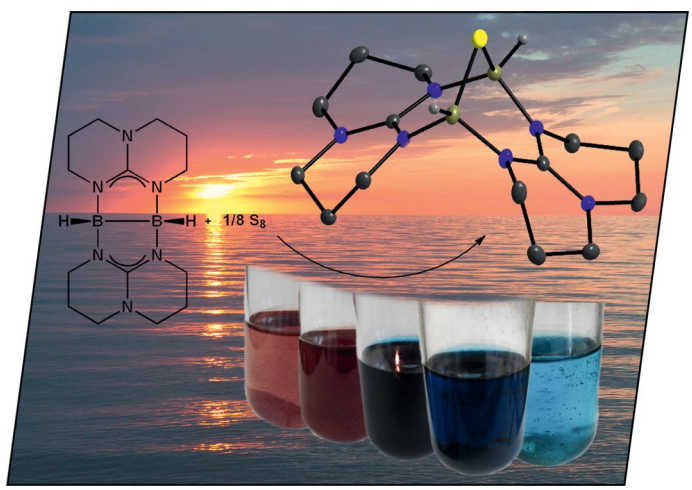
COVER PICTURE

The cover picture shows the crystal structure of the product of oxidative insertion of sulfur into the B−B bond of the doubly base-stabilized diborane(4) $[HB(\mu\text{-hpp})]_2$ (hpp = 1,3,4,6,7,8-hexahydro-2*H*-pyrimido[1,2-*a*]pyrimidinate). The colours observed in the course of this reaction are similar to those of the sunset at Flügge beach on the island Fehmarn shown in the background. While the sunset colours are caused by refraction of sunlight, oligosulfide intermediates such as S_8^{2-} and S_3^- are responsible for the colours visible during the reaction. The photographs of the flask show the reaction mixture in toluene solutions after 3, 12, 68 and 200 min and after 18 h. Details are discussed in the article by H.-J. Himmel et al. on p. 5201ff. The authors thank Andreas Schuster for the design of the cover picture.



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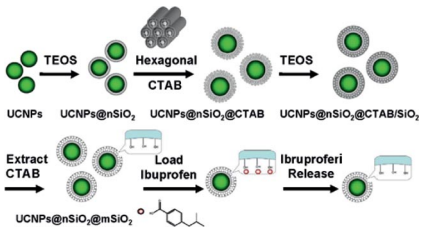
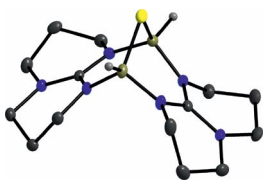
SHORT COMMUNICATION

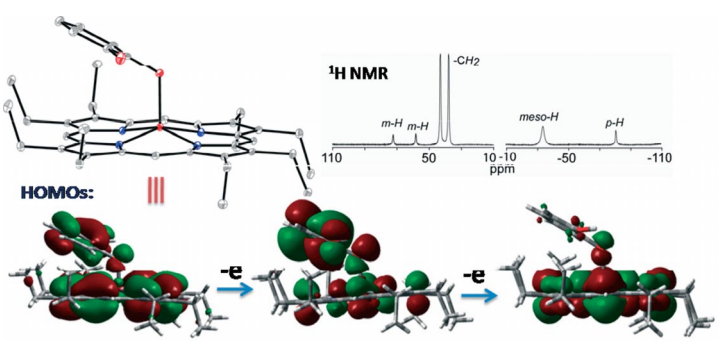


Nanocomposites with a LaF_3:Yb,Er core and a mesoporous silica shell structure have been developed. These multifunctional photoluminescent composite materials were tested as drug carriers to investigate their drug storage/release properties. The green upconversion photoluminescence of these LaF_3:Yb^{3+}, Er^{3+}@*n*SiO_2@*m*SiO_2 nanocomposites is useful for tracking and monitoring the drug release.

FULL PAPERS



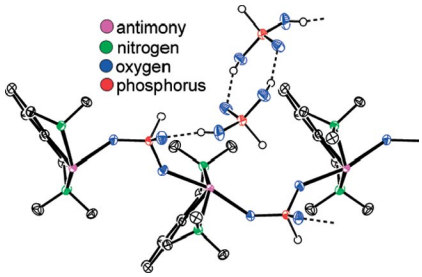
Catalytic dehydrogenation of $[H_2B(\mu\text{-hpp})]_2$ leads to the doubly base-stabilized diborane(4) $[HB(\mu\text{-hpp})]_2$. Oxidative sulfuration of the B–B bond in $[HB(\mu\text{-hpp})]_2$ gives $[HB(\mu\text{-hpp})]_2(\mu\text{-S})$. A mixture of sulfuration and substitution products is formed for reactions with disulfides.



The synthesis, X-ray structures, and properties of new heme analogues Fe^{III}(OEP)(L) (L: Hcat, 4-NO_2-Hcat, 4-*t*Bu-Hcat, and sal) are reported, in which catechol binds in an η^1-fashion as an axial ligand. Spectroelectrochemical studies of one- and two-electron oxidations are also reported. Experimental findings are supported by DFT calculations.

Antimony and Bismuth Phosphites

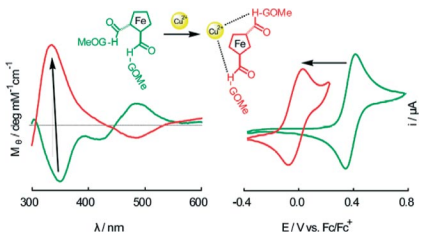
The syntheses of molecular organoantimony and organobismuth phosphinate, phosphite and mixed phosphite-phosphonate complexes, where the central antimony or bismuth ion is stabilized by the NCN pincer-type ligand $[2,6\text{-}(Me_2NCH_2)_2\text{-}C_6H_3]^-$, are described. The decomposition pathway for bismuth phosphinate complexes is also reported.



Keywords: Antimony / Bismuth / Phosphorus / Chelates / X-ray diffraction

Bioorganometallic Metal Chelators

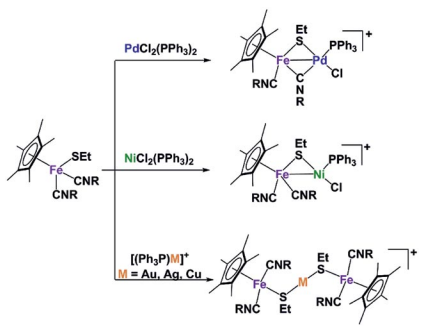
Metal coordination enables control over ferrocene helicity. Synthesis of a 1,*n*′-ferrocenoyl–histidine conjugate is reported. Metal coordination to the His imidazoles drastically alters the helicity of the ferrocene group from a *P*-helical to an *M*-helical conformation.



Keywords: Cyclic voltammetry / NMR spectroscopy / N ligands / Metal recognition / Chiral induction

Heteronuclear Complexes

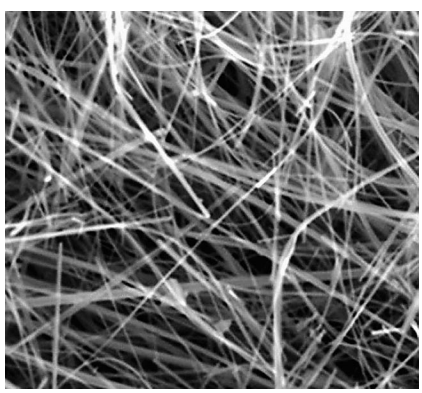
A new series of heteronuclear thiolate iron complexes including heterobinuclear Fe–SEt–M (M = Pd or Ni) units and heterotrinuclear Fe–SEt–M–SEt–Fe (M = Au, Ag, or Cu) species with isocyanide ligands have been prepared, and their characterizations are also investigated.



Keywords: Transition metals / Heteronuclear complexes / Isocyanide ligands / Thiolate ligands

Vanadium Oxide Nanorods

We describe methods of hydrothermal synthesis of vanadium oxide nanorods produced from polycrystalline V_2O_5. Analysis of the sensor properties of the nanorods revealed a significant response to triethylamine with a short response time, about 32 s, with a sensitivity of 30%.

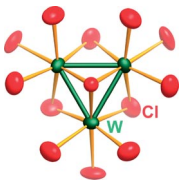


Keywords: Vanadium oxides / Nanostructures / Hydrothermal synthesis / Resistive-type gas sensor

CONTENTS

Cluster Formation in IL

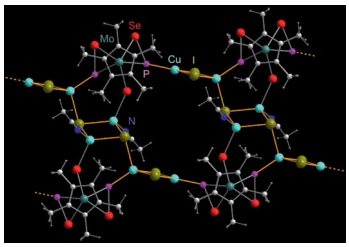
Ionic liquids (IL) are shown to be suitable reaction media for the convenient room-temperature synthesis of transition metal clusters. The new cluster compound Sn[SnCl][W_3Cl_{13}] comprises a $[W_3Cl_{13}]^{3-}$ cluster with C_{3v} symmetry as well as an unusual $[SnCl]^+$ cation. The compound is a paradigm of a material displaying extreme structural polarity.



Keywords: Cluster compounds / Ionic liquids / Tungsten / Merohedral twinning / Bijvoet differences

Coordination Polymers

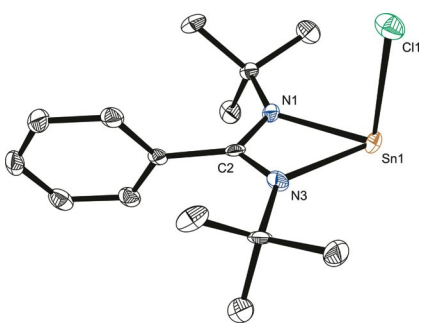
New coordination polymers $[(Cp^*_2Mo_2P_2Se_3)(CuX)_3(CH_3CN)]_n$ ($Cp^* = C_5Me_5$; X = Cl, Br, I) have been prepared. A competitive coordination of Cu towards P and Se is observed that is completed by weak intermolecular Se···Se interactions to give 2D networks. Addition of P_4Se_3 as a competitive reagent gave $[(Cp^*_2Mo_2P_2Se_3)(P_4Se_3)(CuX)_2]_n$, a new type of organometallic–inorganic hybrid polymer.



Keywords: Phosphorus / Selenium / Copper / Coordination modes / Polymers

Tin Compounds

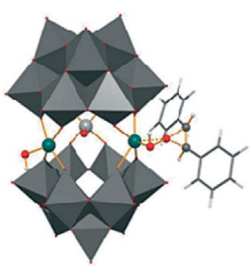
This article addresses the synthesis and characterization of amidinato-stabilized monomeric chlorostannylene. Furthermore, the chlorostannylene was converted into its amide and triflate derivatives by substitution reaction. To verify the Lewis basicity of chlorostannylene it was treated with $Fe_2(CO)_9$, whereupon it formed the Lewis acid–base adduct.



Keywords: Tin / N ligands / NMR spectroscopy / X-ray diffraction

Alkene Epoxidation

Experimental and theoretical studies on the epoxidation of a range of alkenes with aqueous H_2O_2 and dititanium-containing 19-tungstodiarsenate(III) $[Ti_2(OH)_2As_2W_{19}O_{67}(H_2O)]^{8-}$ (**1**) as catalyst revealed a mechanism that involves a reversible interaction between H_2O_2 and the Ti–OH group of **1** to produce a titanium hydroperoxo complex followed by electrophilic oxygen atom transfer to the alkene.

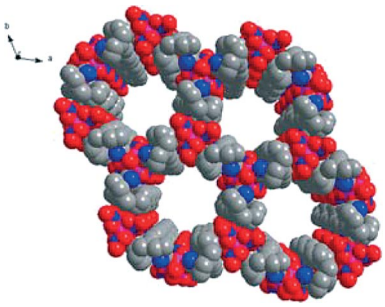


Keywords: Polyoxometalates / Titanium / Epoxidation / Density functional calculations / Hydrogen peroxide

CONTENTS

Ln Metal−Organic Frameworks

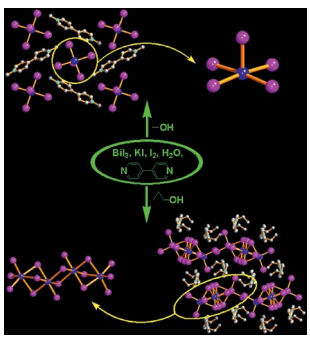
Keywords: Lanthanides / Metal−organic frameworks / Semirigid bridging ligands / Homometallic compounds / Luminescence



A new semirigid bridging ligand, 2,5-dimethyl-1,4-bis[{(2′-benzylaminoformyl)-phenoxy}methyl]benzene (L), was designed to assemble a series of rare noninterpenetrating (6,3) type network metal−organic frameworks with lanthanide cations, namely $[\{Ln_2(NO_3)_6L_3\}\cdot(H_2O)_2\cdot(CHCl_3)]_n$. The luminescent properties of the Sm^{III}, Eu^{III}, Tb^{III}, and Dy^{III} MOFs were studied in detail.

Viologen Iodobismuthates

Keywords: Semiconductors / Solvothermal synthesis / Bismuth / Iodine / Viologens



Four viologen iodobismuthate complexes were generated from the solvothermal reactions of BiI_3, I_2, KI, 4,4′-bipyridine, alcohols and a small amount of water in MeCN. The optical, electrical conductivity and dielectric properties of the products were investigated.

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

If not otherwise indicated in the article, papers in issue 32 were published online on November 2, 2010

