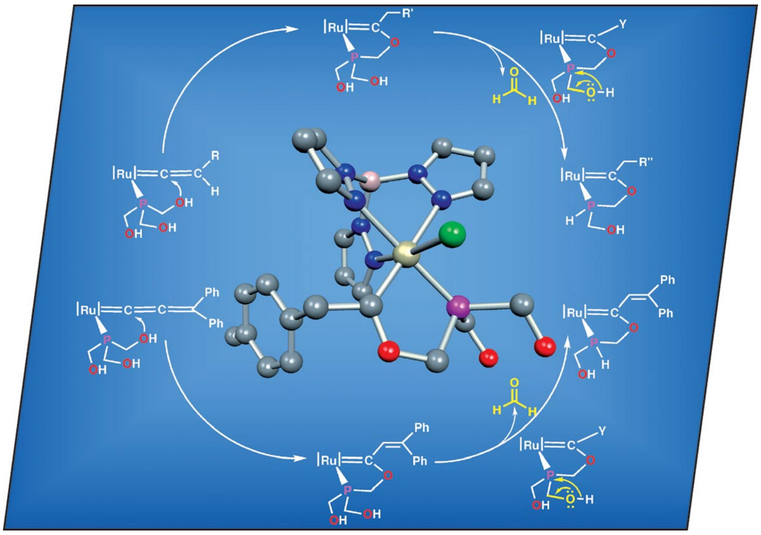
CONTENTS

COVER PICTURE

The cover picture shows the structure of a five-membered cyclic ruthenium oxaphosphacarbene complex $[TpRuCl\{\kappa^2\text{-}(C,P){=}C(CH_2R)OCH_2P(CH_2OH)_2\}]$ (R = p-C_6H_4Me). Different neutral and cationic oxaphosphacarbene complexes were obtained by reaction of $[TpRuCl(PPh_3)(thp)]$ with terminal alkynes. The proposed mechanism implies vinylidene or allenylidene intermediates that undergo intramolecular nucleophilic addition to the α-carbon atom by one of the hydroxymethyl groups of the thp ligand. Details are discussed in the article by S. Bolaño, J. Bravo et al. on p. 685ff. We thank Dr. Carlos Silva for help in designing this picture.



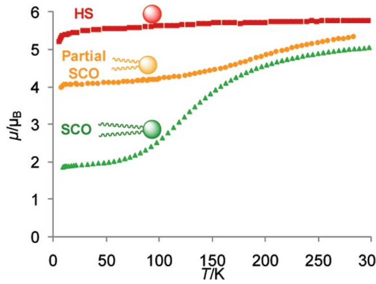
SHORT COMMUNICATIONS

Spin Crossover

P. N. Martinho, C. J. Harding,
H. Müller-Bunz, M. Albrecht,
G. G. Morgan* 675–679

Inducing Spin Crossover in Amphiphilic Iron(III) Complexes

Keywords: Amphiphiles / Spin crossover / Iron / Molecular switching / Magnetic properties



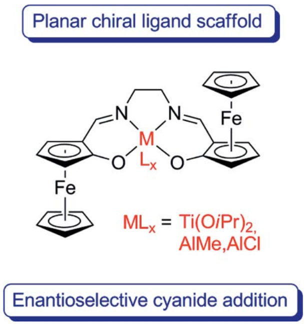
Thermal spin crossover (SCO) was induced in a high-spin Fe^{III} complex by alkylation of the ligand backbone. The SCO profile was responsive to chain length with partial crossover observed with C_6 alkylation and full transition upon lengthening to C_{12}.

Planar Chiral Salen Ligands

J. Niemeyer, G. Kehr, R. Fröhlich,
G. Erker* 680–684

Salen Ligands Revisited: Synthesis and Application of a Planar Chiral "Ferro-Salen" Ligand

Keywords: Asymmetric catalysis / Sandwich complexes / N,O ligands / Chirality / Schiff bases

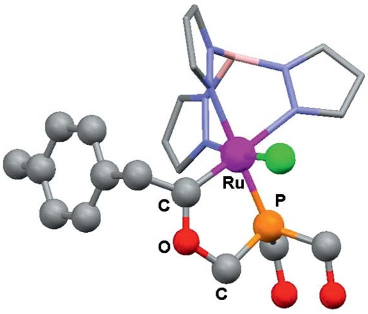


A new approach to an "old" ligand: A ferrocene analogue of the ubiquitous salen ligands was generated based on a planar chiral hydroxyferrocene unit. This new scaffold was used for the generation of the corresponding chiral Ti and Al complexes, which could successfully be applied as catalysts in the asymmetric trimethylsilylcyanation of benzaldehyde.

FULL PAPER

Ru Oxaphosphacyclic Carbenes

Cationic and neutral five-membered cyclic ruthenium oxaphosphacarbenes were obtained by intramolecular nucleophilic addition of one hydroxymethyl group of the tris(hydroxymethyl)phosphane (thp) ligand to the α-carbon atom of vinylidene or allenylidene intermediates, which were generated by reaction of [TpRuCl(PPh_3)(PTA)] with terminal alkynes and with 1,1-diphenyl-2-propyn-1-ol.



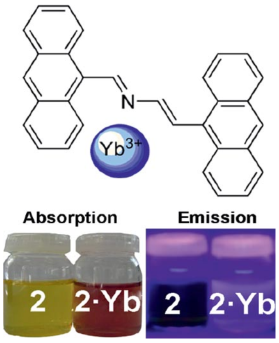
S. Bolaño,* J. Bravo,* J. Castro, M. Rodríguez-Rocha **685–696**

Formation of Oxaphosphacarbenes by Reaction of [RuTpCl(PPh_3)(thp)] with Terminal Alkynes and a Propargylic Alcohol

Keywords: Carbenes / Vinylidenes / Allenylidenes / Ruthenium / Nucleophilic addition

Ytterbium Recognition

A new 1,4-bis(9-anthryl)-2-aza-1,3-butadiene showing selective fluorescence enhancement upon binding to ytterbium cations over other lanthanide cations has been conveniently synthesized and characterized.



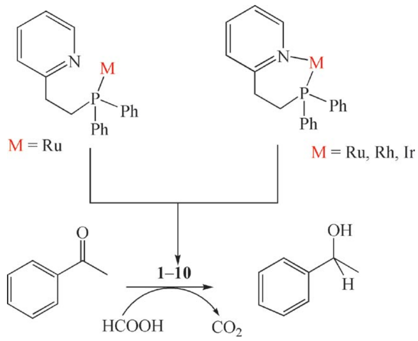
F. Zapata, A. Caballero, A. Espinosa, A. Tárraga,* P. Molina* **697–703**

A Selective Chromogenic and Fluorescent Molecular Probe for Yb^{III} Based on a Bichromophoric Azadiene

Keywords: Ytterbium / Azadienes / Ligand design / UV/Vis spectroscopy / Fluorescence

Piano-Stool Complexes

With the objective to expand the chemistry of PPh_2EtPy and to develop hydrogen-transfer catalysts containing the [(η^5-C_5H_5)-Ru-/[(η^6-arene)Ru-/[(η^5-C_5Me_5)Rh-/[(η^5-C_5Me_5)Ir-] moieties and PPh_2EtPy, some neutral and cationic Ru^{II} and Rh^{III}/Ir^{III} complexes were synthesized. The resulting complexes were used in the reduction of ketones to alcohol under aqueous and aerobic conditions.



P. Kumar, M. Yadav, A. Kumar Singh, D. Shankar Pandey* **704–715**

Synthetic, Spectral, Structural, and Catalytic Aspects of Some Piano-Stool Complexes Containing 2-(2-Diphenylphosphanylethyl)pyridine

Keywords: Ruthenium / Rhodium / Iridium / N,P ligands / Hydrogen transfer

Hierarchical Porous Nanostructures

The collaborative results of the organic surfactant effect and the microemulsion polymerization procedure lead to hierarchical hydrangea-like ZnO-CeO_2 composites with mesoporous structure, which exhibited efficient photocatalytic performance and CO oxidation activity.

T.-Y. Ma, Z.-Y. Yuan,* J.-L. Cao **716–724**

Hydrangea-Like Meso-/Macroporous ZnO-CeO_2 Binary Oxide Materials: Synthesis, Photocatalysis and CO Oxidation

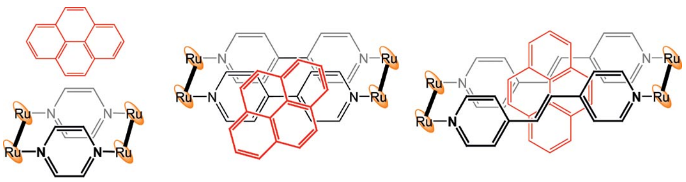
Keywords: Mesoporous materials / Zinc / Cerium / Heterogeneous catalysis / Oxidation

Host-Guest Chemistry

N. P. E. Barry, J. Furrer, J. Freudenreich, G. Süss-Fink, B. Therrien* 725–728

Designing the Host-Guest Properties of Tetranuclear Arene Ruthenium Metalla-Rectangles to Accommodate a Pyrene Molecule

Keywords: Supramolecular chemistry / Host-guest systems / Arene ligands / Ruthenium complexes



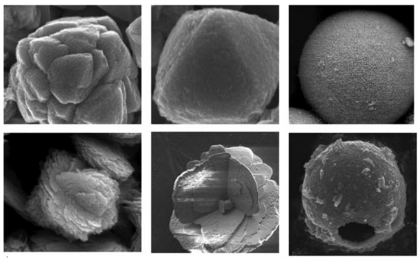
A series of cationic tetranuclear arene ruthenium complexes connected with pyrazine, 4,4′-bipyridine or 1,2-bis(4-pyridyl)ethylene *N∩N* linkers interact differently with pyrene in solution. While pyrene does not interact with the pyrazine-containing metalla-rectangle, it interacts with the 4,4′-bipyridine-containing metalla-rectangle and goes into the cavity of the 1,2-bis(4-pyridyl)ethylene system.

Nanoporous CuO Microstructures

M. Zhou,* Y. Gao, B. Wang, Z. Rozynek, J. O. Fossum 729–734

Carbonate-Assisted Hydrothermal Synthesis of Nanoporous CuO Microstructures and Their Application in Catalysis

Keywords: Nanostructures / Hydrothermal synthesis / Heterogeneous catalysis / Copper



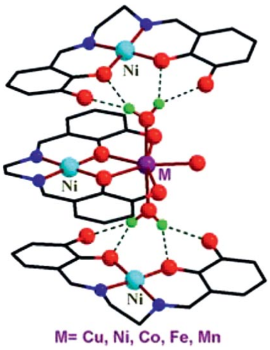
Nanoporous CuO microstructures with high surface areas and good CO catalytic activity have been synthesised by a facile carbonate-assisted hydrothermal route. The introduction of $NaHCO_3$ plays an important role in the formation of the porous structure, while the molecular weight and concentration of poly(vinylpyrrolidone) (PVP) are critical in controlling product morphology.

Self-Assembled Cocrystals

S. Sarkar, M. Nayak, M. Fleck, S. Dutta, U. Flörke, R. Koner,* S. Mohanta* 735–743

Syntheses, Crystal Structures and Mass Spectrometry of Mononuclear Ni^{II} Inclusion Product and Self-Assembled [2×1+1×2] $Ni^{II}_3M^{II}$ (M = Cu, Ni, Co, Fe or Mn) Cocrystals Derived from *N*,*N*′-Ethylenebis(3-ethoxysalicylaldimine)

Keywords: Hydrogen bonds / Self-assembly / Mass spectrometry / Inclusion compounds / Crystal engineering



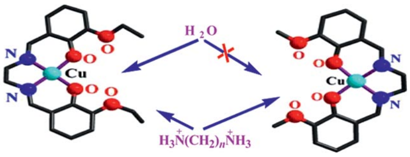
The syntheses, characterization, crystal structures and mass spectrometry of a mononuclear inclusion compound $[Ni^{II}L^1 \subseteq (H_2O)]$ and cocrystallized [2×1+1×2] $Ni^{II}_3M^{II}$ compounds $[\{Ni^{II}L^1M^{II}(H_2O)_3\}\{Ni^{II}L^1\}_2](ClO_4)_2$ (M = Cu, Ni, Co, Fe and Mn) derived from the hexadentate Schiff base compartmental ligand *N*,*N*′-ethylenebis(3-ethoxysalicylaldimine) (H_2L^1) are described.

Supramolecular Dimers of Cu Complexes

M. Nayak, S. Sarkar, P. Lemoine, S. Sasmal, R. Koner, H. A. Sparkes, J. A. K. Howard, S. Mohanta* ... 744–752

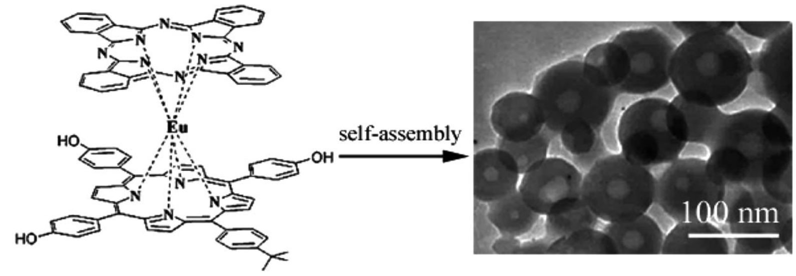
Supramolecular Dimers of Copper(II) Complexes Resulting from Designed Host–Guest Interactions

Keywords: Host–guest systems / Supramolecular chemistry / Hydrogen bonds / Copper



Syntheses, characterization and crystal structures of four designed host–guest compounds of type $[\{Cu^{II}L\}_2 \subseteq (H_3N\text{-(alkylene)}NH_3)](NO_3)_2$ [H_2L = *N*,*N*′-ethylenebis(3-alkoxysalicylaldimine)] are described.

Eu(Pc)(Por) Hollow Nanospheres



The sandwich-type mixed (phthalocyaninato)(porphyrinato)europium double-decker complex Eu(Pc)[T(OH)$_3$PP] with three hydroxy groups at the *meso*-attached phenyl substituents of the porphyrin ligand as typical hydrophilic heads was designed, synthesized, and characterized. This amphiphilic double-decker compound formed hollow nanospheres during self-assembly.

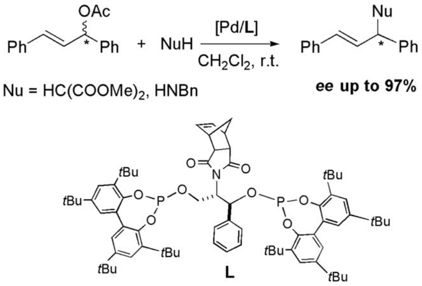
G. Lu, Z. Ou, J. Jiang,
Y. Bian* **753–757**

Nanoscale Hollow Spheres of an Amphiphilic Mixed (Phthalocyaninato)(porphyrinato)europium Double-Decker Complex

Keywords: Phthalocyanines / Porphyrinoids / Sandwich complexes / Nanostructures / Self-assembly / Rare earths

Norbornene Ligands

New N- and P-donor bidentate ligands containing a norbornene backbone are described. Their catalytic behaviour in allylic substitutions (Pd) has been evaluated, and they are shown to give excellent enantioselectivities in allylic alkylation and amination reactions. A full coordination study concerning the metallic species involved in catalysis has been carried out.



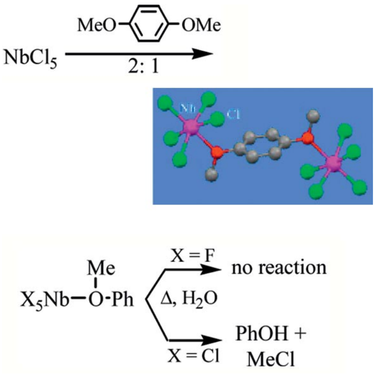
F. Fernández, A. Gual, C. Claver,
S. Castillón, G. Muller,
M. Gómez* **758–766**

Norbornene Bidentate Ligands: Coordination Chemistry and Enantioselective Catalytic Applications

Keywords: Palladium / Norbornene ligands / Enantioselectivity / N ligands / Allylic compounds

Bridging Ether Ligands

Niobium and tantalum pentahalides react with mono-, di- and trialkoxybenzenes, giving different products whose nature and thermal stabilities depend on the halogen, the relative position of the alkoxy units and the degree of substitution in the aryl rings.



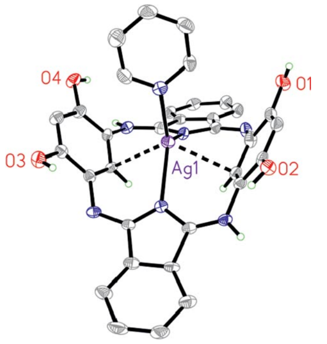
F. Marchetti, G. Pampaloni,*
S. Zacchini **767–774**

Preparation and Reactivity of Mono- and Dinuclear Derivatives of Niobium and Tantalum Pentahalides with Alkyl Aryl Ethers

Keywords: Niobium / Tantalum / Bridging ligands / Cleavage reactions / Halides

Carbahemiporphyrazines

Phthalocyanine analogues with two phenol or resorcinol groups incorporated into the macrocycle backbone can be readily generated by means of simple Schiff base condensation reactions in the presence of base. These macrocycles adopt planar conformations and can bind Ag^{I} to afford low-coordinate complexes.



N. Barone, R. Costa, S. Sripothangnok,
C. J. Ziegler* **775–780**

Dihydroxy- and Tetrahydroxydicarbahemiporphyrazine: Phthalocyanine Analogues with Phenol and Resorcinol Units

Keywords: Hemiporphyrazines / Phthalocyanines / Silver / Carbahemiporphyrazines / Agostic interactions

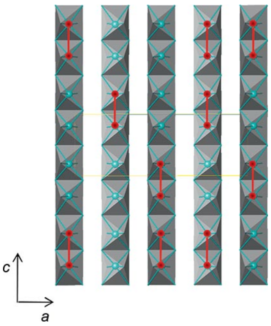
CONTENTS

Mixed Metal Oxides

**C. de la Calle,* J. A. Alonso,
M. J. Martínez-Lope, M. Retuerto,
M. García-Hernández,
M. T. Fernández-Díaz 781–789**

Ru–Ru Metal–Metal Bonding in the Chains of Edge-Sharing Octahedra of $NdMn_{1.5}Ru_{0.5}O_5$: A Neutron Powder Diffraction and Magnetic Study

Keywords: Ruthenium / Metal-metal interactions / Chain structures / Multiferroic oxides / Spin-glass behavior / Neutron diffraction



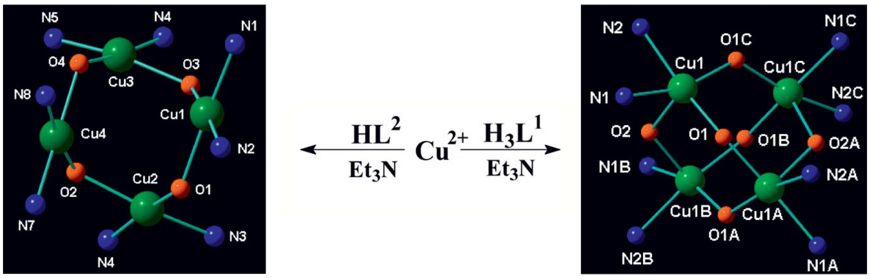
Four members of the new series $NdMn_{2-x}Ru_xO_5$ (x = 0.1, 0.2, 0.4, 0.5) have been investigated. The structures contain infinite chains of $(Mn,Ru)^{4+}O_6$ octahedra sharing edges. For x = 0.5 the abrupt contraction of the c axis and the short (Mn,Ru)-(Mn,Ru) distances (2.60 Å) suggest the presence of Ru–Ru metal bonding within the chains.

Copper Complexes

**A. Banerjee, R. Singh, P. Mondal,
E. Colacio, K. K. Rajak* 790–798**

Tetranuclear Copper(II) Complexes Bearing Cu_4O_6 and Cu_4O_4 Cores: Synthesis, Structure, Magnetic Properties, and DFT Study

Keywords: Tetranuclear complexes / Magnetic properties / Density functional calculations / Copper



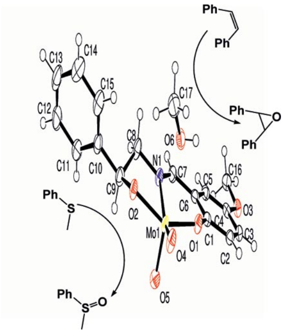
Two new tetranuclear copper(II) complexes in which the adjacent copper(II) atoms are linked by the bridging oxygen atom have been synthesized using N_4O_3 coordinating heptadentate (H_3L^1) and N_2O coordinating tridentate reduced Schiff base (HL^2) ligands. The complexes show antiferromagnetic interaction in the solid state, and the exchange interactions were examined with the help of a broken-symmetry density functional theory study.

Dioxidomolybdenum(VI) Complexes

**A. Rezaeifard,* I. Sheikhshoaie,
N. Monadi, H. Stoeckli-Evans 799–806**

Synthesis, Crystal Structure, and Catalytic Properties of Novel Dioxidomolybdenum(VI) Complexes with Tridentate Schiff Base Ligands in the Biomimetic and Highly Selective Oxygenation of Alkenes and Sulfides

Keywords: Molybdenum / Oxido ligands / Peroxides / Oxygenation / Schiff bases / Epoxidation



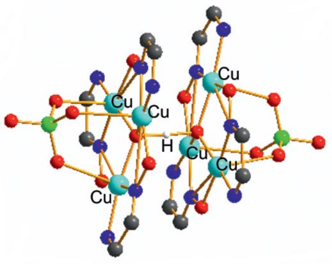
The synthesis and catalytic performance of four novel Mo^{VI} Schiff base complexes having different electronic and steric demands in the epoxidation of alkenes and sulfoxidation of thioethers have been described.

Spin-Frustrated Copper(II)

**D. Maity, P. Mukherjee, A. Ghosh,*
M. G. B. Drew, C. Diaz,
G. Mukhopadhyay* 807–813**

A Very Rare Hydrogen-Bridged Hexanuclear Cu^{II} Complex Containing a Triangular Cu_3O Core Capped by an Unusual Triply Coordinated Perchlorate Anion

Keywords: Copper / Schiff bases / Magnetic properties / Solid-state structures



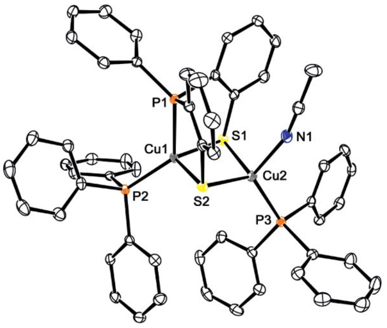
An unusual antiferromagnetically coupled hexanuclear Cu^{II} complex of an oxime-based Schiff base ligand, consisting of two triangular Cu_3O units which are held together solely by a proton shows the presence of spin frustration.

Phosphanylthiolato Metal Complexes

**P. Fernández, A. Sousa-Pedrares,
J. Romero, M. L. Durán, A. Sousa,
P. Pérez-Lourido,
J. A. García-Vázquez* .... 814−823**

Synthesis and Structural Characterization of Cobalt, Nickel and Copper Phosphanylthiolato Complexes

Keywords: Cobalt / Nickel / Copper / Electrochemical synthesis / S ligands / Phosphane ligands



Neutral cobalt, nickel and copper complexes of a series of phosphanylthiol ligands $Ph_nP(C_6H_4SH\text{-}2)_{3-n}$ ($n = 1, 2$) have been synthesized by electrochemical oxidation of the anodic metal. The presence of an additional coligand in the cell led to the synthesis of mixed complexes in one step. The crystal structures and spectroscopic properties of these compounds are reported.

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* Author to whom correspondence should be addressed.

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