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ChemComm

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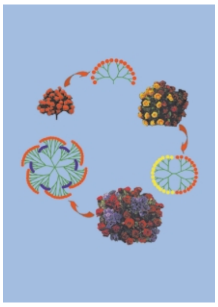


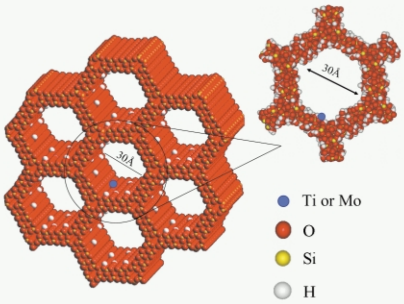
Cover
Dendrons, dendrimers and multidendritic compounds are the molecular analogues of trees and shrubs. Rose trees offer one of the most aesthetic comparisons, with roses located at the termini of the branches in the same way as the terminal functions of dendrimers.

Chemical biology articles published in this journal also appear in the *Chemical Biology Virtual Journal:* **www.rsc.org/chembiol**

contents

FOCUS ARTICLE

2921



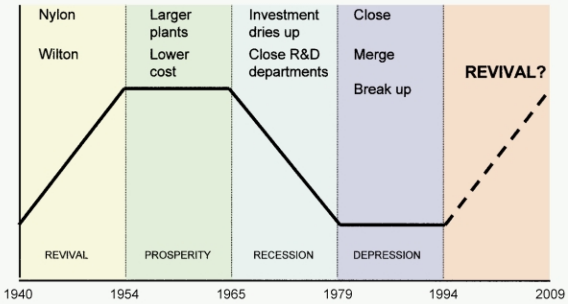
Determining the structure of active sites, transition states and intermediates in heterogeneously catalysed reactions

John Meurig Thomas, C. Richard A. Catlow and Gopinathan Sankar

In situ X-ray absorption fine-structure spectroscopy opens the door to the detailed mechanisms of the mode of action of hetereogeneous catalysts and to the design of new ones.

FOCUS ARTICLE

2926



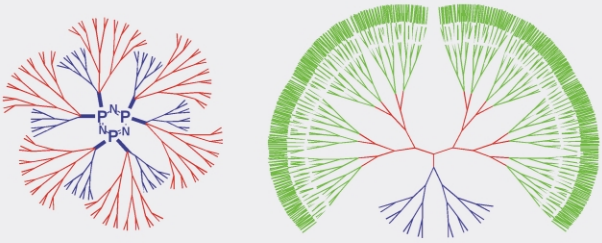
Changes in the chemical industry: the perspective of a catalyst supplier

Colin Gent

Changes in the chemical industry are discussed, in relation to industrial catalysis, outlining the underlying business cycles and the interactions between society and industry.

FEATURE ARTICLE

2929

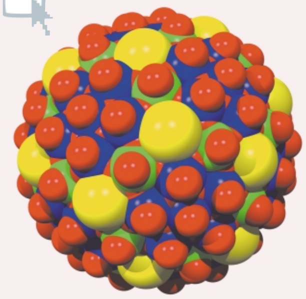


The specific contribution of phosphorus in dendrimer chemistry

Jean-Pierre Majoral,* Anne-Marie Caminade* and Valérie Maraval

The use of phosphorus as branching element gives rise to various original dendritic architectures, and brings new properties to dendrimers.

2944

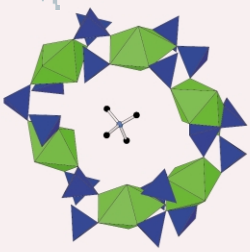


A potassium selective ‘nanosponge’ with well defined pores

Achim Müller,* Bogdan Botar, Hartmut Bögge, Paul Kögerler and Alois Berkle

Linking molybdenum oxide based pentagonal building blocks with different spacers leads to spherical anionic clusters with encapsulated water and tunable pores regarding size and electron density and therefore a different affinity to cations.

2946

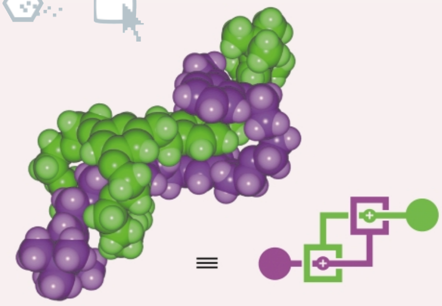


$[NC_4H_{12}]_2[(UO_2)_6(H_2O)_2(SO_4)_7]$: the first organically templated actinide sulfate with a three-dimensional framework structure

Michael Doran, Alexander J. Norquist and Dermot O’Hare*

The first organically templated actinide sulfate with a three-dimensional microporous structure is reported. $[NC_4H_{12}]_2[(UO_2)_6(H_2O)_2(SO_4)_7]$ contains one-dimensional non-intersecting channels with dimensions of 8.5 × 8.5 Å running along the *c* axis.

2948



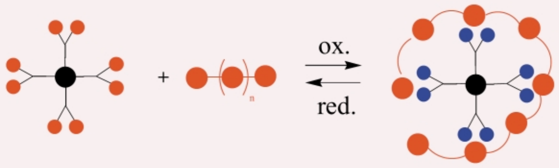
An hermaphroditic [*c*2]daisy chain

Sheng-Hsien Chiu, Stuart J. Rowan, Stuart J. Cantrill, J. Fraser Stoddart,* Andrew J. P. White and David J. Williams*

The solid-state structure of a daisy chain dimer heralds the construction of a new generation of motor-molecules.

2950

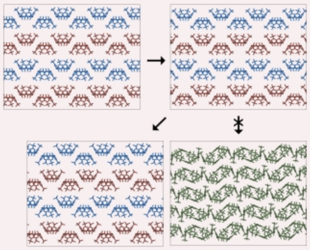
Electrochemically controlled interactions between TTF-based dendrimers and an electron-rich oligomer



Andrew Beeby, Martin R. Bryce, Christian A. Christensen, Graeme Cooke,* Florence M. A. Duclairoir and Vincent M. Rotello

Electrochemically controlled interactions have been shown to occur between TTF containing dendrimers and an electron-rich oligomer.

2952



Polymorphism of pure *p*-*tert*-butylcalix[4]arene: conclusive identification of the phase obtained by desolvation

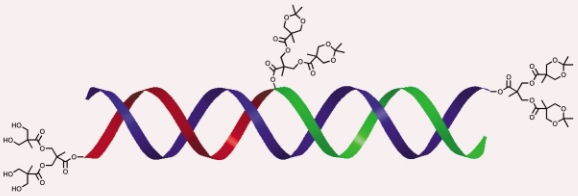
Jerry L. Atwood,* Leonard J. Barbour* and Agoston Jerga

The identity of the solid state phase of desolvated *p*-*tert*-butylcalix[4]arene is finally revealed.

2954

Self-assembled oligonucleotide-polyester dendrimers

Sarah L. Goh, Matthew B. Francis and Jean M. J. Fréchet*

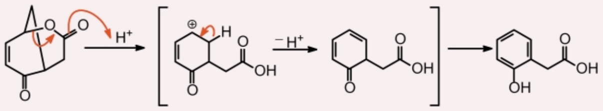


A new approach to the controlled synthesis of multicomponent dendrimers is presented, in which three oligonucleotide–dendron conjugates were synthesized using solid phase techniques and hybridized to create a second generation polyester dendrimer with DNA as a core and bearing two types of peripheral functional groups.

2956

Designing a non-volatile imaging switch for mass-persistent, chemically amplified photolithography: a model study

John M. Klopp, Nicolas Bensel, Zachary M. Fresco and Jean M. J. Fréchet*

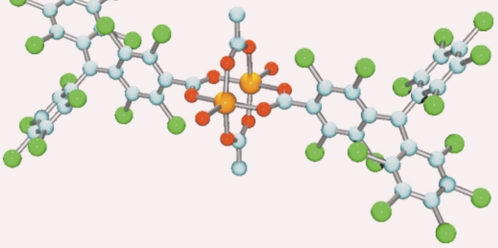


The acid-catalyzed rearrangement of a bicyclic lactone into a phenolic carboxylic acid is used to model a structure of potential use in chemically amplified photolithography where solubility changes without formation of volatile organic by-products are desired.

2958

A very bulky carboxylic perchlorotriphenylmethyl radical as a novel ligand for transition metal complexes. A new spin frustrated metal system

Daniel Maspoch, Daniel Ruiz-Molina, Klaus Wurst, Concepció Rovira* and Jaume Veciana*

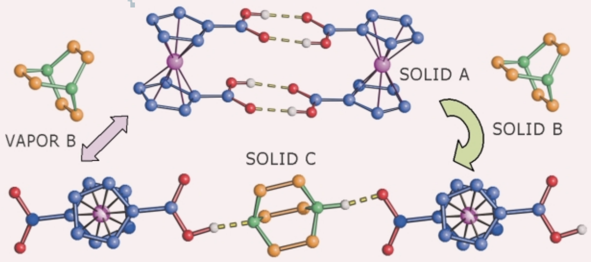


Reaction of a carboxylic perchlorotriphenylmethyl radical with $Cu_2(O_2CCH_3)_4\cdot 2H_2O$ using different molar ratios yields two different transition metal complexes with strong intramolecular antiferromagnetic interactions; for one a butterfly spin-frustrated model occurs.

2960

Mechanochemical assembly of hydrogen bonded organic–organometallic solid compounds

Dario Braga,* Lucia Maini, Marco Polito, Laurent Mirolo and Fabrizia Grepioni*

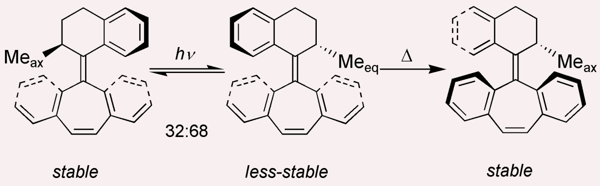


Solvent-free reactions with molecular systems have been exploited to prepare hybrid organic–organometallic solids: grinding of the complex $[Fe(\eta^5\text{-}C_5H_4COOH)_2]$ with solid bases B generates quantitatively the corresponding hydrogen bonded salts; gas–solid reactions are also possible with volatile bases.

2962

In control of the speed of rotation in molecular motors. Unexpected retardation of rotary motion

Edzard M. Geertsema, Nagatoshi Koumura, Matthijs K. J. ter Wiel, Auke Meetsma and Ben L. Feringa*



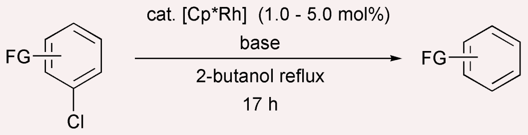
Surprisingly, a new motor with a tetrahydronaphthalene upper part rotates slower than the original molecular motor with a tetrahydrophenanthrene upper part despite decreased steric hindrance.

COMMUNICATIONS

2964

Chemoselective transfer hydrodechlorination of aryl chlorides catalyzed by Cp*Rh complexes

Ken-ichi Fujita,* Maki Owaki and Ryohei Yamaguchi*

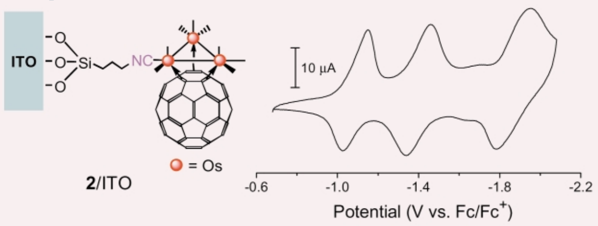


An effective Cp*Rh catalyzed transfer hydrodechlorination of aryl chlorides was achieved with high tolerance towards a variety of functional groups using 2-butanol as a hydrogen source.

2966

The first observation of four-electron reduction in [60]fullerene-metal cluster self-assembled monolayers (SAMs)

Youn-Jaung Cho, Hyunjoon Song, Kwangyeol Lee, Kyuwon Kim, Juhyoun Kwak, Sehun Kim and Joon T. Park*

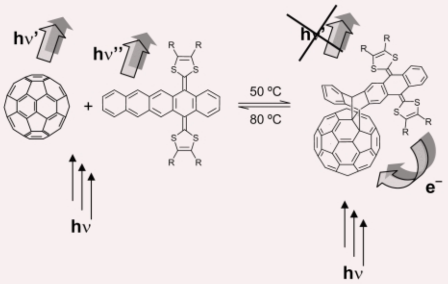


Self-assembled monolayers (SAMs) of a μ_3-$\eta^2:\eta^2:\eta^2$-C_{60} triosmium cluster complex $Os_3(CO)_8(CN(CH_2)_3Si(OEt)_3)(\mu_3\text{-}\eta^2:\eta^2:\eta^2\text{-}C_{60})$ (**2**) on ITO or Au surface exhibit ideal, well-defined electrochemical responses and remarkable electrochemical stability being reducible up to tetraanionic species in their cyclic voltammograms.

2968

Thermally reversible C_{60}-based donor–acceptor ensembles

M^a Angeles Herranz, Nazario Martín,* Jeff Ramey and Dirk M. Guldi*

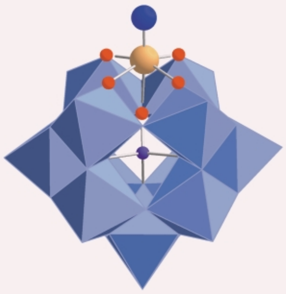


Diels–Alder cycloaddition of anthracene derivatives—bearing fused π-extended TTFs—to C_{60} yielded thermally reversible donor–acceptor materials which function as fluorescence switches.

2970

Functionalized heteropolyanions: high-valent metal nitrido fragments incorporated into a Keggin polyoxometalate structure

Haidoo Kwen, Sean Tomlinson, Eric A. Maatta,* Céline Dablemont, René Thouvenot, Anna Proust* and Pierre Gouzerh

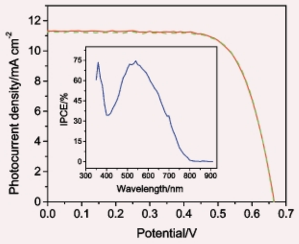


New examples of high valent transition metal nitride complexes, in which metal nitrido units are incorporated into the ‘all-inorganic’ environment of a Keggin-type polyoxometalate, are presented.

2972

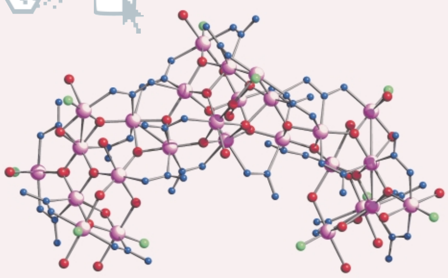
High efficiency dye-sensitized nanocrystalline solar cells based on ionic liquid polymer gel electrolyte

Peng Wang, Shaik M. Zakeeruddin,* Ivan Exnar and Michael Grätzel*



An ionic liquid polymer gel containing 1-methyl-3-propylimidazolium iodide (MPII) and poly(vinylidenefluoride-*co*-hexafluoropropylene) (PVDF–HFP) has been employed as quasi-solid-state electrolyte in dye-sensitized nanocrystalline TiO_2 solar cells with an overall conversion efficiency of 5.3% at AM 1.5 illumination.

2974

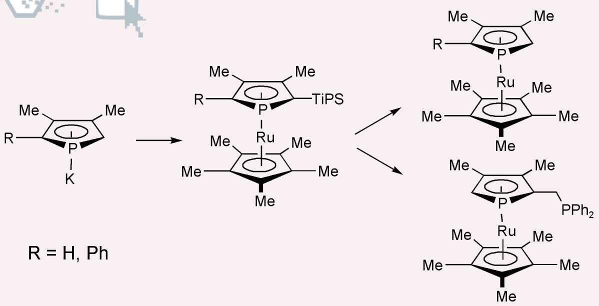


New routes to high nuclearity cages: a fluoride-based hexaicosametallic manganese cage

Leigh F. Jones, Euan K. Brechin,* David Collison,* Andrew Harrison, Simon J. Teat and Wolfgang Wernsdorfer

Reaction of MnF_3 with BTAH produces the hexaicosametallic cage {Mn26} which displays hysteresis at low temperature and temperature-independent relaxation indicative of quantum tunnelling of the magnetisation.

2976



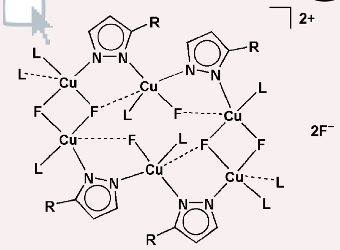
R = H, Ph

Synthesis of 2-silyl substituted phospharuthenocenes and an elaboration into the first phospharuthenocene-phosphine

Duncan Carmichael,* François Mathey,* Louis Ricard and Nicolas Seeboth

A base-induced [1,5]-silyl shift methodology provides an access to the first 2-H substituted phospharuthenocenes and a phospharuthenocene-phosphine.

2978



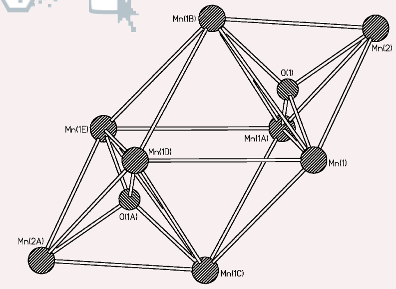
R = *tert*butyl
L = 5-*tert*butylpyrazole

A cyclic hexacopper(II) fluoro complex that encapsulates two fluoride anions

Xiaoming Liu, Abbie C. McLaughlin, Marcelo P. de Miranda, Eric J. L. McInnes, Colin A. Kilner and Malcolm A. Halcrow*

The complex $[\{Cu_3(Hpz^{tBu})_4(\mu\text{-}pz^{tBu})_2(\mu\text{-}F)_2(\mu_3\text{-}F)\}_2]F_2$ (Hpz^{tBu} = 3{5}-*tert*-butylpyrazole) has a cyclic, C_{2v}-symmetric hexacopper core. The two non-coordinated F^- anions are encapsulated within cavities formed by three Hpz^{tBu} ligands.

2980



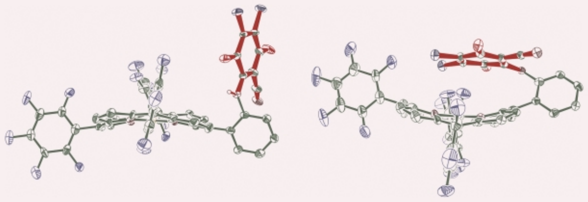
Syntheses and magnetic properties of hexanuclear $[Cp_2Mn_3(L_1)_4]_2$ and octanuclear $[Mn_8(L_2)_{12}(\mu_4\text{-}O)_2]$ (L_1 = 2-HNC_5H_5N, L_2 = 2-NH-3-Br-5-MeC_5H_3N, Cp = C_5H_5)

Carmen Soria Alvarez, Andrew D. Bond, Dale Cave, Marta E. G. Mosquera, Eilís A. Harron, Richard A. Layfield, Mary McPartlin, Jeremy M. Rawson, Paul T. Wood and Dominic S. Wright*

The magnetic properties of the novel Mn^{II} complexes $[Cp_2Mn_3(L_1)_4]_2$ (**1**) and $[Mn_8(L_2)_{12}(\mu_4\text{-}O)_2]$ (**2**) provide rare insights into the behaviour of Mn^{II} amido metal cages.

2982

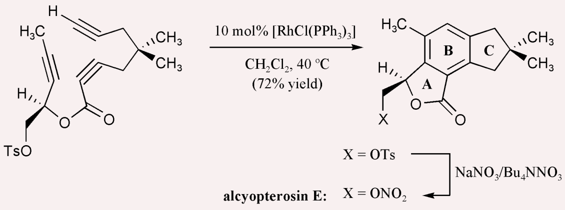
Conformational landscape surfing induced by off–on π–π stacking in a porphyrin–quinone dyad



Daniel J. Nurco, Kevin M. Smith and Jack Fajer

A porphyrin–quinone dyad crystallizes with the quinone oriented away from (off), and cofacial with the porphyrin (on). The resulting different macrocyclic conformations model the recently postulated structural effect of a nearby residue on the heme of endothelial nitric oxide synthase.

2984

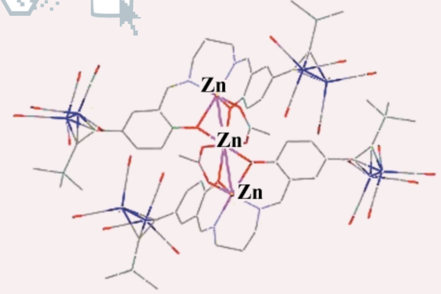


First total synthesis of the marine illudalane sesquiterpenoid alcyopterosin E

Bernhard Witulski,* Axel Zimmermann and Nicholas D. Gowans

The first synthesis of the marine illudalane sesquiterpenoid (*R*)-alcyopterosin E was accomplished through a concise ABC ring-formation strategy using a rhodium(I)-catalysed intramolecular alkyne cyclotrimerisation as key connection.

2986

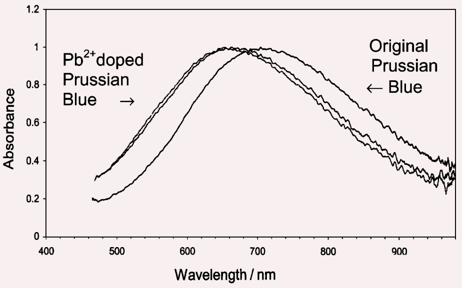


Synthesis and structure of a novel supramolecular Zn_3Co_8 assembly containing a linear Zn_3 core

Lilu Zhang, Richard A. Jones* and Vincent M. Lynch

A novel Schiff base stabilized supramolecular assembly containing a linear Zn_3 core and eight Co atoms is described.

2988

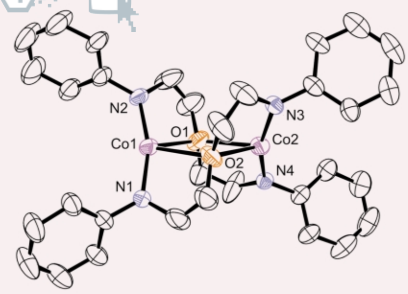


Charge-transfer band shifts in iron(III) hexacyanoferrate(II) by electro-intercalated cations *via* ground state-energy/lattice-energy link

David R. Rosseinsky,* Hanyong Lim, Xiao Zhang, Hongjin Jiang and Jian Wei Chai

"Guest cation" induced CT spectral shifts in Prussian Blue are shown to be driven (*via* its specific effect on the $Fe(CN)_6$ CT-donor entity) by the cation lattice-energy interaction, as inferred from microgravimetry of introduced alkali-metal ions, and from independent solubility correlations for other intercalated cations.

2990

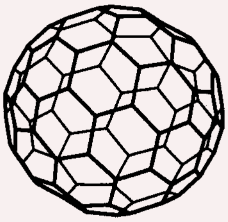


A rare ether-bridged cobalt complex which gives rise to an unusual 'serpentine' metal–ligand binding motif

Garry Mund, Andrea J. Gabert, Raymond J. Batchelor, James F. Britten and Daniel B. Leznoff*

An unusual 'serpentine' metal-ligand binding motif is found in dimeric cobalt(II) complexes coordinated by diamidoether ligands that bridge the metals through the ether donors of the ligand rather than the stronger amido groups.

2992



[92-C_2]Fullerene

Production, isolation and structural characterization of [92]fullerene isomers

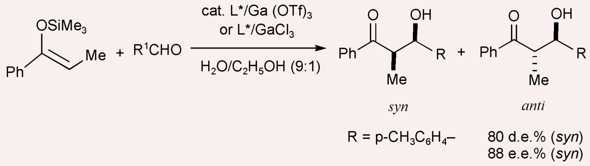
Nikos Tagmatarchis, Denis Arcon, Maurizio Prato* and Hisanori Shinohara*

A new [92-C_2]fullerene as well as a mixture of at least two other *inseparable* structural isomers of [92]fullerene produced from dysprosium arc-burned soot, separated and isolated *via* multi-stage recycling HPLC, were structurally characterized by high-resolution ^{13}C NMR measurements.

2994

Novel chiral gallium Lewis acid catalysts with semi-crown ligands for aqueous asymmetric Mukaiyama aldol reactions

Hui-Jing Li, Hong-Yu Tian, Yong-Jun Chen, Dong Wang* and Chao-Jun Li*

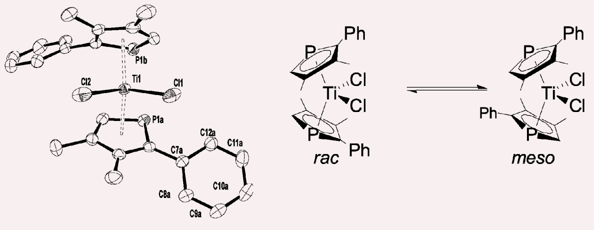


Asymmetric Mukaiyama aldol reactions in aqueous media (water–ethanol = 9 : 1) were catalyzed by chiral gallium catalysts with semi-crown ligands to give aldol products with good yields, *syn*-diastereoselectivities and enantioselectivities.

2996

The first structural characterization and determination of the isomerization activation parameters of a chiral phosphatitanocene

T. Keith Hollis,* Yi Joon Ahn and Fook S. Tham

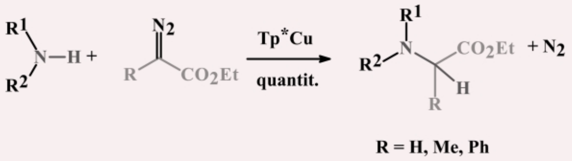


The racemic isomer crystallized preferentially leading to the determination of the molecular structure of bis(3,4-dimethyl-2-phenylphospholyl)titanium dichloride. The dynamic NMR spectral data were analyzed to determine the activation parameters for the interconversion between racemic and *meso* isomers.

2998

Catalytic insertion of diazo compounds into N–H bonds: the copper alternative

M. Esther Morilla, M. Mar Díaz-Requejo, Tomás R. Belderrain, M. Carmen Nicasio, Swiatoslaw Trofimenko and Pedro J. Pérez*

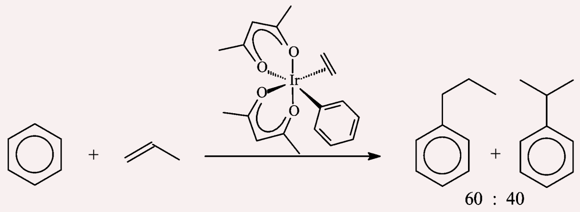


Tp^xCu complexes promote the insertion of diazo compounds into amine or amide N–H bonds in very high yield and under very mild conditions.

3000

Novel bis-acac-O,O–Ir(III) catalyst for anti-Markovnikov, hydroarylation of olefins operates by arene CH activation

Roy A. Periana,* Xiang Y. Liu and Gaurav Bhalla

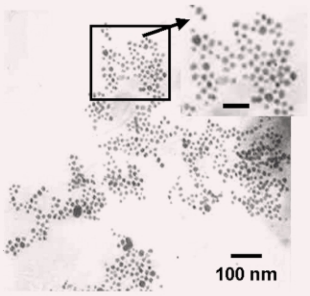


A novel, thermally stable, homogeneous Ir catalyst for the anti-Markovnikov, hydroarylation of olefins is shown to operate by arene CH activation *via* the formation of a bis-acac-O,O phenyl–Ir(III) species.

3002

A new method for the synthesis of hydrophobized, catalytically active Pt nanoparticles

Saikat Mandal, PR. Selvakannan, Debdut Roy, Raghunath V. Chaudhari and Murali Sastry*

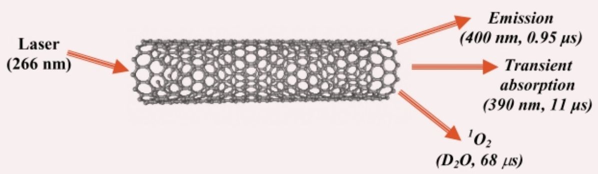


The one-step synthesis of organically dispersible and catalytically active Pt nanoparticles by the spontaneous reduction of aqueous chloroplatinate ions by hexadecylaniline molecules at a liquid–liquid interface is described.

3004

Photochemistry of single wall carbon nanotubes embedded in a mesoporous silica matrix

Mercedes Álvaro, Pedro Atienzar, José L. Bourdelande* and Hermenegildo García*

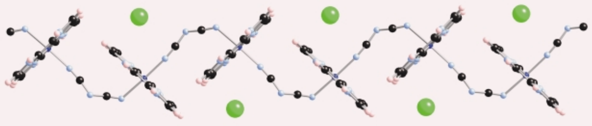


By ‘diluting’ on a porous SiO_2 support, it has been possible to record the emission, transient absorption (diffuse reflectance set up) and singlet oxygen generation ability (suspended on D_2O) of single wall nanotubes.

3006

Novel coordination of dicyanamide, $[N(CN)_2]^-$: preferential binding of the amide nitrogen

Shireen R. Marshall, Christopher D. Incarvito, William W. Shum, Arnold L. Rheingold and Joel S. Miller*

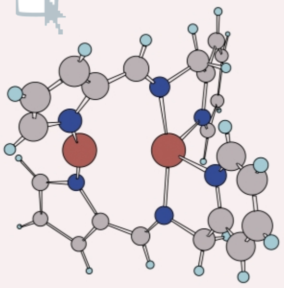


Two unusual motifs of dicyanamide bonding have been structurally characterized; namely, a terminal amide form and a bridging imide form that results in a chiral 1-D helical chain.

3008

Synthesis and structure of an asymmetric copper(I) dimer with two-coordinate and four-coordinate copper(I) sites

Yi Liao, Juan J. Novoa, Atta Arif and Joel S. Miller*

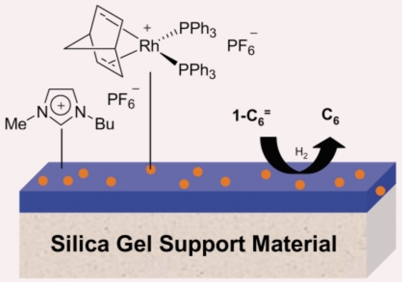


An asymmetric copper(I) dimer with both two- and four-coordinate copper(I) sites was synthesized and studied by X-ray diffraction and DFT calculations and shown to be more stable than the symmetric form.

3010

Supported ionic liquid catalysis investigated for hydrogenation reactions

Christian P. Mehnert,* Edmund J. Mozeleski and Raymond A. Cook

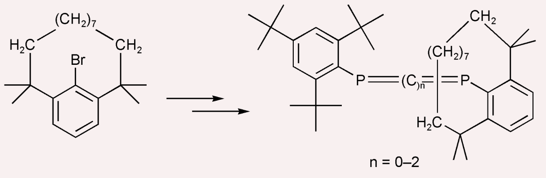


The concept of supported ionic liquid catalysis (silc) has successfully been applied to hydrogenation reactions, which significantly reduced the required amounts of ionic liquid phase and enabled the usage of fixed-bed technology.

3012

Development of a new sterically protecting auxiliary of the metacyclophane type and application to unsymmetrical diphosphenes, 1,3-diphosphaallene and 1,4-diphosphabutatriene

Kozo Toyota, Akitake Nakamura and Masaaki Yoshifuji*

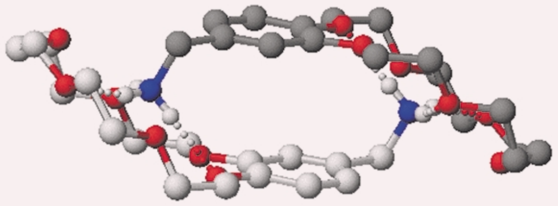


A new sterically protecting auxiliary of the metacyclophane type has been developed and applied to the preparation of an unsymmetrical diphosphene, 1,3-diphosphaallene, and 1,4-diphosphabutatriene.

3014

Stable supramolecular dimer of self-complementary benzo-18-crown-6 with a pendant protonated amino arm

Olga P. Kryatova, Sergey V. Kryatov, Richard J. Staples and Elena V. Rybak-Akimova*

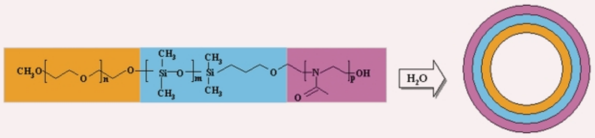


The novel 4′-(ammoniummethylene)benzo-18-crown-6 cation was synthesized as a hexafluorophosphate salt and found to exist as a cyclophane-like dimer in the solid state, gas phase and in acetonitrile solution.

3016

Vesicles with asymmetric membranes from amphiphilic ABC triblock copolymers

R. Stoenescu and W. Meier

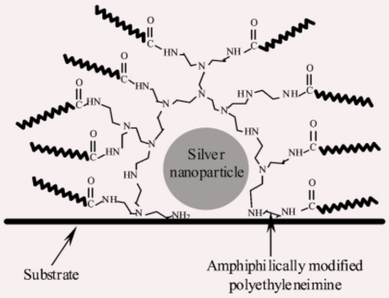


A new amphiphilic ABC triblock copolymer (poly(ethylene oxide)–poly(dimethyl siloxane)–poly(methyl oxazoline)) has been synthesized and demonstrated to form vesicular structures with asymmetric membranes in aqueous media.

3018

Hybrids of silver nanoparticles with amphiphilic hyperbranched macromolecules exhibiting antimicrobial properties

Cyril Aymonier, Ulf Schlotterbeck, Lydie Antonietti, Philipp Zacharias, Ralf Thomann, Joerg C. Tiller* and Stefan Mecking*

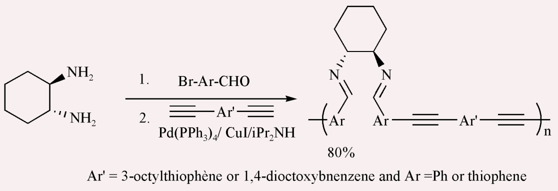


Silver nanoparticles of 1 to 2 nm in size synthesized within highly branched amphiphilically modified polyethyleneimines adhere effectively to polar substrates providing environmentally friendly antimicrobial coatings

3020

New chiral π-conjugated polymers based on a (*1R,2R*)-diiminocyclohexane chiral unit with weak interchain π stacking

Jean-Pierre Lère-Porte,* Joël J. E. Moreau, Françoise Serein-Spirau and Salem Wakim

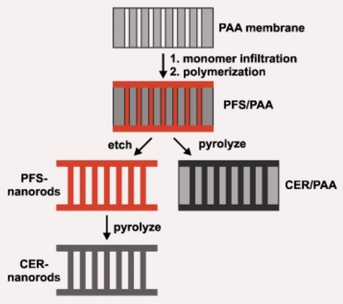


New chiral π-conjugated polymers consisting of alternating conjugated segments and (*1R,2R*)-diiminocyclohexane units with *C*2 symmetry were prepared and exhibited very high specific optical rotations, strong Cotton effects and fluorescence properties.

3022

Formation of organometallic polymer nanorods using a nanoporous alumina template and the conversion to magnetic ceramic nanorods

Madlen Ginzburg-Margau, Sébastien Fournier-Bidoz, Neil Coombs, Geoffrey A. Ozin* and Ian Manners*

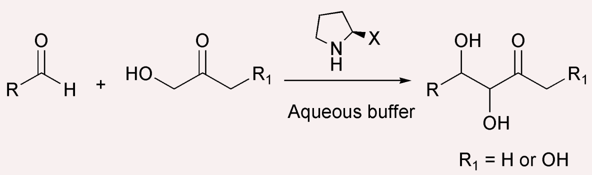


Polyferrocenylsilane nanorods were prepared using a porous anodic aluminium oxide template followed by chemical etching. Pyrolysis was used to obtain magnetic iron oxide-containing ceramic nanorods.

3024

Direct organocatalytic aldol reactions in buffered aqueous media

Armando Córdova, Wolfgang Notz and Carlos F. Barbas III*

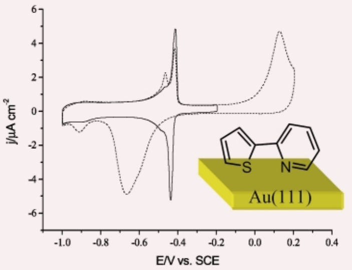


Organocatalytic cross-aldol reactions catalyzed by cyclic secondary amines in aqueous media provide a direct route to a variety of aldols including carbohydrate derivatives and may warrant consideration as a prebiotic route to sugars.

3026

Potential-controlled switching of 2-(2′-thienyl)pyridine adsorbed on Au(111)

Emily Chung, Dan Bizzotto* and Michael O. Wolf*

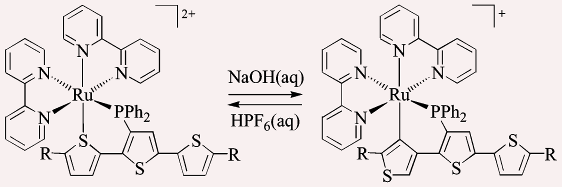


The orientation and binding of each moiety in a bifunctional molecule on a gold electrode can be separately manipulated *via* control of the potential at the metal–solution interface.

3028

Switchable thiophene coordination in Ru(II) bipyridyl phosphinoterthiophene complexes

Carolyn Moorlag, Olivier Clot, Michael O. Wolf* and Brian O. Patrick



1a R = H
2a R = Me

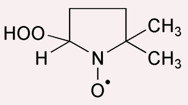
1b R = H
2b R = Me

Two coordination modes for thiophene have been observed in interconvertible Ru(II) complexes of 3′-phosphinoterthiophene *via* acid–base switching; dramatic differences in the electronic spectra and cyclic voltammetry between these two types of complexes are observed.

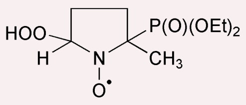
3030

Spin trapping of superoxide in the presence of β-cyclodextrins

Hakim Karoui,* Antal Rockenbauer, Sylvie Pietri and Paul Tordo



DMPO-superoxide



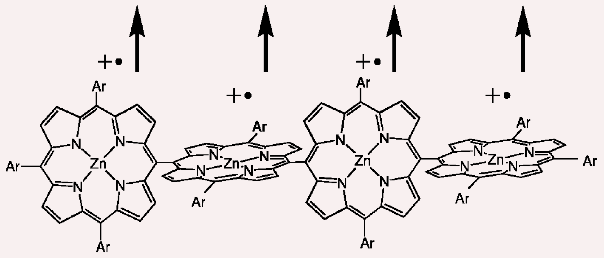
DEPMPO-superoxide

When they are generated in the presence of β-cyclodextrins the DMPO-superoxide and the DEPMPO-superoxide adducts form inclusion complexes which are long-lived ($t_{1/2}$ = 96 min for DEPMPO-superoxide) and protected towards various bioreductants.

3032

Spin alignment of orthogonal π-radicals of directly *meso*-linked porphyrin arrays

Hiroshi Segawa,* Daiki Machida, Yutaka Senshu, Jotaro Nakazaki, Kazutaka Hirakawa and Feipeng Wu

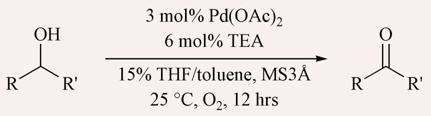


High-spin states of poly-π-radical cations of directly *meso*-linked Zn(II)porphyrin arrays were observed owing to stabilization by sterically orthogonal alignment.

3034

A convenient palladium-catalyzed aerobic oxidation of alcohols at room temperature

Mitchell J. Schultz, Candice C. Park and Matthew S. Sigman*

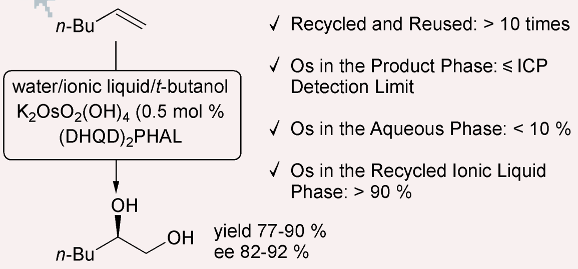


A simple Pd-catalyzed aerobic oxidation of benzylic and aliphatic alcohols to the corresponding aldehydes and ketones at room temperature is described.

3036

Catalytic asymmetric dihydroxylation of olefins using a recoverable and reusable OsO_4^{2-} in ionic liquid [bmim][PF_6]

Luís C. Branco and Carlos A. M. Afonso*



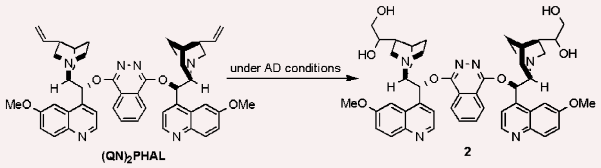
✓ Recycled and Reused: > 10 times
✓ Os in the Product Phase: ≤ ICP Detection Limit
✓ Os in the Aqueous Phase: < 10 %
✓ Os in the Recycled Ionic Liquid Phase: > 90 %

The use of the solvent systems water/ionic liquid or water/ionic liquid/*tert*-butanol provides a recoverable, reusable, robust and simple system for the asymmetric dihydroxylation of olefins.

3038

Osmium tetroxide–$(QN)_2$PHAL in an ionic liquid: a highly efficient and recyclable catalyst system for asymmetric dihydroxylation of olefins

Choong Eui Song,* Da-un Jung, Eun Joo Roh, Sang-gi Lee and Dae Yoon Chi

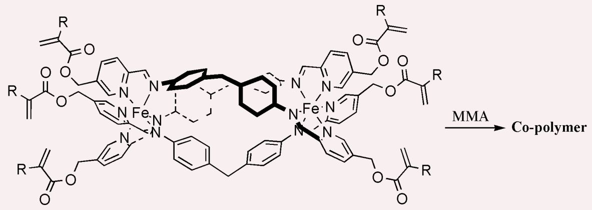


A highly efficient and recyclable catalyst system for asymmetric dihydroxylation of olefins has been made by combination of an ionic liquid, osmium tetroxide and the alkaloid **2** generated *in situ* from $(QN)_2$PHAL.

3040

Interfacing supramolecular and macromolecular chemistry: metallo-supramolecular triple-helicates incorporated into polymer networks

Arnaud Lavalette, Jacqueline Hamblin, Andrew Marsh, David M. Haddleton and Michael J. Hannon*

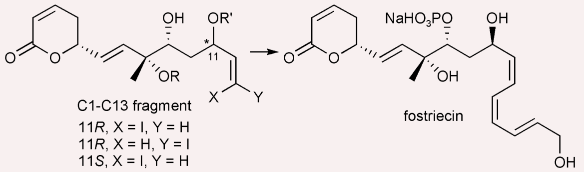


Hybrid polymer–supramolecule species are prepared: metallo-supramolecular diiron(II) triple-helical cores based on pyridylimine ligands and decorated with acrylate or methacrylate units are copolymerised with methyl methacrylate (MMA) as major comonomer using AIBN.

3042

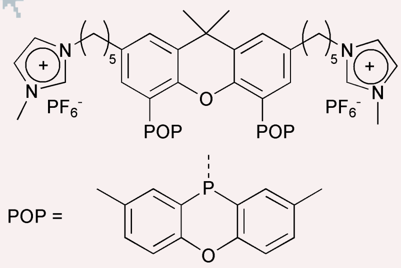
Versatile enantiocontrolled synthesis of (+)-fostriecin

Tomoyuki Esumi, Nanako Okamoto and Susumi Hatakeyama*



Fostriecin has been enantioselectively synthesized *via* a versatile route, which also allows one to secure all possible stereoisomeres of the C1–C13 fragment including the C11 stereocenter and the geometry of the Δ^{12}-double bond.

3044

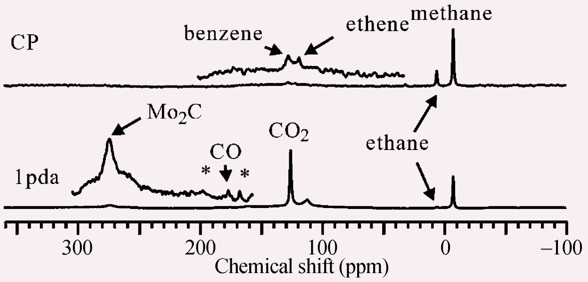


A novel dicationic phenoxaphosphino-modified Xantphos-type ligand—a unique ligand specifically designed for a high activity, selectivity and recyclability

Raymond P. J. Bronger, Silvana M. Silva, Paul C. J. Kamer and Piet W. N. M. van Leeuwen*

A novel phenoxaphosphino-modified ligand has been successfully employed in the rhodium catalysed hydroformylation of 1-octene in ionic liquids showing unprecedented high selectivity and activity without detectable catalyst leaching during recycling experiments.

3046



Solid state ^{13}C NMR studies of methane dehydroaromatization reaction on Mo/HZSM-5 and W/HZSM-5 catalysts

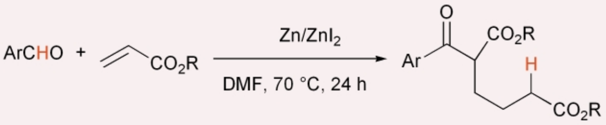
Jun Yang, Ding Ma, Feng Deng,* Qing Luo, Mingjin Zhang, Xinhe Bao and Chaohui Ye

Molybdenum carbide in channels or on the external surface of zeolite and products adsorbed on/in catalysts in the process of methane dehydroaromatization reaction on Mo/HZSM-5 were observed by solid state ^{13}C NMR spectroscopy.

3048

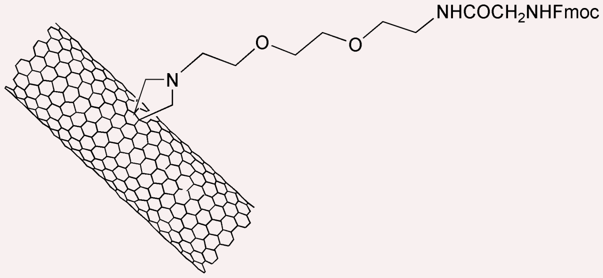
Novel Zn/ZnI$_2$-promoted cross-coupling of acrylic acid esters with arylaldehydes to α-aroyladipic acid esters

Hidehiro Sakurai, Hiroki Takeuchi and Toshikazu Hirao*



Cross-coupling of alkyl acrylates and arylaldehydes was achieved by treatment with metallic zinc and zinc(II) iodide in DMF, giving dialkyl α-aroyladipates in moderate yields.

3050

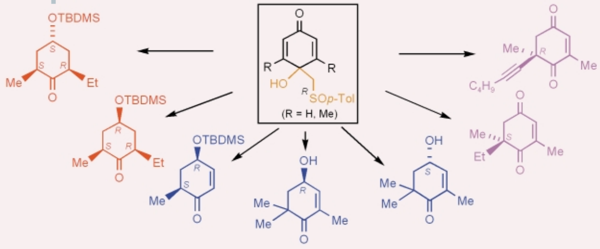


Amino acid functionalisation of water soluble carbon nanotubes

Vasilios Georgakilas, Nikos Tagmatarchis, Davide Pantarotto, Alberto Bianco,* Jean-Paul Briand and Maurizio Prato*

Water-soluble single- and multiwall carbon nanotubes have been obtained by sidewall derivatisation. The amino-terminated nanotubes can be further functionalised with α-amino acids.

3052

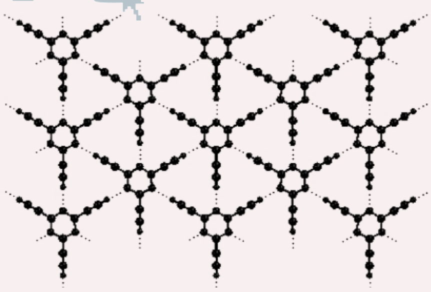


β-Hydroxysulfoxides as chiral cyclic ketone equivalents: enantioselective synthesis of polysubstituted cyclohexanones, cyclohexenones and cyclohexenediones

M. Carmen Carreño,* Manuel Pérez-González, María Ribagorda, Álvaro Somoza and Antonio Urbano

The β-hydroxysulfoxide moiety, after oxidation to sulfone, acts as a masked carbonyl group which is recovered under very mild conditions (Cs$_2$CO$_3$, rt) by elimination of MeSO$_2$*p*-Tol.

3054



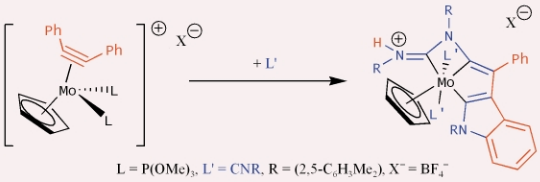
Supramolecular graphyne: a C(sp)-H···N hydrogen-bonded unique network structure of 2,4,6-triethynyl-1,3,5-triazine

Masakazu Ohkita,* Miki Kawano, Takanori Suzuki and Takashi Tsuji

The crystallization of 2,4,6-triethynyl-1,3,5-triazine leads to a π-stacked layered structure of a C–H···N hydrogen-bonded unique network structure, which may be regarded as a supramolecular analogue of a graphyne network.

3056

Ligand exchange reactions within the coordination sphere of a molybdenum η^2(4e)-alkyne complex: the formation of an indole in a cascade reaction involving an alkyne and isonitrile ligands

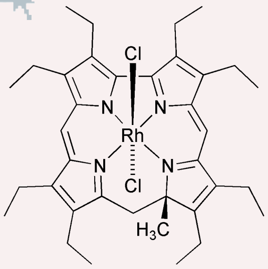


L = P(OMe)$_3$, L' = CNR, R = (2,5-$C_6H_3Me_2$), X^- = BF_4^-

John C. Jeffery, Michael Green and Jason M. Lynam*

The exchange of phosphorus-containing ligands within the coordination sphere of molybdenum alkyne complexes is shown to be facile: a similar reaction with the isonitrile CN($C_6H_3Me_2$-2,5) results in a remarkable coupling reaction between the alkyne and three isonitrile ligands to give a substituted coordinated indole.

3058

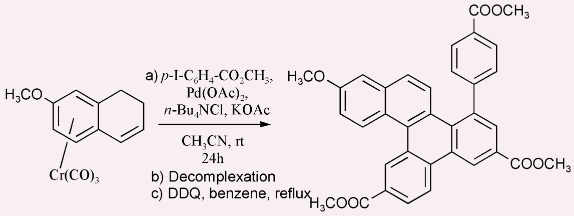


Unexpected formation and structural characterisation of a novel rhodium B_{12} analogue

Martin Bröring,* Esther Cónsul Tejero, Andreas Pfister, Carsten D. Brandt and Jesús J. Pérez Torrente*

The newly discovered oxidative macrocyclisation of 2,2′-bidipyrrins with rhodium salts produces valuable rhodalamine analogues in reasonable yield.

3060



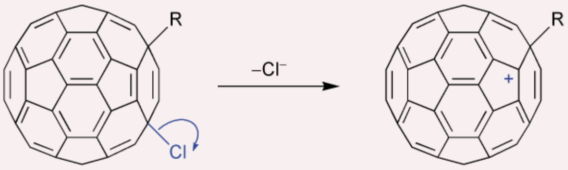
Triarylation of η^6-dihydronaphthalene-Cr(CO)$_3$ complexes

Krishna Gopal Dongol, Kouki Matsubara, Shuntaro Mataka and Thies Thiemann*

Complexation of dihydronaphthalenes with chromium tricarbonyl is sufficient for the molecules to undergo a triple arylation with concomittant ring annelation under Heck reaction conditions at room temperature. A simple three step procedure leads to highly functionalised oligo-condensed aromatic systems.

3062

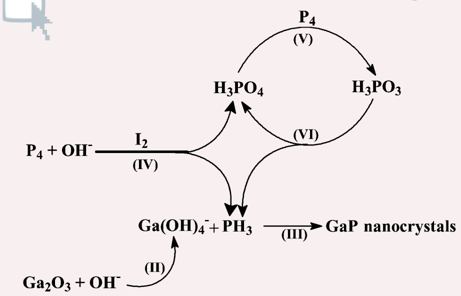
Nucleophilic substitution of alkylchlorodihydro[60]fullerenes: thermodynamic stabilities of alkylated C_{60} cation intermediates



Toshikazu Kitagawa,* Yangsoo Lee, Masaaki Hanamura, Harumi Sakamoto, Hirofumi Konno, Ken'ichi Takeuchi and Koichi Komatsu*

Thermodynamic stabilities of alkylated C_{60} cations (RC_{60}^+) were determined based on the activation free energies of S_N1 solvolysis of the title compounds, indicating that these cations have stabilities comparable to that of the *tert*-butyl cation.

3064



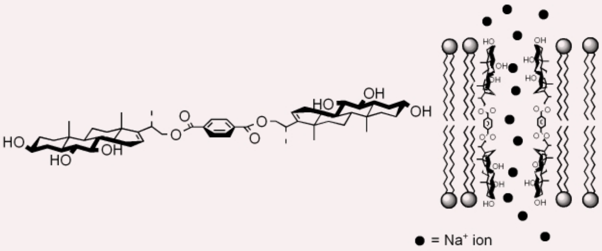
Aqueous synthesis of III–V semiconductor GaP and InP exhibiting pronounced quantum confinement

Shanmin Gao, Jun Lu, Nan Chen, Yan Zhao and Yi Xie*

The first preparation of III–V semiconductor GaP and InP nanocrystals in aqueous solution under mild conditions has been developed. The reaction involves the transportation of phosphorus by I_2 and a circulation between H_3PO_4 and H_3PO_3.

3066

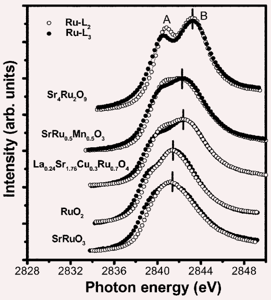
An artificial ionophore based on a polyhydroxylated steroid dimer



Francesco De Riccardis,* Marcello Di Filippo, Davide Garrisi, Irene Izzo, Fabrizio Mancin, Lucia Pasquato, Paolo Scrimin* and Paolo Tecilla*

A new ionophore based on a C_2-symmetric polyhydroxylated steroid dimer has been prepared; in the phospholipid membrane it forms small clusters which promote the efficient transport of Na^+ ions across the lipid bilayer of large unilamellar vesicles.

3068

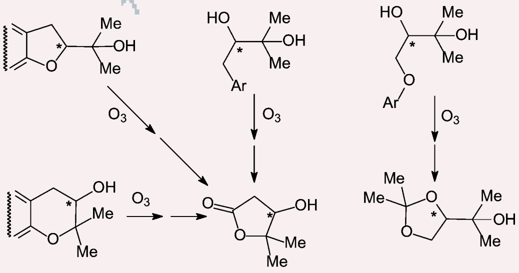


Evidence for an anomalous redox ionic pair between Ru and Mn in $SrRu_{0.5}Mn_{0.5}O_3$: An X-ray absorption spectroscopy approach

S. Sundar Manoharan* and Ranjan K. Sahu

X-Ray absorption spectroscopy studies of the polycrystalline $SrRu_{0.5}Mn_{0.5}O_3$ show anomalous changes in the spectral features showing existence of a redox ionic pair involving Ru(IV)/Ru(V)–Mn(III)/Mn(IV).

3070



Absolute configuration assignment and enantiopurity determination of chiral alkaloids and coumarins derived from O- and C-prenyl epoxides

Derek R. Boyd,* Narain D. Sharma, Pui L. Loke, John F. Malone, W. Colin McRoberts and John T. G. Hamilton

A combination of ozonolysis and chiral stationary phase GC–MS analysis provides a sensitive and reliable method for stereochemical analysis of chiral quinoline alkaloids, coumarins and other hemiterpenoids.

ADDITIONS AND CORRECTIONS

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AUTHOR INDEX

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