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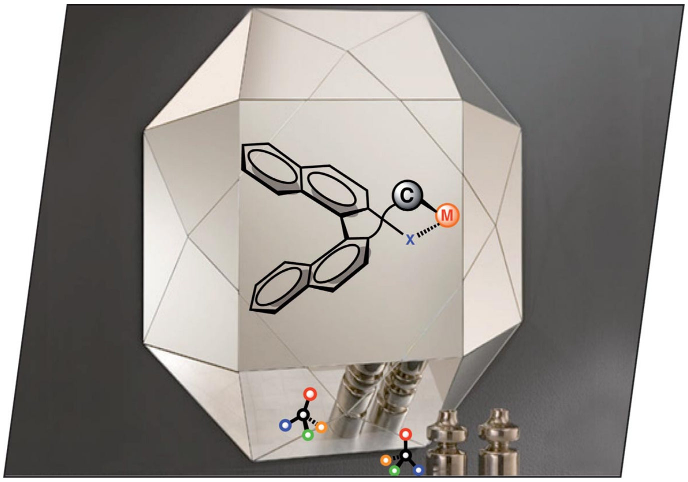
COVER PICTURE

The cover picture shows the molecular structure of an atropochiral C,X-chelating ligand with the 1,1′-binaphthyl backbone of BINAP and P,X-chelating X-MOP analogues. The primal role of the carbon element in the determination of chemical chirality is symbolized in the background by the diamond crystal mirror and in the forefront by a universal asymmetric carbon atom. The weights symbolize the added value of the natural or eutomeric configuration of such atoms in molecules of biological interest, which can be controlled by atropochiral ligands in enantioselective transition-metal-catalyzed processes. Details are presented in the Microreview by Y. Canac and R. Chauvin on p. 2325ff.



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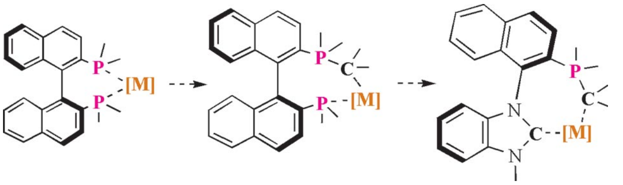
MICROREVIEW

Atropochiral Carbon Ligands

Y. Canac,* R. Chauvin* 2325–2335

Atropochiral C,X- and C,C-Chelating Carbon Ligands

Keywords: Atropisomerism / Atropochirality / Carbene ligands / N-heterocyclic carbenes / Metallacycles / Nitrogen heterocycles / Ylides / Asymmetric catalysis



Atropochiral ligands: from phosphorus to carbon coordination, perspectives in asymmetric catalysis!

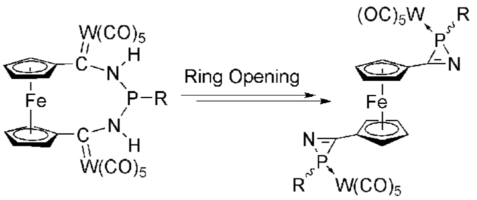
SHORT COMMUNICATION

Ferrocenophane Bis(carbene complex)

H. Helten, M. Beckmann,
G. Schnakenburg,
R. Streubel* 2337–2341

Synthesis and Reactivity of an Unusual Ferrocenophane Bis(carbene complex)

Keywords: 2*H*-Azaphosphirenes / Ferrocenophanes / Ring opening / Carbene complexes / Phosphorus heterocycles



The synthesis of a novel diaminophosphane-bridged [5]ferrocenophane bis(carbene complex) is presented, which undergoes facile ring opening under mild conditions with formation of bis(2*H*-azaphosphirene complexes) and a 2,3-dihydro-1,2,3-azadiphosphete complex.

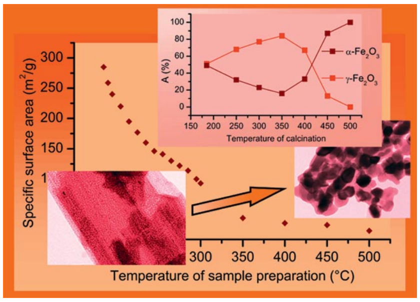
FULL PAPERS

Iron Oxide Nanocatalysts

C. Gregor, M. Hermanek, D. Jancik,
J. Pechousek, J. Filip, J. Hrbac,
R. Zboril* 2343–2351

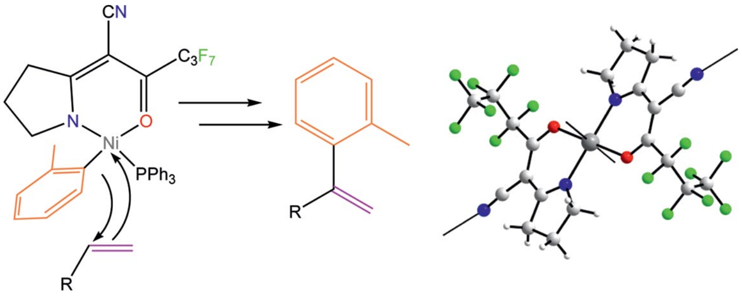
The Effect of Surface Area and Crystal Structure on the Catalytic Efficiency of Iron(III) Oxide Nanoparticles in Hydrogen Peroxide Decomposition

Keywords: Solid-state reactions / Iron / Nanoparticles / Moessbauer spectroscopy / Heterogeneous catalysis



Iron(III) oxide catalysts with varying surface areas and polymorphous compositions were tested in hydrogen peroxide decomposition. The high crystallinity of the particles and the large surface area of the samples result in extraordinary catalytic efficiency, whereas the effect of crystal structure on catalytic performance seems to be negligible.

Catalyst Deactivation



Olefins and alkynes insert into the Ni–C bond of arenido-Ni^{II} complexes bearing N,O-chelate ligands. Subsequent β-hydride elimination forms isomeric olefins and allenes. The Ni complexes are also catalysts for the copolymerisation of ethene and carbon monoxide. The reaction with olefins and alkynes is investigated and discussed as a possible catalyst deactivation pathway.

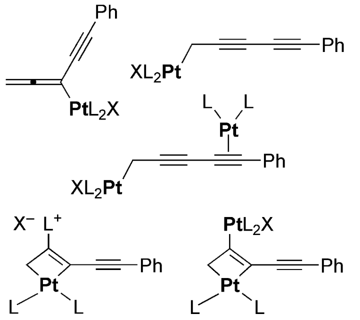
M. M. Lindner, U. Beckmann,
U. Eichberger, G. J. Reiß,
W. Kläui* 2352–2360

Catalyst Deactivation by β-Hydride Elimination: Olefin and Alkyne Insertion into Arenido–Nickel(II) Bonds

Keywords: Homogeneous catalysis / Insertion / Nickel / Alkenes / Alkynes / Hydride elimination

Mono- and Diplatinum Complexes

Various mono- or diplatinum complexes $(PPh_3)_nPt_mX(CH_2CCCCPh)$ were provided in the reactions of pentadiynyl halides $XCH_2C{\equiv}CC{\equiv}CPh$ with Pt^0 and PPh_3. The stability of these coordination modes was elucidated under various reaction conditions. Reaction of metallacyclobutene diplatinum complex with HCl gave the η^3-, η^1-allyl diplatinum complex.



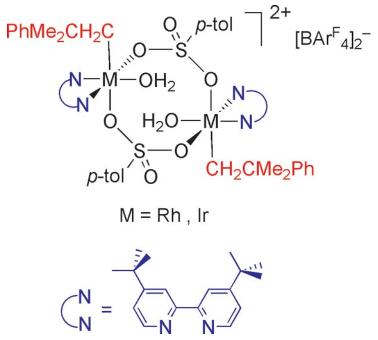
K. Tsutsumi,* H. Sakai, K. Sakonaka,
T. Yabukami, Y. Takahashi, Y. Nakagai,
T. Morimoto, K. Tabata,
K. Kakiuchi* 2361–2368

Mono- or Diplatinum Complexes Containing a π-Conjugated Pentadiynyl Ligand

Keywords: Platinum / Pentadiynyl ligands / Bimetallic compounds / Coordination modes / Solvent effects

C–H Bond Activation

The intramolecular C–H activation of $[Rh(dtbpy)(\kappa_2\text{-}C,C'\text{-}CH_2CMe_2C_6H_4)(CH_2CMe_2Ph)]$ to give a 2-*tert*-butylphenyl complex is described. The cyclometalation of 2-phenylpyridine and decarbonylation of 4-(2-pyridyl)benzaldehyde with $[Ir(dtbpy)(\kappa_2\text{-}C,C'\text{-}CH_2CMe_2C_6H_4)(C_6H_4t\text{Bu-}2)]$ is also described. The synthesis and characterization of cationic Ir and Rh dtbpy alkyl complexes and their catalytic activity in H/D exchange of thf will be reported.



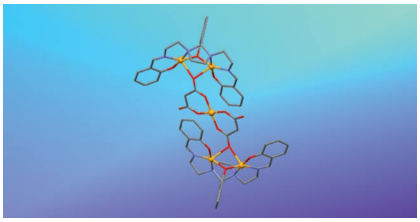
X.-Y. Yi, K.-W. Chan, E. K. Huang,
Y.-K. Sau, I. D. Williams,
W.-H. Leung* 2369–2375

C–H Activation with Iridium(III) and Rhodium(III) Alkyl Complexes Containing a 2,2′-Bipyridyl Ligand

Keywords: Iridium / Rhodium / N ligands / C–H activation

Copper Polynuclear Complexes

Cu_5 and Cu_4 ferromagnetic clusters have been constructed from Cu_2 nodes and different dicarboxylate spacers.



M. Fondo,* N. Ocampo,
A. M. García-Deibe,
J. Sanmartín 2376–2384

Ferromagnetic Tetranuclear and Pentanuclear Copper(II) Complexes Constructed from Cu_2 Blocks

Keywords: Carboxylate ligands / Copper / Cluster compounds / Magnetic properties / Schiff bases

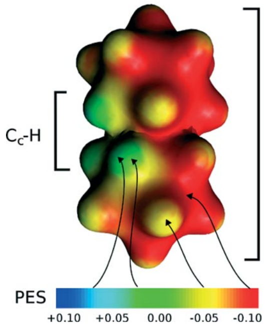
CONTENTS

H···H-Defined Rotamers

E. J. Juárez-Pérez, R. Núñez, C. Viñas, R. Sillanpää, F. Teixidor* ...... 2385−2392

The Role of C−H···H−B Interactions in Establishing Rotamer Configurations in Metallabis(dicarbollide) Systems

Keywords: Hydrogen bonds / Cluster compounds / Borane clusters / Carboranes / Sandwich complexes / Density functional calculations / QTAIM



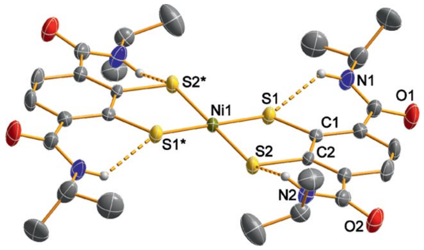
The rotamer controversy between the solid state *cisoid* and the gas phase calculated *transoid* in $[3,3'\text{-Co-}(1,2\text{-}C_2B_9H_{11})_2]^-$ has led to conclude that the anionic environment is crucial to determine the rotamer conformation and crystal packing in metallacarboranes. QTAIM has been applied to study intermolecular H···H short contacts that define the preferred rotamer. Its relation to the electron configuration of the transition metal is also studied.

Dithiolene Complexes

F. E. Hahn,* T. Eiting, W. W. Seidel, T. Pape .... 2393−2399

Hydrogen Bonding in 2,3-Dithiolatoterephthaldiamide Complexes of Cobalt(III), Nickel(II), and Iron(III)

Keywords: Dithiolenes / Hydrogen bonding / X-ray diffraction / Cobalt / Nickel / Iron



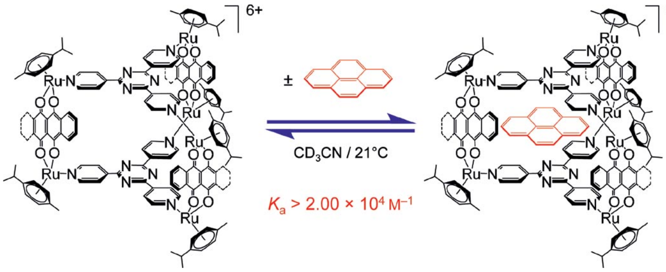
Amide substituents at benzene-*o*-dithiolato ligands significantly influence the structural and electronic characteristics of their bis(dithiolato)Co^{III}, -Ni^{II}, and -Fe^{III} complexes. In addition, the particular type of amide allows a fine-tuning of electronic properties by formation of intramolecular N−H···S hydrogen bonds.

Carceplex or Host−Guest Systems?

J. Freudenreich, N. P. E. Barry, G. Süss-Fink, B. Therrien* ..... 2400−2405

Permanent Encapsulation or Host−Guest Behavior of Aromatic Molecules in Hexanuclear Arene Ruthenium Prisms

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



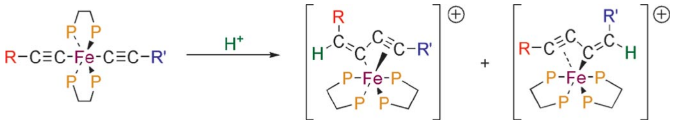
Two cationic arene ruthenium metallaprisms possessing different portal sizes are presented. In solution, they are both able to allow small aromatic molecules to enter and leave their hydrophobic cavity (host−guest behavior). However, for larger aromatic molecules permanent encapsulation (carceplex formation) is observed during the assembly of the cages in the presence of the guest molecule.

Alkyne-Iron Complexes

L. D. Field,* A. M. Magill, S. R. Pike, A. J. Turnbull, S. J. Dalgarno, P. Turner, A. C. Willis .... 2406−2414

Unsymmetrically Substituted Butenynyl-Iron(II) Complexes

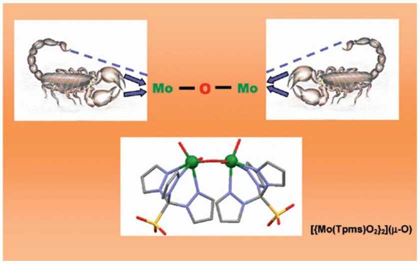
Keywords: Iron / Phosphane ligands / Enynes / Rearrangement



Butenynyl-iron(II) complexes have been prepared. Protonation of symmetrically substituted bis(acetylido) complexes resulted in the formation of a single butenyne product, however, two regioisomeric products are obtained if the starting material is unsymmetrically substituted. Several of these complexes were crystallographically characterised.

Molybdenum Scorpionate Complexes

Both low- and high-oxidation-state water-soluble Mo complexes bearing the tris(1-pyrazolyl)methanesulfonate (Tpms) ligand were prepared. High-valent dinuclear Tpms–oxo–Mo species were obtained by oxidation with air of [Mo(Tpms)(CO)$_3$] or of derived seven-coordinate halogenated and hydride species.



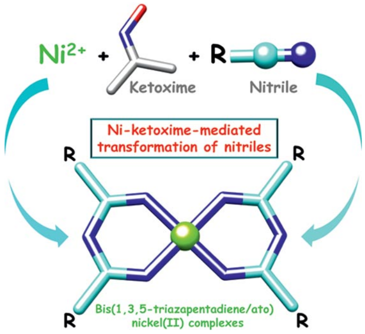
C. Dinoi, M. F. C. Guedes da Silva, E. C. B. A. Alegria, P. Smoleński, L. M. D. R. S. Martins, R. Poli, A. J. L. Pombeiro* **2415–2424**

Molybdenum Complexes Bearing the Tris(1-pyrazolyl)methanesulfonate Ligand: Synthesis, Characterization and Electrochemical Behaviour 💻

Keywords: Molybdenum / Scorpionates / Electrochemistry / Solid-state structures

Symmetrical Ni Complexes

A facile single-pot Ni-ketoxime-mediated transformation of nitriles leads to a series of symmetrical cationic and neutral bis(1,3,5-triazapentadiene/ato)nickel(II) complexes with aliphatic, heterocyclic and aromatic substituents.



M. N. Kopylovich, A. M. Kirillov, E. A. Tronova, M. Haukka, V. Yu. Kukushkin, A. J. L. Pombeiro* **2425–2432**

1,3,5-Triazapentadiene Nickel(II) Complexes Derived from a Ketoxime-Mediated Single-Pot Transformation of Nitriles

Keywords: N ligands / Nickel / Nitriles / Synthetic methods / Supramolecular chemistry

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* 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 15 were published online on May 10, 2010