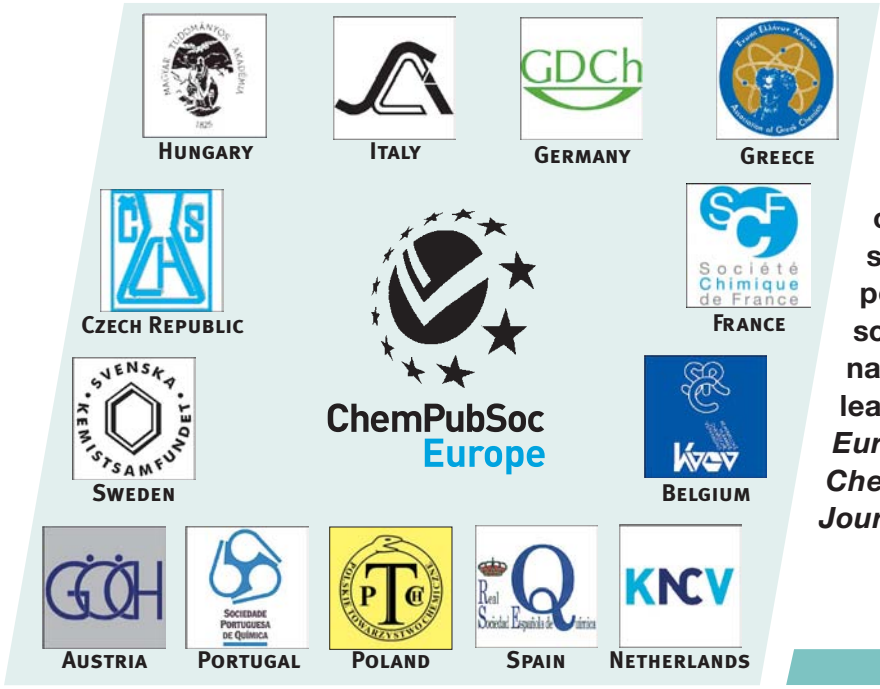
EurJIC
European Journal of Inorganic Chemistry

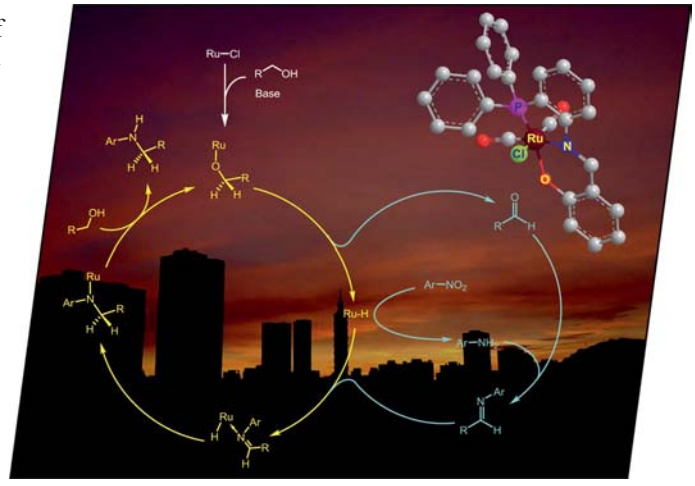


EurJIC is a journal of ChemPubSoc Europe, a union of 16 European chemical societies formed for the purpose of publishing high-quality science. All owners merged their national journals to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*.

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

COVER PICTURE

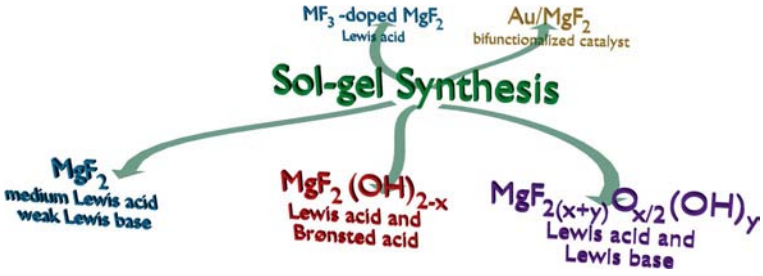
The cover picture shows the catalytic conversion of amines or nitroarenes with alcohols into useful amino compounds by [P,N,O]-Ru^{II} complexes in a one-pot reaction, which is a sustainable cycle in organic synthesis. The ruthenium(II) complexes serving as catalysts in this work were prepared by complexation of Ru^{II} precursors with various [P,N,O] ligands and were characterized by spectroscopic methods and X-ray crystallography. These investigations provided some insight into ligand effects on the metal ions. Details are discussed in the article by C.-C. Lee et al. on p. 4801ff.



CONTENTS

MICROREVIEW

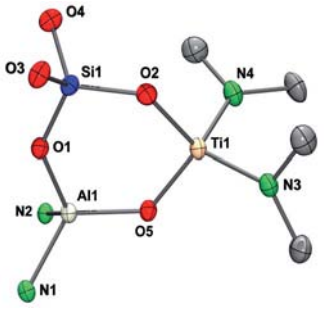
Magnesium Fluoride Catalysts



Nanosized metal fluorides prepared by the fluorolytic sol–gel method represent an exciting new class of high-surface-area solid acid–base catalysts. A combination of fluorolytic and hydrolytic sol–gel synthesis provides access to metal hydroxide fluorides or metal oxide fluorides.

SHORT COMMUNICATION

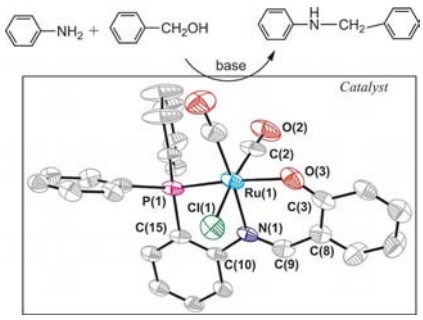
Molecular Alumosilicates



Unprecedented molecular heterobimetallic alumosilicates with inorganic cores O–Al–O–Si–O–M or $(O–Al–O–Si–O)_2M$ (M = Ti, Zr, Hf) have been prepared by reaction of the molecular alumosilicate $LAl(OH)(\mu\text{-}O)Si(OH)(O\textit{t}Bu)_2$ (L = $[HC\{(Me)N(Ar)\}_2]^-$, Ar = 2,6-iPr$_2$C$_6$H$_3$) with group 4 metal amides in different ratios.

FULL PAPERS

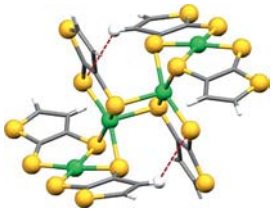
Tridentate P,N,O Ligands



Ruthenium complexes containing P,N,O ligands have been synthesized and characterized. These Ru^{II} species appear to be good catalysts for the reductive amination of amines or nitrobenzene with alcohols.

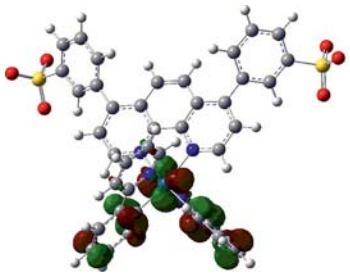
Molecular Magnetism

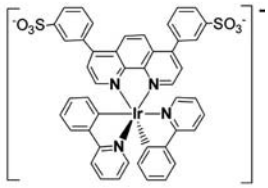
$[K(15\text{-crown-}5)_2]_2[Ni_4(\alpha\text{-tpdt})_6]$ was prepared by oxidation of the dianionic $[Ni(\alpha\text{-tpdt})_2]^{2-}$ complex and was characterised by X-ray crystallography. This compound constitutes an unprecedented example of an in-line mixed-valence Ni_4 dithiolene (Ni_4S_{12}) cluster.



Keywords: Nickel / Cluster compounds / Crown compounds / Magnetic properties / S ligands / Sulfur heterocycles

Luminescent Iridium Complexes

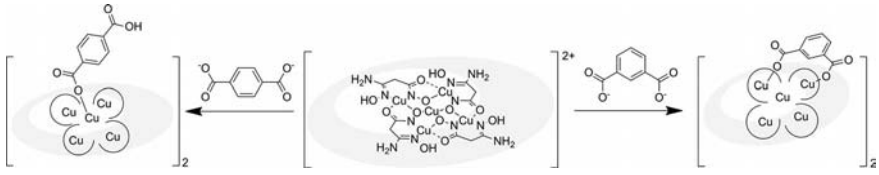




The photophysical and electrochemical properties of water- and organic solvent-soluble phenanthroline-based bis-cyclometallated iridium complexes were investigated. The luminescent and electrochemical characteristics are found to be strongly dependant on the medium, which has implications for sensing and other applications of such materials in aqueous media.

Keywords: Iridium / Electrochemistry / Luminescence / Density functional calculations

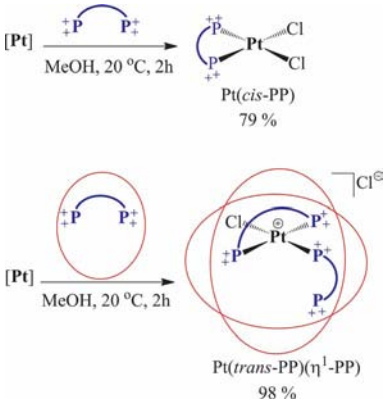
Sorption by Complexes



Three complexes were obtained starting from a pentacopper 12-metallacrown-4 and isomeric benzenedicarboxylates. The structures of the complexes determined by XRD may be considered as models of intermediates that form during the interaction of these non-rigid sorbents with alcohols.

Keywords: Metallacrown compounds / Copper / Sorption / Magnetic properties

Supramolecular Pt Capsules



Metal in the box! A new supramolecular strategy for controlling the coordination chemistry of transition metal complexes is reported, which involves the encapsulation of metal complexes by mixing functionalized calixarenes and bisphosphane ligated complexes.

Keywords: Supramolecular chemistry / Supramolecular capsules / Platinum / Calixarenes / Ionic interactions / Phosphane ligands

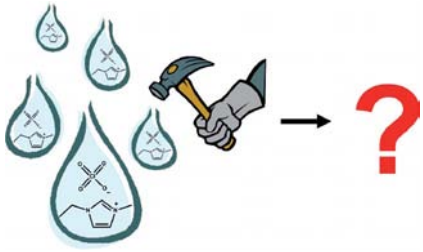
CONTENTS

Catalytic Activity

Keywords: Heterogeneous catalysis / Vanadium / Oxidation / EPR spectroscopy

Complexes [V^{IV}O(pydx-en)] (**1**), [V^{IV}O-(pydx-1,3-pn)] (**2**) and [V^{IV}O(pydx-1,2-pn)] (**3**) are reported as well as their encapsulation in the cavity of zeolite-Y and their catalytic activity for the oxidation of styrene, cyclohexene and methyl phenyl sulfide.

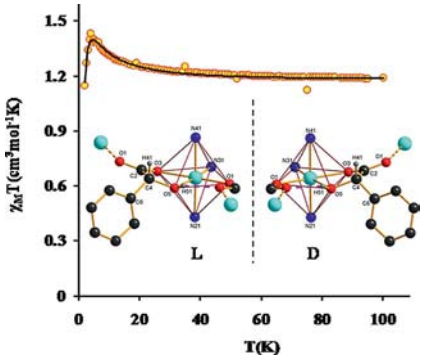
Ionic Liquids



Keywords: Ionic liquids / Metathesis / Thermal stability / Impact and friction sensitivity

Unlike the conventional synthesis procedure that uses silver perchlorate and 1-ethyl-3-methylimidazolium [emim] halides, we present two alternative methods to synthesize the room-temperature ionic liquid [emim][ClO_4]. We additionally determined some physicochemical parameters and tested its thermal stability and impact and friction sensitivity.

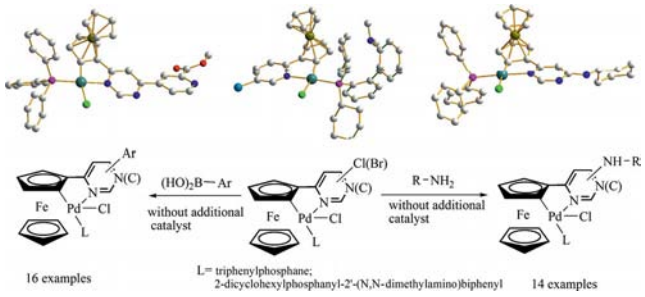
Chiral Coordination Polymers



Keywords: Crystal engineering / Chain structures / Cobalt / Nickel / Carboxylate ligands

Four 1D chiral coordination polymers of Ni^{II} and Co^{II} with D- and L-mandelic acid (H*mand*) were structurally and magnetically characterized. Magnetic studies reveal the presence of ferromagnetic interactions along the chains.

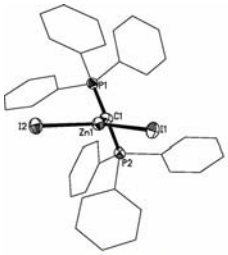
Halide-Containing Palladacycles



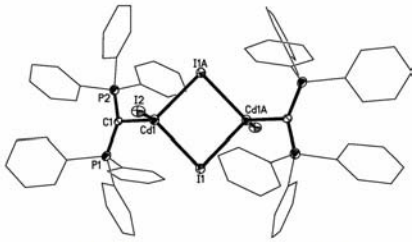
Keywords: Palladium / Sandwich complexes / Homogeneous catalysis / Amination / Halides / Palladacycles

An efficient method for the synthesis of palladacycles with polydentate ligands by a stepwise coupling route without additional catalysis is presented. The halide-containing palladacycles act as efficient catalysts and substrates in coupling reactions. 37 examples and the crystal structures of eight samples are reported.

Carbone Complexes



$I_2Zn{\leftarrow}C(PPh_3)_2$

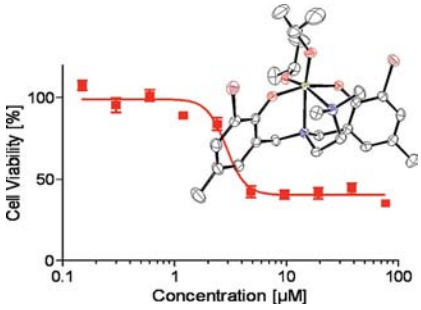


$(PPh_3)_2C{\rightarrow}CdI(\mu\text{-}I)_2ICd{\leftarrow}C(PPh_3)_2$

Keywords: Ylides / Zinc / Cadmium / Addition compounds / Carbodiphosphorane

The reaction of the $C(PPh_3)_2$ with ZnI_2 in 2-bromofluorobenzene yields the monomeric adduct $[I_2Zn(C\{PPh_3\}_2)]$, whereas with CdI_2 the dimeric complex $[I_2Cd(C\{PPh_3\}_2)]_2$ is formed. For steric reasons, the change in ionic radius from Zn^{2+} to Cd^{2+} allows dimerization only for the Cd complex. In THF or DME proton abstraction from the solvent gives rise to the salt-like compounds $(HC\{PPh_3\}_2)[(THF)MI_3]$ (M = Zn, Cd).

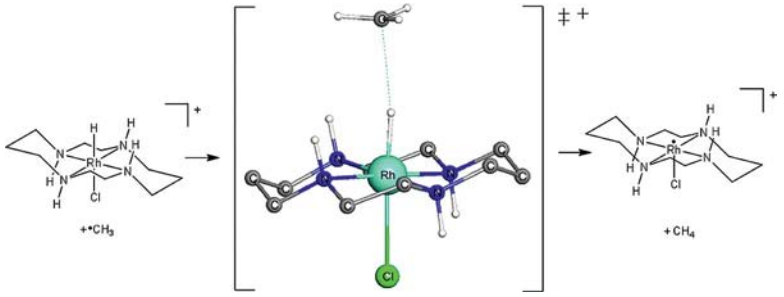
Cytotoxic Metal Complexes



Keywords: Titanium / Antitumor agents / Cytotoxicity / Phenolato ligands / Hydrolysis

The cytotoxicity and hydrolysis of Ti^{IV} complexes of branched diamine bis(phenolato) ligands are reported. Alkylated complexes exhibit poor stability presumably due to weaker binding of the side arm, with negligible cytotoxicity. In contrast, *ortho*-halogenated complexes, although hydrolytically unstable, demonstrate marked cytotoxicity.

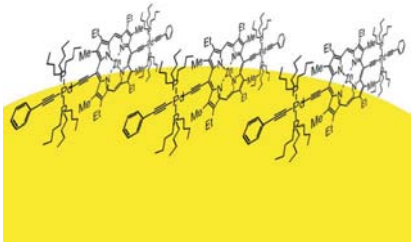
H-Abstraction Mechanism



Keywords: Kinetics / Rhodium / Radical reactions / Density functional calculations

The controversy in the reported kinetics for the hydrogen-atom abstraction reaction by methyl radicals for *cis*- and *trans*-$[(Cyclam)Rh^{III}HCl]^+$ and *trans*-$[(Cyclam)(H_2O)Rh^{III}H]^{2+}$ has been resolved by studying several feasible mechanistic pathways with density functional theory.

Porphyrin-Stabilized Au Nanoparticles



Keywords: Gold / Nanoparticles / Porphyrinoids / Palladium / NMR spectroscopy

A porphyrin-bridged Pd complex was prepared and used for the stabilization of gold nanoparticles (AuNPs). AuNPs with a mean diameter of 5 nm and plasmon resonance at 500 nm were obtained. XPS, NMR spectroscopic and elemental analyses indicate the presence of about 120 tilted porphyrin-based complexes physisorbed onto the Au core, with no evidence of covalent bonds.

* Author to whom correspondence should be addressed.

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

This article is available online free of charge (Open Access).

If not otherwise indicated in the article, papers in issue 30 were published online on October 11, 2011

