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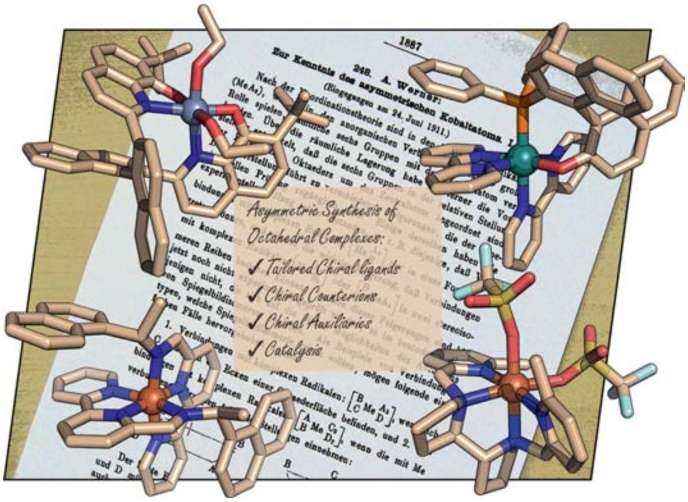
COVER PICTURE

The cover picture shows a selection of transition-metal complexes in which tailored chiral ligands or auxiliaries control the metal-centered configuration; the background highlights Alfred Werner's historical publication 100 years ago regarding the first experimental verification of metal-centered chirality in octahedral metal complexes. Nowadays, highly preorganized chiral motifs in multidentate ligands, such as the 1,1′-binaphthyl moiety of the shown bis(8-quinolinolato)chromium(III) complex (top-left corner) or the (bipyrrolidine)iron(III) complex shown in the bottom-right corner, are capable of efficiently controlling the relative and absolute stereochemistry upon metal complexation. Alternatively, aromatic face-to-face π-stacking can be exploited for the implementation of the metal-centered chirality as demonstrated by the bis(iminobipyridine)iron(II) complex displayed in the bottom-left corner. The ruthenium(II) complex on the top right is an intermediate in the auxiliary-mediated asymmetric synthesis of (polypyridyl)ruthenium complexes. Further details are presented in the Microreview by E. Meggers on p. 2911ff, which provides an overview of the asymmetric synthesis of octahedral metal complexes, ranging from the first experiments to the current state of the art. The structures of the metal complexes shown were created with PyMOL (DeLano Scientific LLC).



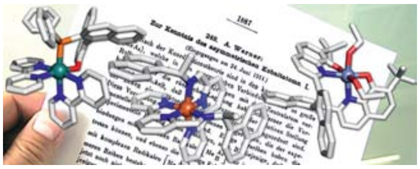
MICROREVIEW

Asymmetric Coordination Chemistry

E. Meggers* **2911–2926**

Asymmetric Synthesis of Octahedral Coordination Complexes

Keywords: Chirality / Asymmetric synthesis / Coordination modes / Octahedral complexes / Ligand design



This microreview provides an overview of the asymmetric coordination chemistry of octahedral metal complexes within the historical context, including examples from nature, the predetermination of metal-centered chirality with tailored chiral ligands, chiral-anion-mediated and chiral-auxiliary-mediated asymmetric synthesis, and a recent example of the catalytic asymmetric synthesis of an octahedral coordination complex.

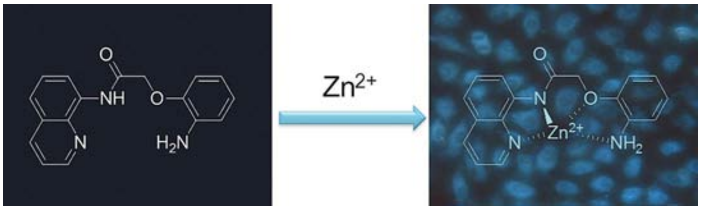
SHORT COMMUNICATION

Fluorescent Sensors

G. Xie, P. Xi, X. Wang, X. Zhao,
L. Huang, F. Chen, Y. Wu, X. Yao,
Z. Zeng* **2927–2931**

A Highly Zinc(II)-Selective Fluorescent Sensor Based on 8-Aminoquinoline and Its Application in Biological Imaging

Keywords: Sensors / Floresecent probes / Zinc / Aminoquinolines



This work demonstrates a highly zinc(II)-selective fluorescent sensor (**L1**) based on 8-aminoquinoline. Sensor **L1** exhibits high selectivity, sensitivity and a fast time response to Zn^{2+} and binds to Zn^{2+} through 1:1 binding mode in the physiological pH window in CH_3CN. The Zn^{2+}-sensing behaviour in living cells was also studied.

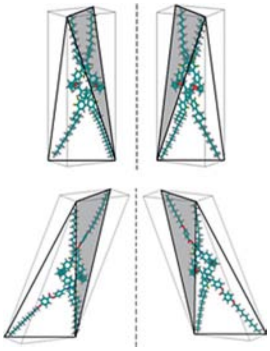
FULL PAPERS

Liquid Crystals

E. H. Kim, O. N. Kadkin,* S. Y. Kim,
M.-G. Choi* **2933–2941**

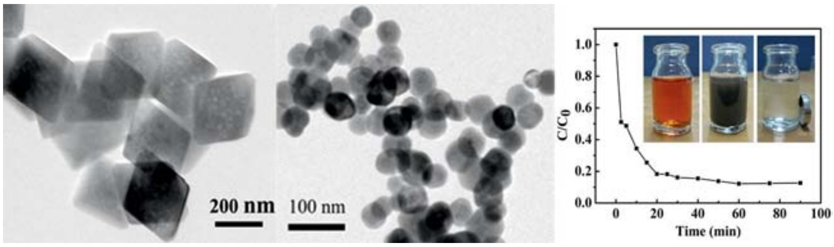
Tetrahedratic Mesophases, Ambidextrous Chiral Domains and Helical Superstructures Produced by Achiral 1,1′-Disubstituted Ferrocene Derivatives

Keywords: Liquid crystals / Mesophases / Ferrocene / Chirality / Helical structures



New types of liquid-crystal phases associated with tetrahedral symmetry, which show spontaneous ambidextrous chirality, are reported.

Magnetic Materials



Manganese ferrite nanoparticles with a narrow size distribution and high saturation magnetization were synthesized by the solvothermal method. They show a good capacity for adsorption of organic pollutants and heavy metal cations. Further application of the as-prepared nanospheres in water treatment is anticipated.

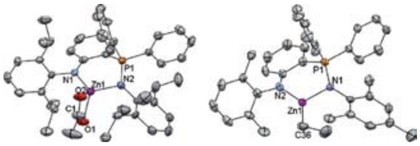
Y. Q. Wang, R. M. Cheng, Z. Wen,
L. J. Zhao* 2942–2947

Synthesis and Characterization of Single-Crystalline $MnFe_2O_4$ Ferrite Nanocrystals and Their Possible Application in Water Treatment

Keywords: Manganese / Nanostructures / Magnetic properties / Water treatment

Ring-Opening Polymerization

Zinc alkyl complexes of amido phosphinimine ligands demonstrate efficient activities as initiators for catalytic ring-opening polymerization of ε-caprolactone, whereas the corresponding acetate complex is rather inactive.



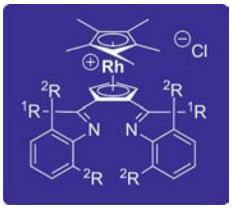
L.-C. Liang,* T.-L. Tsai, C.-W. Li,
Y.-L. Hsu, T.-Y. Lee 2948–2957

Synthesis, Structure, and Ring-Opening Polymerization Catalysis of Zinc Complexes Containing Amido Phosphinimine Ligands 💻

Keywords: Zinc / N,P ligands / Ring-opening polymerization

Rhodocenium Metalloligands

Four new families of pentamethylrhodocenium salts that bear two nitrogen or oxygen functional groups were easily accessible by the reaction of doubly functionalized pentafulvenes with potassium hydride followed by transmetalation with $[Cp^*RhCl_2]_2$. The electrochemical behaviour and structural properties of these novel metallocene metalloligands in solution and in the solid state were studied.



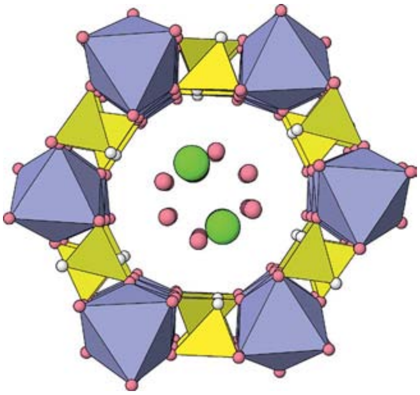
D. Eisenstecken, B. Enk, H. Kopacka,
K. Wurst, T. Müller, F. Pevny,
R. F. Winter,* B. Bildstein* ... 2958–2966

Redox-Responsive Rhodocenium [O,O]-, [N,O]-, [N,N]-, and [N,C,N]-Metalloligands 💻

Keywords: Rhodium / Metallocenes / N ligands / N,O ligands / Electrochemistry

Inorganic Open Frameworks

A new $2a \times 2a \times c$ superstructure of the zemannite inorganic framework is adopted by the isostructural $BaM_2(SeO_3)_3{\cdot}3H_2O$ (M = Co, Ni, Mn, Mg) family of phases. The superstructure may arise due to ordering of the barium ions and water molecules in one type of 12-ring channels. The zeolite nature of these phases did not reveal any ion-exchange or reversible de/rehydration properties.



M. G. Johnston,
W. T. A. Harrison* 2967–2974

New $BaM_2(SeO_3)_3{\cdot}nH_2O$ (M = Co, Ni, Mn, Mg; $n \approx 3$) Zemannite-Type Frameworks: Single-Crystal Structures of $BaCo_2(SeO_3)_3{\cdot}3H_2O$, $BaMn_2(SeO_3)_3{\cdot}3H_2O$ and $BaMg_2(SeO_3)_3{\cdot}3H_2O$

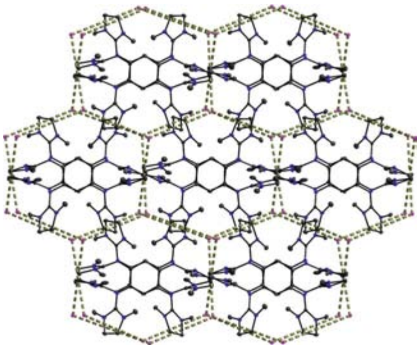
Keywords: Open frameworks / Zeolite analogues / Zemannite / Selenium / Ion exchange

Gold Acetylides

D. Emeljanenko, E. Kaifer,
H.-J. Himmel* 2975–2983

Guanidino-Functionalised Aromatic Electron Donors at Work: Competing Hydrogen- and Electron-Transfer Reactions in the Course of the Synthesis of Gold Acetylide Complexes

Keywords: Gold / Guanidine / C-H acidity / Acetylides / Electron transfer / Anions



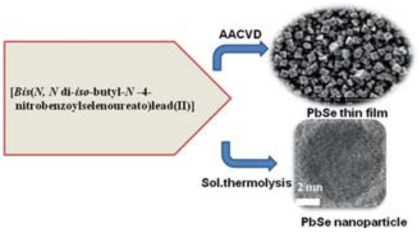
Neutral and anionic gold acetylide complexes were formed in the reaction between [AuCl(PPh_3)] and acetylenes in the presence of guanidino-functionalised aromatic electron donors.

PbSe Thin Films

J. Akhtar, M. A. Malik, S. K. Stubbs,
P. O'Brien,* M. Helliwell,
D. J. Binks 2984–2990

Morphology-Tailored Synthesis of PbSe Nanocrystals and Thin Films from Bis[*N*,*N*-diisobutyl-*N′*-(4-nitrobenzoyl)selenoureato]lead(II)

Keywords: Lead / Selenium / Nanoparticles / Thin films / Chemical vapor deposition



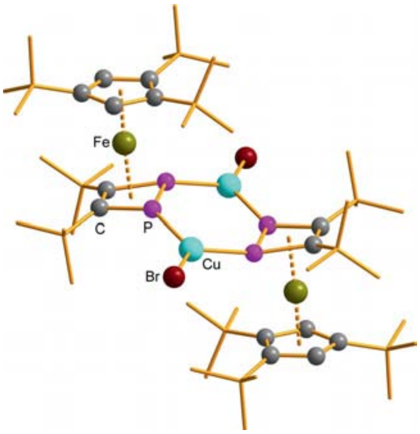
PbSe nanocrystals and thin films were deposited by using bis[*N*,*N*-diisobutyl-*N′*-(4-nitrobenzoyl)selenoureato]lead(II) as a single-source precursor. The as-deposited thin films and nanocrystals were characterized by XRD, FE-SEM, EDAX, SAED, HRTEM and a fluorescence lifetime experiment based on the time-correlated single-photon-counting (TCSPC) technique.

Triphosphaferrocenes

S. Deng, C. Schwarzmaier, M. Zabel,
J. F. Nixon, M. Bodensteiner,
E. V. Peresypkina, G. Balázs,
M. Scheer* 2991–3001

Remarkable Differences in the Coordination Chemistry of Structurally Related 1,2,4-Triphosphaferrocenes with Copper(I) Halides and Silver(I) Salts

Keywords: Supramolecular chemistry / Coordination polymers / Copper / Fragmentation reactions / Silver / Tetraphosphabutadiene ligand



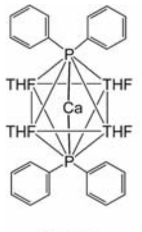
The steric congestion of the spectator Cp ring in the 1,2,4-triphosphaferrocenes [FeCp^R(η^5-$P_3C_2t Bu_2$)] (Cp^R = Cp, η^5-$C_5H_2tBu_3$) determines the reactivity pattern towards Cu^I halides. Among the formation of coordination polymers and oligomers, also the fragmentation of the $P_3C_2tBu_2$ unit, leading to interesting compounds, such as the rare 1,2-diphosphete derivative was observed.

Isomerism in Calcium Complexes

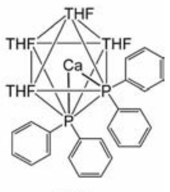
J. Langer, T. M. A. Al-Shboul,
F. M. Younis, H. Görls,
M. Westerhausen* 3002–3007

Coordination Behavior and Coligand-Dependent *cis*/*trans* Isomerism of Calcium Bis(diphenylphosphanides)

Keywords: Calcium / Strontium / Isomers / Phosphanides / Phosphinites

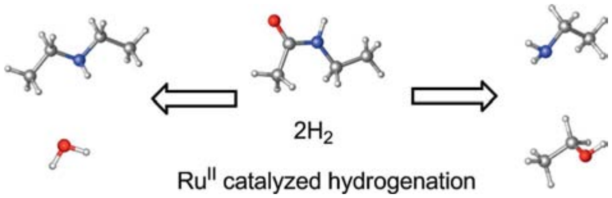


trans-**1**



cis-**1**

[(L)$_4$Ca(PPh_2)$_2$] is an effective hydrophosphanylation catalyst. To predetermine and fix a *cis* or *trans* arrangement of the phosphanide anions, the neutral coligand sphere of four Lewis base donors, such as four THF molecules or one hmteta ligand, was altered.



The hydrogenation of amides catalyzed by ruthenium complexes has been analyzed by DFT methods. Both C–N and C–O bond cleavages have been compared by means of the relative energies of the key transition structures. Aromatization/dearomatization processes on the pincer complex reported by Milstein favor the C–N cleavage and fully explain the experimental results.

D. Cantillo* **3008–3013**

Mechanistic Insights on the Ruthenium-Catalyzed Hydrogenation of Amides – C–N vs. C–O Cleavage

Keywords: Hydrogenation / Metal catalysis / Ruthenium / Pincer complexes / Density functional calculations

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* Author to whom correspondence should be addressed.

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