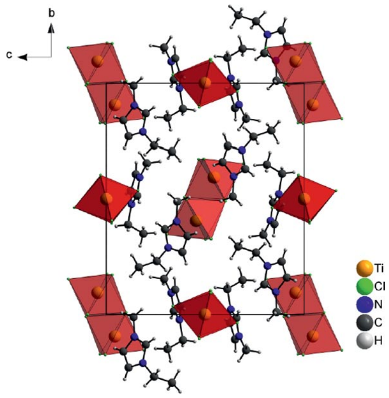
A new series of μ_3-oxo-triruthenium cluster compounds with varied bridging carboxylato groups of the type $[Ru_3O(RCO_2)_6(CO)(solvent)_2]$ where R = C_2H_5 and C_6H_5 has been synthesised and the structures, redox chemistry and photo-induced CO dissociation reactions have been examined.

Titanium Complexes with ILs

J.-C. Leye, M. Gjikaj, A. Adam* 4837–4843

Syntheses, Crystal Structures, Thermal Properties and Spectroscopic Characterization of Complex Chloridotitanates(IV) with Ionic Liquids

Keywords: Titanium / Ionic liquids / Solid-state structures / Structure elucidation



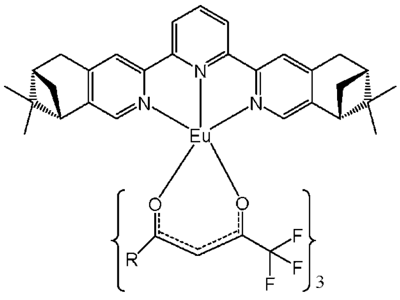
The synthesis and characterization of new chloridotitanates(IV) $[EMIm]_2$ $[TiCl_6]$ (**I**), $[EMIm][TiCl_5MeCN]$ (**II**) and $[EMIm]_4[TiCl_6][Ti_2Cl_{10}]$ (**III**) are presented. Whereas compounds **I** and **II** consist of an octahedral $[TiL_6]$ polyhedron, compound **III** possesses both octahedral $[TiCl_6]$ and edge-sharing dichlorido-bridged bioctahedral $[Ti_2Cl_{10}]$ units. The dimer–monomer conversion of **III** is also discussed.

Chiral Lanthanide Complexes

D.-P. Li, C.-H. Li,* J. Wang, L.-C. Kang, T. Wu, Y.-Z. Li, X.-Z. You*.... 4844–4849

Synthesis and Physical Properties of Two Chiral Terpyridyl Europium(III) Complexes with Distinct Crystal Polarity

Keywords: Lanthanides / Chirality / Luminescence / Solid-state structures / Crystal polarity



R = Thenoyl (**1**); Phenyl (**2**)

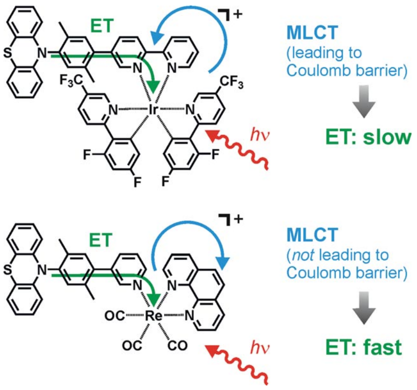
Two novel chiral terpyridyl Eu^{III} complexes were synthesized. Complex **1** crystallizes in the polar space group $P2_1$, and **2** in the nonpolar space group $P2_12_12_1$. In contrast to **2**, **1** exhibits brilliant triboluminescence, intense NLO properties and ferroelectric behaviour at room temperature. The distinct chiral physical properties of complexes **1** and **2** can be explained by the different crystal polarity.

Electron Transfer

D. Hanss, J. C. Freys, G. Bernardinelli, O. S. Wenger* 4850–4859

Cyclometalated Iridium(III) Complexes as Photosensitizers for Long-Range Electron Transfer: Occurrence of a Coulomb Barrier

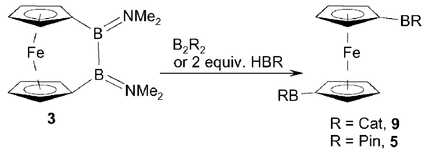
Keywords: Electron transfer / Donor-acceptor systems / Time-resolved spectroscopy / Iridium / Photochemistry



Coulomb barriers imposed by metal-to-ligand charge transfer excited electrons are found to have an important impact on the rates of photoinduced long-range electron transfers.

Boron–Carbon Bond Cleavage

A new reactivity pattern for the alternative synthesis of 1,1′-diborylferrocenes starting from [2]boraferrocenophanes and simple boranes or diboranes is presented.



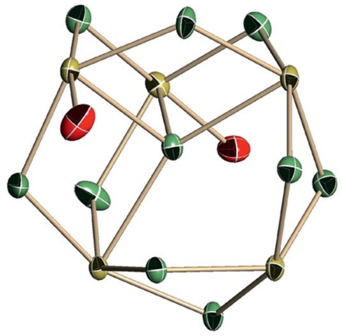
H. Braunschweig,* B. Grünewald, K. Schwab, R. Sigritz **4860–4863**

1,1′-Diborylferrocenes from [2]Boraferrocenophanes by Boron–Boron Exchange

Keywords: Iron / Boron / Sandwich complexes / Metallocenes / Ferrocenophanes / B–C bond cleavage

Lanthanoid Cluster Compounds

The salt-free samarium compound $[(Me_3Si)_2NC(NCy)_2SmCl_2]_5(thf)_2$ has been prepared. X-ray diffraction studies of this compound result in a unique cluster structure, where a centered chlorine atom coordinates to four samarium atoms. The properties and comparison with a heavier ytterbium congener $[(Me_3Si)_2NC(NCy)_2YbCl_2]_2(LiCl)_2(thf)_4$ have been investigated. Color code: green = chlorine; red = oxygen; yellow = samarium.

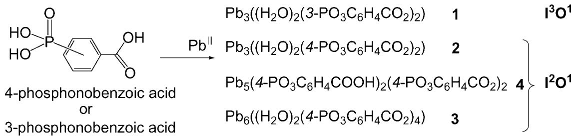


Z. Zhang, H. W. Roesky,* T. Schulz, D. Stalke, A. Döring **4864–4869**

A Chlorine-Centered Cluster of Composition $[(Me_3Si)_2NC(NCy)_2SmCl_2]_5(thf)_2$ and a Comparison with the Heavier Ytterbium Congener $[(Me_3Si)_2NC(NCy)_2YbCl_2]_2(LiCl)_2(thf)_4$

Keywords: Samarium / Ytterbium / Guanidinato ligand / Chlorine / Cluster compounds

Hybrid Materials



Three 3D-layered materials (**2**, **3**, and **4**) have been synthesised starting from 4-phosphonobenzoic acid and lead(II). These structures are compared with the structure **1** synthesised from 3-phosphonobenzoic acid. The understanding of the stacking of the organic molecules within the layer, the influence of the electronic lone pair and the water molecules are discussed.

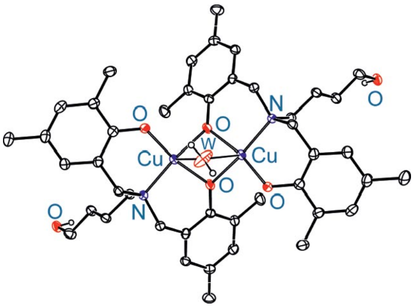
J.-M. Rueff, O. Perez,* A. Leclaire, H. Couthon-Gourvès, P.-A. Jaffrès **4870–4876**

Lead(II) Hybrid Materials from 3- or 4-Phosphonobenzoic Acid

Keywords: Hydrothermal synthesis / Hybrid materials / Lead

Phenoxido-Bridged Cu Complexes

Five new bis(μ-phenoxido)dicopper(II) neutral complexes with or without a water bridge were prepared from a family of ω-[bis(2-hydroxy-3,5-dimethylbenzyl)amino]-alkan-1-ol ligands. Magnetostructural data and DFT calculations demonstrate that the major factor controlling the magnetic coupling is, by far, the Cu–O–Cu bridging angle.



O. Wichmann, H. Sopo, E. Colacio,* A. J. Mota, R. Sillanpää* **4877–4886**

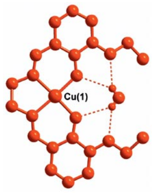
A Combined Experimental and Theoretical Study on the Magnetic Properties of a Family of Bis(μ-phenoxido)dicopper(II) Complexes Bearing ω-[Bis(2-hydroxy-3,5-dimethylbenzyl)amino]alkan-1-ol Ligands

Keywords: Copper / N,O ligands / Structure elucidation / Magnetic properties / Density functional calculations

CONTENTS

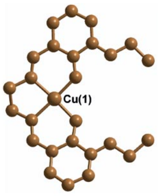
Hydrate Isomerism

Keywords: Hydrate isomerism / Hydrogen bonds / Copper / Inclusion compounds / Thermochemistry



$[Cu^{II}L^1 \subset (H_2O)]$
1

$[Cu^{II}L^1(H_2O)]$
2



$[Cu^{II}L^1]$
3

The syntheses, structures, properties and interconversion behaviour of the nonhydrated compound $[Cu^{II}L^1]$, coordinated-water-containing compound $[Cu^{II}L^1(H_2O)]$ and encapsulated-water-containing compound $[Cu^{II}L^1 \subseteq (H_2O)]$ derived from the same ligand *N*,*N′*-ethylenebis(3-ethoxysalicylaldimine) (H_2L^1) are described.

CORRECTION

Keywords: Organic–inorganic hybrid composites / Magnetic properties / Heterometallic complexes / Bridging ligands / Macrocyclic ligands

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* Author to whom correspondence should be addressed.

💻 Supporting information on the WWW (see article for access details).