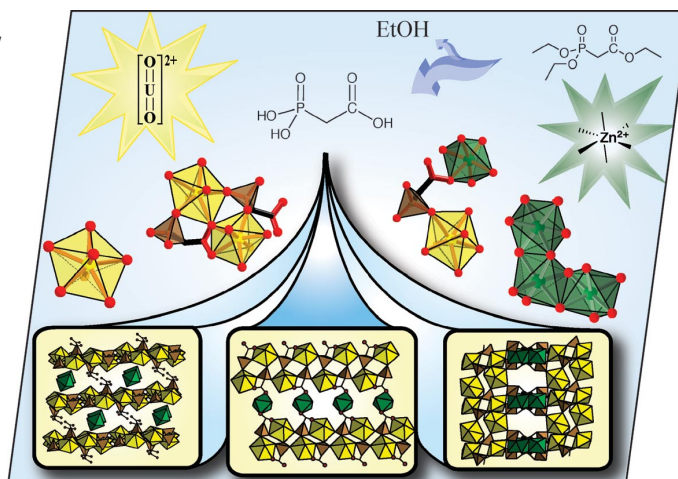


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Other ChemPubSoc Europe journals are *Chemistry – A European Journal*, *ChemBioChem*, *ChemPhysChem*, *ChemMedChem*, *ChemSusChem* and *ChemCatChem*.

COVER PICTURE

The cover picture shows three bimetallic $\text{UO}_2^{2+}/\text{Zn}^{2+}$ phosphonoacetates that have been prepared under hydrothermal conditions. The phosphonate linker was generated in situ by the hydrolysis of triethyl phosphonoacetate, as efforts to prepare uranyl/zinc bimetallic phases from the direct reaction of the metal salts with the acid form of the ligand were unsuccessful. These compounds exhibit diverse topologies and dimensionalities that can be attributed to polymerization of the UO_2^{2+} sites, oligomerization of Zn^{2+} octahedra, and degree of Zn^{2+} –ligand coordination; structural features are related to temperature. Details are discussed in the article by K. E. Knope and C. L. Cahill on p. 1177ff.



SHORT COMMUNICATIONS

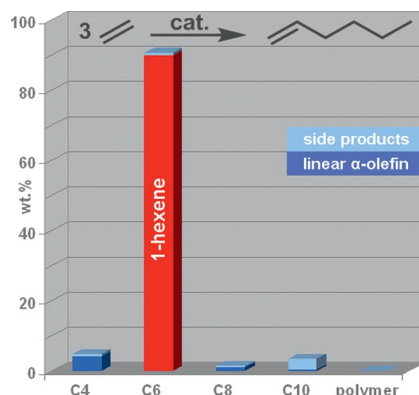
Selective Oligomerization

S. Peitz, N. Peulecke, B. R. Aluri,
S. Hansen, B. H. Müller, A. Spannenberg,
U. Rosenthal,* M. H. Al-Hazmi,
F. M. Mosa,* A. Wöhl,
W. Müller* 1167–1171



A Selective Chromium Catalyst System for the Trimerization of Ethene and Its Coordination Chemistry

Keywords: Aminophosphorus ligands / Amido ligands / Chromium / Homogeneous catalysis / Oligomerization / Selectivity



A new trimerization system for ethene consisting of $\text{CrCl}_3(\text{thf})_3$, a novel aminophosphane ligand, and Et_3Al was developed, showing very promising results in selectivity and applicability (see picture). Investigations on organometallic model compounds give an indication of the nature of the active catalyst species.

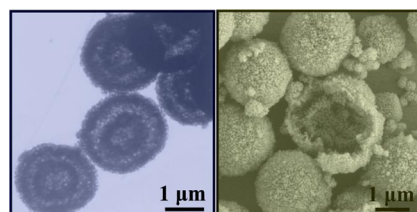
Double-Shelled Hollow Spheres

J. Cao, Y. Zhu, L. Shi, L. Zhu, K. Bao,
S. Liu, Y. Qian* 1172–1176



Double-Shelled Mn_2O_3 Hollow Spheres and Their Application in Water Treatment

Keywords: Adsorption / Double-shelled structures / Hollow spheres / Manganese / Oxides / Phenol



Double-shelled Mn_2O_3 hollow spheres are successfully prepared through an inward oxidation/etching treatment and sequential heat treatment in air. As the double-shelled Mn_2O_3 hollow spheres were employed in water treatment, they exhibited excellent performance of removing phenol in wastewater, which offers a potential application in water treatment.

FULL PAPERS

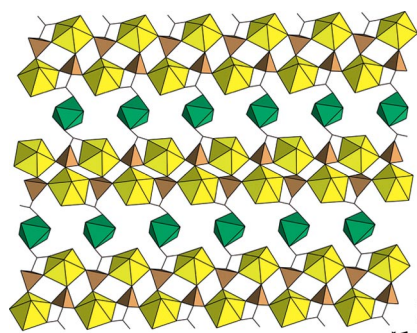
Heterometallic Phosphonates

K. E. Knope, C. L. Cahill* 1177–1185



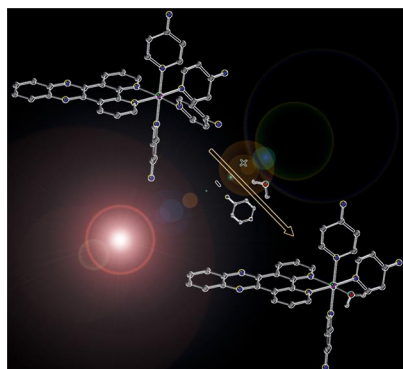
Synthesis and Characterization of 1-, 2-, and 3-Dimensional Bimetallic $\text{UO}_2^{2+}/\text{Zn}^{2+}$ Phosphonoacetates

Keywords: Hydrothermal synthesis / Uranium / Zinc / Heterometallic complexes / Organic–inorganic hybrid composites



Four novel heterometallic $\text{UO}_2^{2+}/\text{Zn}^{2+}$ phosphonoacetates have been hydrothermally prepared. The compounds adopt 1-, 2-, and 3-dimensional architectures and exhibit increased Zn^{2+} –ligand coordination with increasing reaction temperature. Presented here are the syntheses, structures, and thermal and fluorescent behavior of the compounds.

In aqueous solution, the photoactive complex $[\text{Ru}(\text{dipyrido}[3,2-a:2',3'-c]\text{phenazine})-(4\text{-aminopyridine})_4]^{2+}$ selectively releases one 4-aminopyridine ligand when irradiated with visible light.



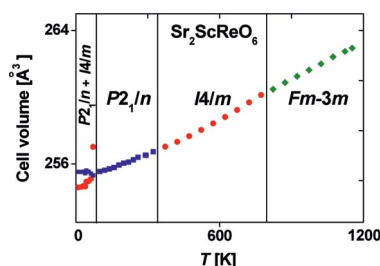
T. Ruiu, C. Garino, L. Salassa,
A. M. Pizarro, C. Nervi, R. Gobetto,*
P. J. Sadler* 1186–1195

Spectroscopic and Computational Study of Ligand Photodissociation from $[\text{Ru}(\text{dipyrido}[3,2-a:2',3'-c]\text{phenazine})(4\text{-aminopyridine})_4]^{2+}$

Keywords: Photochemistry / Ruthenium / Density functional calculations / Dipyridophenazine / N ligands

Perovskite Phase Transitions

The temperature-induced structural phase transformations of $\text{Sr}_2\text{ScReO}_6$, which are based on the tiltings of MO_6 octahedra ($M = \text{Sc}, \text{Re}$) and a shift in the Sr positions, were studied. The low-temperature phase transition from $P2_1/n$ to $I4/m$ is accompanied by antiferromagnetic ordering, which stabilizes the higher symmetry of the low-temperature phase as a result of the lower magnetic entropy.



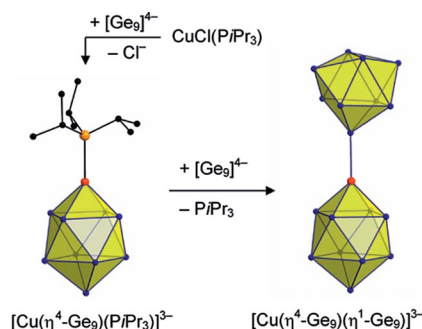
D. Mikhailova,* N. Narayanan, A. Voss,
H. Ehrenberg, D. M. Trots, C. Ritter,
J. Eckert, H. Fuess 1196–1206

Solid Solution $\text{Sr}_2\text{Sc}_{1-x}\text{Re}_x\text{O}_6$ with a Perovskite-Like Structure: Phase Transitions and Magnetic Properties

Keywords: Phase transitions / Solid solutions / Perovskites / Magnetic properties / Neutron diffraction

Intermetalloid Clusters

The Cu-capped Ge_9 clusters $[\text{Cu}(\eta^4\text{-Ge}_9)\text{-R}]^{3-}$ ($R = \text{PCy}_3, \text{P}i\text{Pr}_3$) and $[\text{Cu}(\eta^4\text{-Ge}_9)(\eta^1\text{-Ge}_9)]^{7-}$ show that homoatomic Zintl anions can act as multifunctional ligands. The clusters serve as a six-electron donor with η^4 coordination and can also act as a two-electron σ donor. The stepwise exchange of ligands at the Cu^I atom shows how metal clusters can form larger intermetalloid clusters (Cu : red, Ge : blue, P : orange).



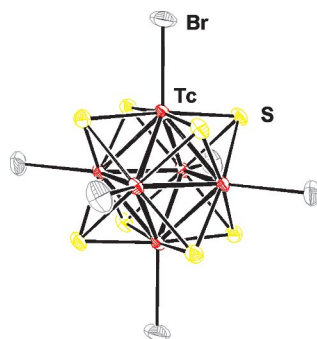
S. Scharfe, T. F. Fässler* 1207–1213

Varying Bonding Modes of the Zintl Ion $[\text{Ge}_9]^{4-}$ in Cu^I Complexes: Syntheses and Structures of $[\text{Cu}(\eta^4\text{-Ge}_9)(\text{PR}_3)]^{3-}$ ($R = i\text{Pr}, \text{Cy}$) and $[\text{Cu}(\eta^4\text{-Ge}_9)(\eta^1\text{-Ge}_9)]^{7-}$

Keywords: Copper / Germanium / Cluster compounds / Zintl anions / Metalloids / Polyhedrons

Technetium Cluster Complexes

Chalcogenide-capped octahedral hexatechnetium(III) clusters including discrete and 3D polymeric complexes were synthesized, and their structures and redox properties were characterized.



T. Yoshimura,* T. Ikai, Y. Tooyama,
T. Takayama, T. Sekine, Y. Kino,
A. Kirishima, N. Sato, T. Mitsugashira,
N. Takahashi, A. Shinohara ... 1214–1219

Synthesis, Structures, and Properties of New Chalcogenide-Capped Octahedral Hexatechnetium(III) Complexes $[\text{Tc}_6\text{S}_8\text{X}_6]^{4-}$ ($X = \text{Br}, \text{I}$), $[\text{Tc}_6\text{Se}_8\text{I}_2]$, and $[\text{Tc}_6\text{Te}_{15}]$

Keywords: Technetium / Chalcogens / Cluster compounds / Cyclic voltammetry

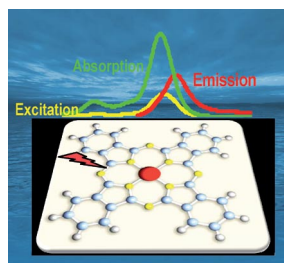
CONTENTS

Phthalocyanines

İ. Gürol, M. Durmuş,
V. Ahsen* 1220–1230

Photophysical and Photochemical Properties of Fluorinated and Nonfluorinated *n*-Propanol-Substituted Zinc Phthalocyanines

Keywords: Phthalocyanines / Photodynamic therapy / Fluorinated ligands / Zinc / Photophysics / Photochemistry



The synthesis, photophysical (fluorescence quantum yields and lifetimes) and photochemical (singlet-oxygen and photodegradation quantum yields) properties of fluorinated and nonfluorinated propanol-substituted zinc(II) phthalocyanines are described for comparison.

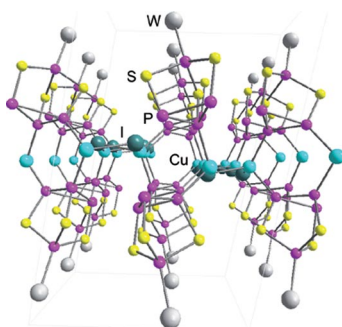
P₄S₃ Cage Coordination Chemistry

G. Balázs, A. Biegerl, C. Gröger,
J. Wachter,* R. Wehrich,
M. Zabel 1231–1237



Theoretical and Spectroscopic Investigation of Coordination Compounds from P₄S₃, Copper(I) Iodide and W(CO)₅

Keywords: Phosphorus / Sulfur / Copper / Tungsten / Coordination polymers / Density functional calculations



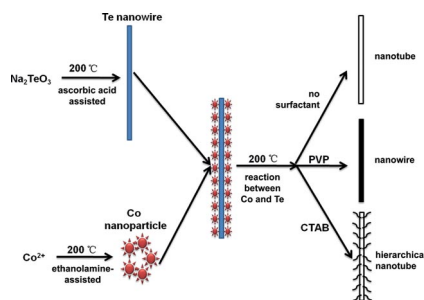
Theoretical studies of β -P₄S₃, P₄S₃·W(CO)₅, 1D-(P₄S₃)(CuI) and 3D-(P₄S₃)-(CuI)₃ (**4**), which may be considered as potential building blocks of the organometallic-inorganic hybrid coordination polymer {P₄S₃·W(CO)₅}(CuI) (**3**), were carried out on the DFT level in the crystalline phase. The comparison of calculated and measured Raman vibration modes of the P₄S₃ cage allows the determination of the degree of integration of P₄S₃ within copper iodide networks of **3** and **4**.

Telluride Nanostructures

L. Jiang, Y.-J. Zhu* 1238–1243

A General Solvothermal Route to the Synthesis of CoTe, Ag₂Te/Ag, and CdTe Nanostructures with Varied Morphologies

Keywords: Cobalt / Silver / Nanostructures / Surfactants / Tellurium



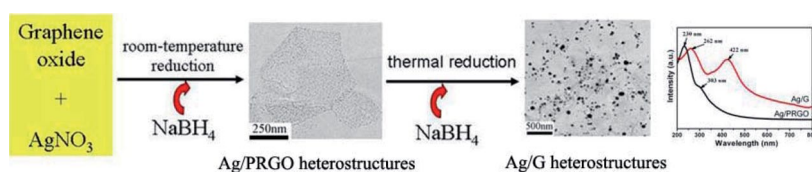
A general and facile surfactant-assisted solvothermal route was developed for the synthesis of CoTe, Ag₂Te/Ag, and CdTe nanostructures by using the corresponding metal salt, Na₂TeO₃, ascorbic acid, and polyvinyl pyrrolidone (PVP) or cetyltrimethylammonium bromide (CTAB) in mixed solvents of ethanalamine and water.

Ag/Graphene Heterostructures

J. Li, C.-y. Liu* 1244–1248

Ag/Graphene Heterostructures: Synthesis, Characterization and Optical Properties

Keywords: Nanostructures / Raman spectroscopy / Surface chemistry / Reduction / Silver / Graphene

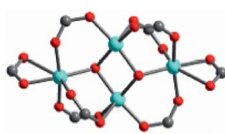


Ag/graphene heterostructures were synthesized by thermal reduction of partially reduced graphene oxide heterostructures. The surface plasmon band of Ag nanoparticles

in Ag/G is redshifted to 422 nm, which results from the change in the dielectric environment and the electron density of Ag nanoparticles induced by graphene sheets.

Copper(II) Carboxylate Clusters

The anionic basic copper(II) carboxylate clusters $[\text{Cu}_4(\mu_3\text{-OH})_2(\text{RCOO})_8]^{2-}$ are quadruply interlinked by cationic pyridinium spacers to give one-dimensional chains; the hydroxo and carboxylato bridges mediate antiferromagnetic interactions within the cluster.

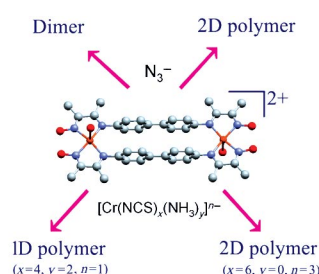


X.-M. Zhang, Y.-Q. Wang,
E.-Q. Gao* 1249–1254

Chain Compounds Based on Tetranuclear Basic Copper(II) Carboxylate Clusters and Quadruple Zwitterionic Linkers: Structures and Magnetic Properties

Keywords: Zwitterions / Copper / Magnetic properties / Coordination polymers / Carboxylate ligands

The structures and magnetic properties of coordination polymers and polynuclear complexes based on a dinuclear Cu^{II} complex possessing biphenyl bridges and N_3^- or $\text{Cr}^{\text{III}}(\text{NCS})_x(\text{NH}_3)_y^{n-}$ ($x = 6, y = 0, n = 3$; $x = 4, y = 2, n = 1$) linkers were studied.



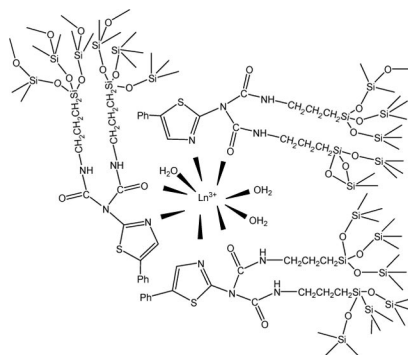
Magnetism in Coordination Polymers

S. V. Kolotilov, O. Cador, K. S. Gavrilenko,
S. Golhen, L. Ouahab,*
V. V. Pavlishchuk* 1255–1266

Assembly of Dinuclear Cu^{II} Rigid Blocks by Bridging Azido or Poly(thiocyanato)-chromates: Synthesis, Structures and Magnetic Properties of Coordination Polymers and Polynuclear Complexes

Keywords: Exchange interactions / Copper / Chromium / Coordination polymers / N,O ligands

Lanthanide luminescent organic–inorganic hybrid materials were prepared by sol–gel processing from a functional thiazole linkage. The $^5\text{D}_0$ quantum efficiency and the number of water molecules coordinated to the Eu^{3+} ion were theoretically estimated.



Organic–Inorganic Hybrid Materials

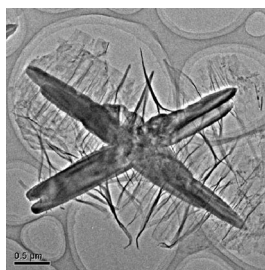
L. Guo, B. Yan* 1267–1274

Chemical-Bonding Assembly, Physical Characterization, and Photophysical Properties of Lanthanide Hybrids from a Functional Thiazole Bridge

Keywords: Organic–inorganic hybrid composites / Lanthanides / Sol-gel processes / Bridging ligands / Luminescence

Niobium Hierarchical Structure

A CaNb_2O_6 hierarchical micro/nanostructure was successfully fabricated under mild hydrothermal conditions without templates. There are nanosheets standing vertically on the surface of the microneedles in the hierarchical structure. This structural feature could lead to a good photocatalytic performance in the decomposition of RhB. A two-step nucleation–growth mechanism is proposed.



Y. Zhang, C. Liu, G. Pang,* S. Jiao,
S. Zhu, D. Wang, D. Liang,
S. Feng 1275–1282

Hydrothermal Synthesis of a CaNb_2O_6 Hierarchical Micro/Nanostructure and Its Enhanced Photocatalytic Activity

Keywords: Nanostructures / Hydrothermal synthesis / Niobium / Photocatalysis

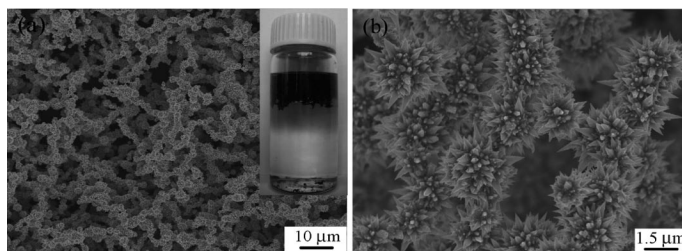
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Magnetic Ni Nanostructures

L.-P. Zhu*, G.-H. Liao, W.-D. Zhang,
Y. Yang, L.-L. Wang,
H.-Y. Xie 1283–1288

Template-Free Synthesis of Magnetic
Chains Self-Assembled from Urchin-Like
Hierarchical Ni Nanostructures

Keywords: Nanostructures / Hydrothermal
method / Ferromagnetism / Self-assembly /
Nickel



Magnetic chains self-assembled from urchin-like hierarchical Ni nanostructures have been successfully synthesized by a simple hydrothermal method. The individual urchin-like hierarchical nanostructures

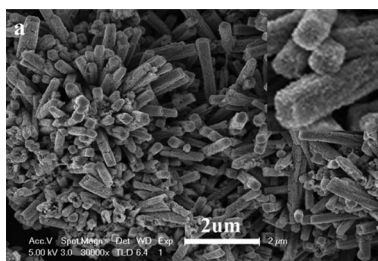
have an average diameter of 2–4 μm and are composed of well-aligned sword-like nanopetals growing radially from the surfaces of the spherical particles.

Crystal Growth

M. Zhang,* Y. Jia, G. Xu, P. Wang,
X. Wang, S. Xiong, X. Wang,
Y. Qian* 1289–1294

Mg-Assisted Autoclave Synthesis of RB_6
(R = Sm, Eu, Gd, and Tb) Submicron
Cubes and SmB_6 Submicron Rods

Keywords: Rare earths / Hexaborides /
Magnesium / Solid-state reactions / Crystal
growth



Submicron crystalline RB_6 (R = Sm, Eu, Gd, and Tb) and one-dimensional (1D) rodlike SmB_6 have been successfully prepared by a facile one-step solid-state reaction of $\text{SmCl}_3 \cdot 6\text{H}_2\text{O}$, B_2O_3 , and Mg powder in an autoclave at the relatively low temperature of 500 °C. The possible growth mechanism of 1D SmB_6 structures has been discussed.

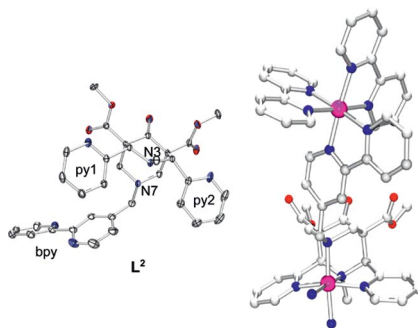
Photoactive Bispidine Ligands

C. Busche, P. Comba,* A. Mayboroda,
H. Wadepohl 1295–1302



Novel Ru^{II} Complexes with Bispidine-
Based Bridging Ligands: Luminescence
Sensing and Photocatalytic Properties

Keywords: Ruthenium / Photochemistry / N
ligands / Luminescence / Transition metals



A new type of bispidine ligands was synthesized with the aim of binding Ru^{II} ions in an appended bipyridyl binding site. The resulting dinuclear complexes are used as luminescent sensors for specific metal ions and as photoactive catalysts for aziridination reactions.

* 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 7 were published online on February 22, 2010