EurJIC
European Journal of Inorganic Chemistry

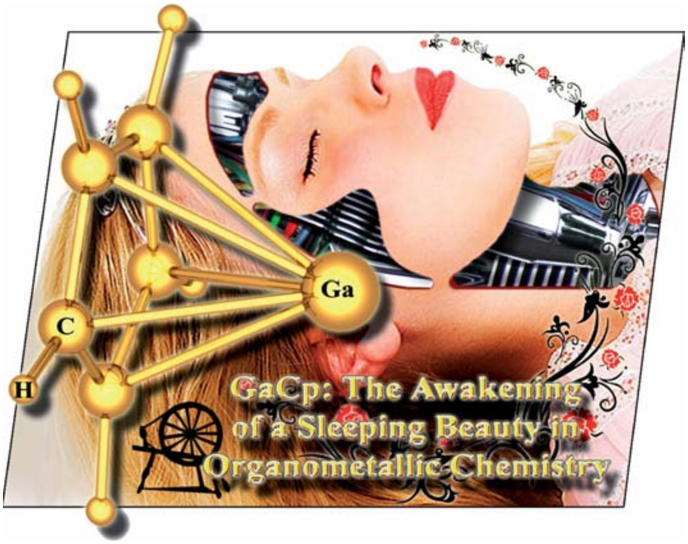
HUNGARY ITALY GERMANY GREECE
CZECH REPUBLIC
FRANCE
SWEDEN
ChemPubSoc Europe
BELGIUM
AUSTRIA PORTUGAL POLAND SPAIN NETHERLANDS

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* and *ChemCatChem.*

COVER PICTURE

The cover picture shows the molecular structure of GaCp, a sleeping beauty in organometallic chemistry. An easy synthesis of GaCp, which can be carried out with standard laboratory equipment, opens the way for GaCp to become a useful ligand in organometallic chemistry. Details of the synthesis and first structurally characterized molecular compounds exhibiting GaCp units are discussed in the Short Communication by H. Schnöckel, A. Schnepf et al. on page 3681ff.



SHORT COMMUNICATIONS

Cyclopentadienylgallium

Keywords: Cyclopentadienyl ligands / Gallium / Subvalent compounds / Main group elements / Synthesis design

An easy synthesis – that can be carried out with standard laboratory equipment – of (η^5-cyclopentadienyl)gallium (GaCp) is presented as the kiss to awake this sleeping beauty in organometallic chemistry.

Abnormal Carbenes

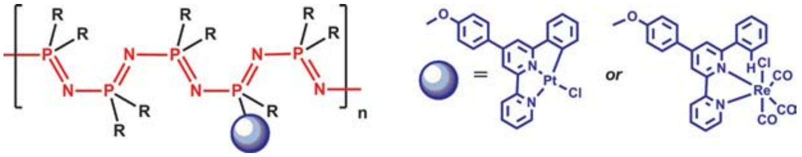
Keywords: Carbenes / Boranes / Lithium

A lithium complex of an abnormal carbene with the composition $[H_3BC\{\{N(2,6\text{-}i\mathrm{Pr}_2C_6H_3)\}_2CHCLi(THF)_3\}]$ was synthesized by the lithiation reaction of the N-heterocyclic carbene borane adduct ($\mathrm{IPr}\cdot BH_3$, IPr = $[C\{[N(2,6\text{-}i\mathrm{Pr}_2C_6H_3)]\text{-}CH\}_2]$) with *n*BuLi.

FULL PAPERS

Metallophosphazenes

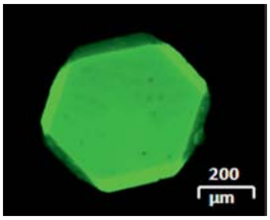
Keywords: Phosphazenes / Polymers / Rhenium / Palladium / Platinum



Cyclotriphosphazene ligands substituted with pendant 2,2′-bipyridyl moieties and related polyphosphazenes have been used to synthesise Pt^{II}, Pd^{II} and Re^{I} complexes. Spectroscopic and computational studies were conducted to compare the small-molecule complexes with the polymers and show that the cyclotriphosphazene complexes are appropriate for modelling the behaviour of polyphosphazenes.

Luminescent Coordination Polymers

Two families of coordination polymers have been obtained with the respective general chemical formulae $\{[Ln_6(aip)_7(H_2O)_{24}]\cdot 2(aip)\cdot 6H_2O\}_\infty$ in which Ln = Tm or Yb (Family 1) and $\{[Ln_2(aip)_2(H_2O)_{10}]\cdot(aip)\cdot 4H_2O\}_\infty$ in which Ln = La–Er (except Pm) or Y (Family 2). The luminescent properties under UV irradiation of compounds belonging to Family 2 have been explored.



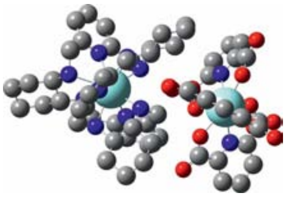
Y. Luo, G. Calvez, S. Freslon, K. Bernot, C. Daiguebonne,* O. Guillou **3705–3716**

Lanthanide Aminoisophthalate Coordination Polymers: A Promising System for Tunable Luminescent Properties

Keywords: Coordination polymers / Lanthanides / Polymers / Luminescence

Ion Pairs

Chiral cationic macrocyclic Ln^{III} complexes and anionic tris(dipicolinate) Ln^{III} complexes form hydrogen-bonded ion pairs in solution, indicated by NMR measurements and DFT calculations. In the case of (*M*) diastereomers, the ion-pair formation is accompanied by the Pfeiffer effect and the formation of supramolecular polymers comprising protonated macrocyclic cations and complex anions.



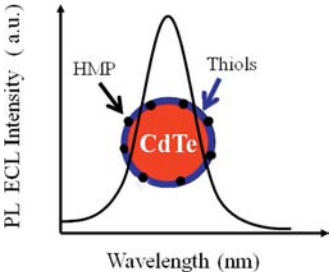
J. Gregoliński, R. Wieczorek, J. Lisowski* **3717–3725**

Formation of Chiral Heteronuclear Ln^{III} Assemblies by Ion Pair Formation

Keywords: Ion pairs / Lanthanides / Macrocyclic ligands / Supramolecular chemistry / Pfeiffer effect

Near-Infrared Nanocrystals

The dual-stabilizer-capped CdTe nanocrystals displayed efficient photoluminescence and electrochemiluminescence.



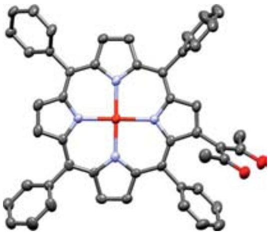
G.-d. Liang, L.-p. Shen, X.-l. Zhang, G.-z. Zou* **3726–3730**

One-Pot Synthesis of Dual-Stabilizer-Capped CdTe Nanocrystals with Efficient Near-Infrared Photoluminescence and Electrochemiluminescence

Keywords: Nanocrystals / Cadmium / Tellurium / One-pot synthesis / Near-infrared / Photoluminescence / Electrochemilumines

Porphyrin Dyes

Three porphyrins bearing a 1-acetyl-2-oxopropyl group at a β-pyrrolic position have been synthesized and their structures and photophysical and -voltaic performances in dye-sensitized solar cells have been investigated.



H. He,* M. Dubey, Y. Zhong, M. Shrestha, A. G. Sykes **3731–3738**

2-(1-Acetyl-2-oxopropyl)-5,10,15,20-tetraphenylporphyrin and Its Transition-Metal Complexes

Keywords: Porphyrinoids / Dyes / Sensitizers / Solar cells / Nanotubes / Transition metals

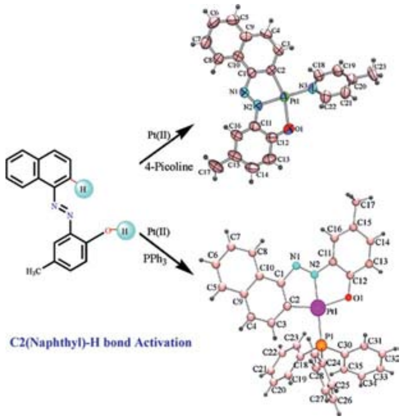
CONTENTS

C–H Activation

A. N. Biswas, P. Das, V. Bagchi,
A. Choudhury,
P. Bandyopadhyay* 3739–3748

Regiospecific C(naphthyl)–H Bond Activation by Platinum(II) – Isolation, Characterization, Reactivity and TD-DFT Study of the Cycloplatinate Complexes

Keywords: C–H activation / Cyclometallation / Platinum / Oxidation / Density functional calculations



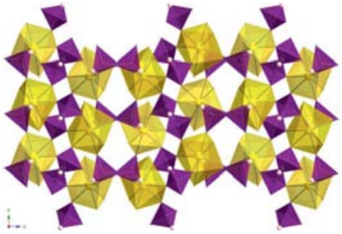
Regiospecific C(naphthyl)–H bond activation of a group of naphthylazo-2′-hydroxyarenes has been achieved with platinum(II). Oxidative reactions of the divalent cycloplatinate complexes results in the formation of air-stable Pt^{IV} complexes; both *cis*- and *trans*-oxidative addition has been realized.

Actinide Phosphites

E. M. Villa, S. Wang, E. V. Alekseev,*
W. Depmeier,
T. E. Albrecht-Schmitt* 3749–3754

Facile Routes to Th^{IV}, U^{IV}, and Np^{IV} Phosphites and Phosphates

Keywords: Radiochemistry / Actinides / Hydrothermal synthesis / Neptunium / Uranium / Thorium



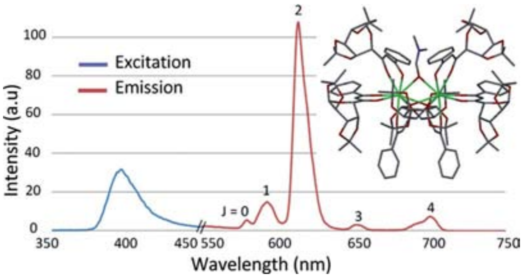
Reactions of actinides with H_3PO_3 yield a series of isotypic An^{IV} phosphites. $An^{IV}(HPO_3)_2(H_2O)_2$ (An^{IV} = Th^{IV}, U^{IV} or Np^{IV}) and $Cs[Np^{IV}(H_{1.5}PO_4)(PO_4)]_2$ were hydrothermally synthesized and subtle synthetic differences with Np yield either a phosphite or a phosphate structure. The starting pH, phosphite concentration, and solubility appear to control the crystalline products formed.

Chiral Lanthanoid Dimers

W. J. Gee, J. Hierold, J. G. MacLellan,
P. C. Andrews, D. W. Lupton,
P. C. Junk* 3755–3760

Chiral Lanthanoid Dimers Ligated by Carbohydrate-Based Diketonates: Catalytic and Luminescent Properties

Keywords: Rare earths / Lanthanoids / Asymmetric catalysis / Luminescence / Enantioselectivity / Lewis acids / Diketonates



The synthesis of a dimeric lanthanoid species ligated by chiral diketonate ligands containing a protected carbohydrate group is reported. The dimers [La (**1**), Eu (**2**)] have been characterised by several methods. Additionally, a preliminary investigation regarding the catalytic potential of these chiral species to the thio-Michael reaction has been undertaken. Both **1** and **2** show excellent activity as Lewis acid catalysts, however the transfer of steric information was only observed under poorly yielding reaction conditions.

Light-Induced Valence Tautomerism

Y. Teki,* M. Shirokoshi, S. Kanegawa,
O. Sato* 3761–3767

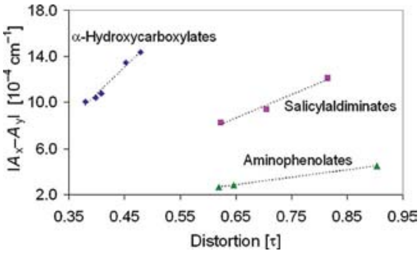
ESR Study of Light-Induced Valence Tautomerism of a Dinuclear Co Complex

Keywords: Light-induced valence tautomerism / ESR / Cobalt / Charge transfer / Glasses

Light-induced valence tautomerism (LIVT) of a dinuclear complex, $[\{Co(dpqa)\}_2(dhbq)](PF_6)_3$ (**1**), was investigated by ESR analysis of $dhbq^{3-}$. LIVT phenomena were observed in the glass matrix as well as in the powder sample. The signal decay and the relaxation, analyzed by double exponential fitting, suggest a two-step mechanism. Quantum tunneling phenomena were clearly observed in the glass matrix.

Vanadium Coordination Chemistry

The effect of trigonal bipyramidal distortion of pentacoordinate $V^{IV}O^{2+}$ species was calculated by DFT methods. The variation of the structural (bond lengths and angles), electronic (MO composition and electronic structure) and spectroscopic (^{51}V $\boldsymbol{A}$ and $\boldsymbol{g}$ tensors, λ_{max}, $\nu_{V=O}$, ^{14}N $\boldsymbol{A}$ tensor, C_Q and η) parameters as a function of the structural index of trigonality, τ, is discussed.

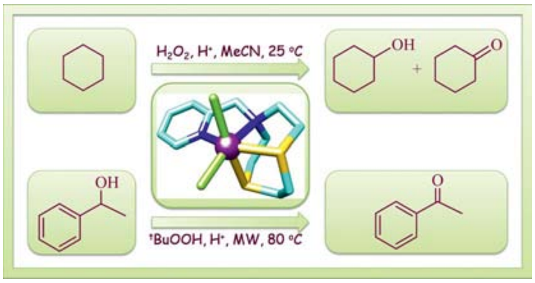


G. Micera, E. Garribba* **3768–3780**

The Effect of Trigonal Bipyramidal Distortion of Pentacoordinate $V^{IV}O^{2+}$ Species on their Structural, Electronic and Spectroscopic Parameters

Keywords: Vanadium / Structure elucidation / EPR spectroscopy / UV/Vis spectroscopy / Vibrational spectroscopy / Density functional calculations

Azathia Macrocyclic Complexes



New macrocyclic azathia N_2S_2 complexes of Fe^{II} and Cu^{II} were prepared and used as selective catalyst precursors in cyclohexane and 1-phenylethanol oxidations.

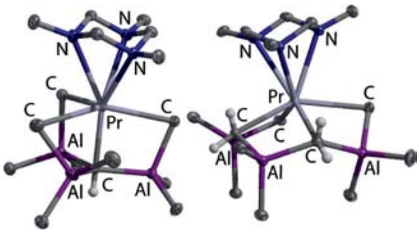
R. R. Fernandes, J. Lasri, A. M. Kirillov,
M. F. C. Guedes da Silva, J. A. L. da Silva,
J. J. R. Fraústo da Silva,
A. J. L. Pombeiro* **3781–3790**

New Fe^{II} and Cu^{II} Complexes Bearing Azathia Macrocycles – Catalyst Precursors for Mild Peroxidative Oxidation of Cyclohexane and 1-Phenylethanol

Keywords: Macrocyclic ligands / Metal complexes / Homogeneous catalysis / Oxidation / Microwave chemistry

Methylidene/Methylidyne Complexes

Size does matter: Methylidene and methylidyne units bound to aluminium and rare-earth metal atoms are formed by the combination of rare earth tetramethylaluminates $Ln(AlMe_4)_3$ (Ln = La, Pr) and 1,3,5-trialkyl-1,3,5-triazacyclohexanes (T*R*TAC) (*R* = Me, *t*Bu, *i*Pr). Subtle size effects determine the product selectivity.

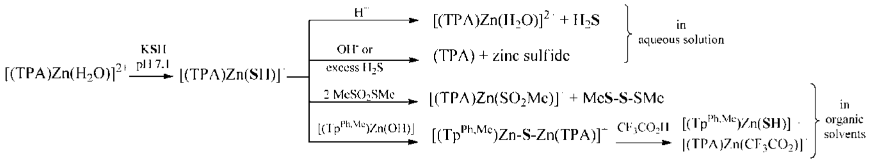


D. Bojer, B. Neumann, H.-G. Stammler,
N. W. Mitzel* **3791–3796**

Subtle Size Effects in C–H Activation Reactions of Lanthanum and Praseodymium Tetramethylaluminates by Neutral Trinitrogen Bases

Keywords: Triazacyclohexanes / C-H activation / Rare earths / Lanthanum / Praseodymium

Zinc Complexes



In regard to the growing importance of hydrogen sulfide in biology, the reactivity of the aqua complex $[(TPA)Zn(H_2O)]^{2+}$ [TPA = tris(2-pyridylmethyl)amine] towards hydrogen sulfide was studied in buffered aqueous solution by ^{1}H NMR spectroscopy. The stability and reactivity of the resulting monomeric hydrogensulfido complex $[(TPA)Zn(SH)]^+$ are discussed.

E. Galardon,* A. Tomas, P. Roussel,
I. Artaud **3797–3801**

Synthesis, Stability, and Reactivity of $[(TPA)Zn(SH)]^+$ in Aqueous and Organic Solutions

Keywords: Zinc / Sulfur / N ligands / Hydrogen sulfido ligand

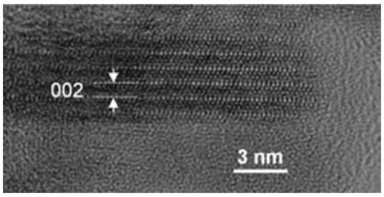
CONTENTS

Strontium Hexaferrite Nanoparticles

D. Primc,* M. Drofenik,
D. Makovec .... 3802−3809

Low-Temperature Hydrothermal Synthesis of Ultrafine Strontium Hexaferrite Nanoparticles

Keywords: Strontium / Iron / Nanoparticles / Hydrothermal synthesis / Magnetic properties



Ultrafine strontium hexaferrite ($SrFe_{12}O_{19}$) nanoparticles have been synthesized by the hydrothermal treatment of an appropriate suspension of Sr and Fe hydroxides at temperatures between 130 and 170 °C. The nanoparticles have a disc-like shape, 12 nm wide and 4 nm thick. This thinness is reflected in their unusual XRD patterns and magnetic properties.

---

* 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 24 were published online on August 4, 2011