

Cover
The cover illustrates enzymatic macrocyclization in natural product biosynthesis. It shows schematically how the thioesterase (TE) domain can constrain natural product structures into their bioactive conformations.



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www.rsc.org/chembiol

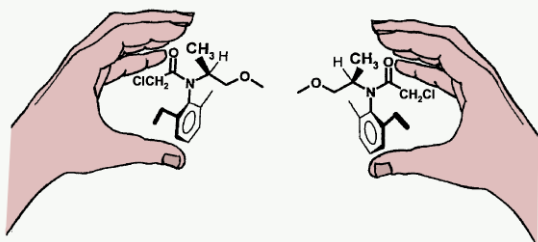
contents

FOCUS ARTICLE

293

Enantioselective catalysis in fine chemicals production

Hans-Ulrich Blaser



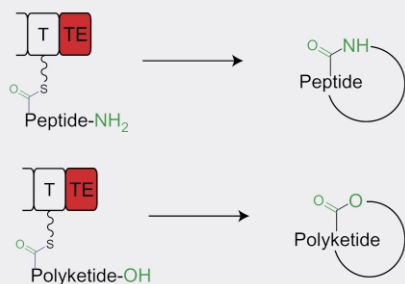
The application of enantioselective catalysis to the fine chemicals industry has great potential both from economic and ecological points of view, but to date has not been widely implemented on a technical scale. The author hopes that the award of the 2001 Chemistry Nobel Prize in this field will give the necessary impetus to future applications.

FEATURE ARTICLE

297

Enzymology of acyl chain macrocyclization in natural product biosynthesis

Rahul M. Kohli and Christopher T. Walsh



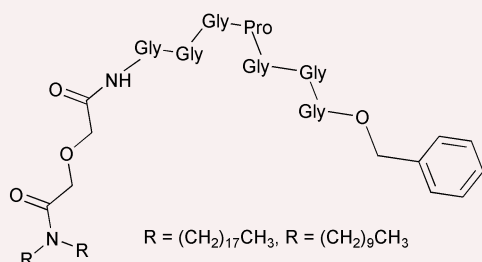
A myriad of natural products are brought to their bioactive macrocyclic conformations by versatile enzymatic catalysts.

COMMUNICATIONS

308

Anchor chain length alters the apparent mechanism of chloride channel function in SCMTR derivatives

Paul H. Schlesinger,* Natasha K. Djedović, Riccardo Ferdani, Jolanta Pajewska, Robert Pajewski and George W. Gokel*

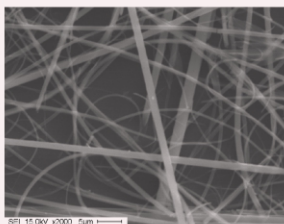


Two membrane-anchored heptapeptides have been prepared and their pore-formation behavior in phospholipid bilayer membranes has been found to differ profoundly as a result only of alkyl chain length.

310

Low molecular weight organogelators for water

Guijun Wang and Andrew D. Hamilton*

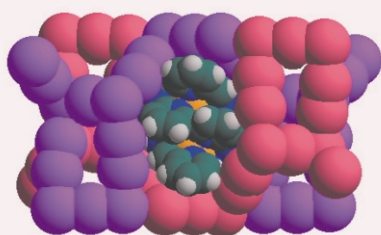


A new class of mono-urea serine derivatives with low molecular weights was prepared in one synthetic step and certain members show remarkable self-assembling and gelation properties in water.

312

Helical templating of polyiodide networks at a binuclear metallo complex

Caitlin J. Horn, Alexander J. Blake, Neil R. Champness, Alessandra Garau, Vito Lippolis, Claire Wilson and Martin Schröder*

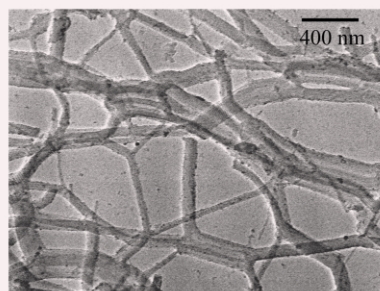


A homobimetallic supramolecular helicate has been used to template the formation of two polyiodide networks, one containing an unprecedented figure-of-eight polyiodide helix, the other dominated by peripheral C–H...I polyiodide chain interactions.

314

Synthesis and characterization of hyperbranched mesoporous silica SBA-15

Zoltán Kónya, Ji Zhu, Agnes Szegedi, Imre Kiricsi, Paul Alivisatos and Gabor A. Somorjai*

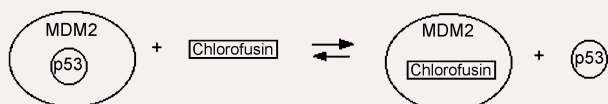


Branched mesoporous silica SBA-15 materials have been prepared in a simple process using non-ionic surfactant in acidic conditions in the presence of metal ions.

316

Binding of an inhibitor of the p53/MDM2 Interaction to MDM2

Sara J. Duncan, Matthew A. Cooper and Dudley H. Williams*

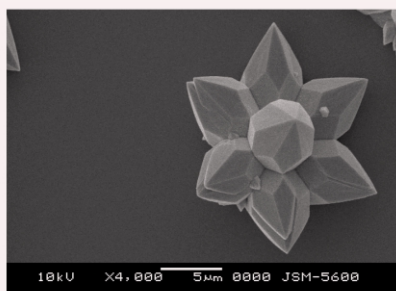


Efficient function of the protein p53 is important in the prevention of human cancer. Its action is down-regulated by interaction with the protein MDM2. The secondary metabolite chlorofusin inhibits the interaction between p53 and MDM2, specifically by binding to MDM2.

318

Indium nitride crystals with flower-like structure

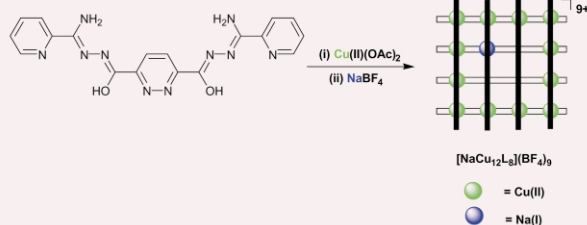
Naoyuki Takahashi,* Arei Niwa, Haruka Sugiura and Takato Nakamura



Preparation of indium nitride at atmospheric pressure has been examined by means of halide CVD. Crystals deposited onto a Si(100) substrate showed flower-like structure.

320

Synthesis, structure and magnetism of a unique dodecanuclearcopper(II) 'picture frame' held in a 4 × 4 grid-like assembly



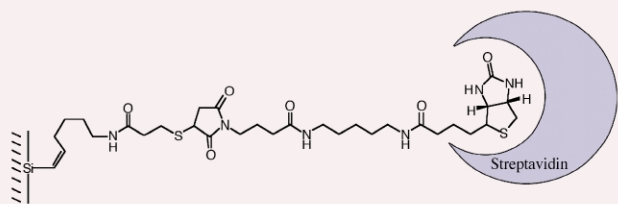
Craig J. Matthews,* Stuart T. Onions, Gérald Morata, Margarita Bosch Salvia, Mark R. J. Elsegood and Daniel J. Price

The reaction of a flexible multidentate ligand with Cu^{II} leads to a unique self-assembled dodecanuclearcopper(II) 'picture frame', held in a 4×4 square grid-like array of organic ligands; it represents the largest structurally characterised $\text{Cu}(\text{II})$ assembly formed exclusively by a linear single stranded ligand.

322

New method for attachment of biomolecules to porous silicon

Bradley R. Hart, Sonia E. Létant, Staci R. Kane, Masood Z. Hadi, Sharon J. Shields and John G. Reynolds*

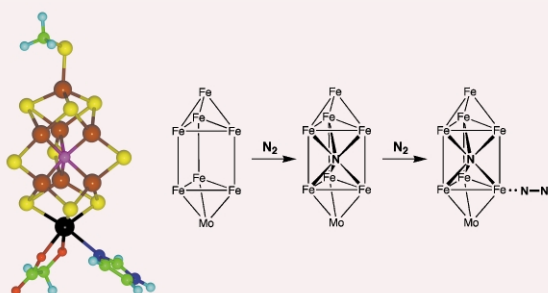


Biomolecules have been attached to porous silicon by a new linking method that forms a direct Si-C bond on the surface and retains the photoluminescence of the porous silicon.

324

The consequences of an interstitial N atom in the FeMo cofactor of nitrogenase

Ian Dance

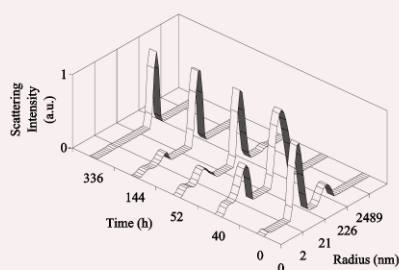


The atom-centred FeMo cofactor of nitrogenase most likely contains N, resting at the $[\text{NMoFe}_7]^{18+}$ redox level, inserted from N_2 , and subsequently restricting the modes of binding of substrate to the NFe_6 core.

326

Pure silica BETA colloidal zeolite assembled in thin films

S. Mintova,* M. Reinelt, T. H. Metzger, J. Senker and T. Bein*

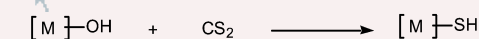


The synthesis of pure silica nanoscale zeolite BETA with monomodal particle size distribution is reported.

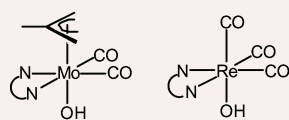
328

A new reactivity pattern of low-valent transition-metal hydroxo complexes: straightforward synthesis of hydrosulfido complexes via reaction with carbon disulfide

Darío C. Gerbino, Eva Hevia, Dolores Morales, M. Elena Navarro Clemente, Julio Pérez,* Lucía Riera, Víctor Riera and Daniel Miguel



$[\text{M}]-\text{OH}$:



N-N = phen

1

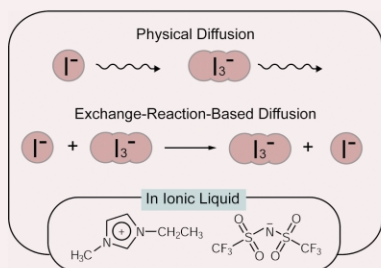
N-N = bpy

2

$[\text{M}] = [\text{Mo}] \quad 3$
 $[\text{Re}] \quad 4$

A new basic transformation linking two important classes of transition metal compounds; namely, hydroxo and hydrosulfido complexes has been discovered.

330

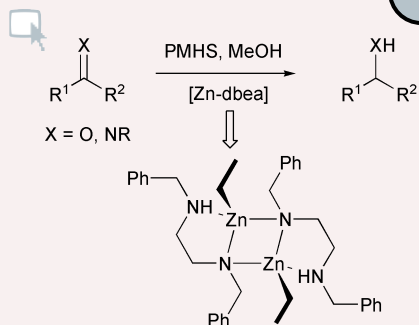


Equilibrium potentials and charge transport of an I^-/I_3^- redox couple in an ionic liquid

Ryuji Kawano and Masayoshi Watanabe*

Equilibrium potentials and charge transport of an I^-/I_3^- redox couple in an ionic liquid are revealed by using a microelectrode technique, where the anomaly of the charge transport at high concentrations of the redox couple with comparable $[I^-]$ and $[I_3^-]$ can be attributed to the exchange reaction of $I^- + I_3^- \rightarrow I_3^- + I^-$.

332

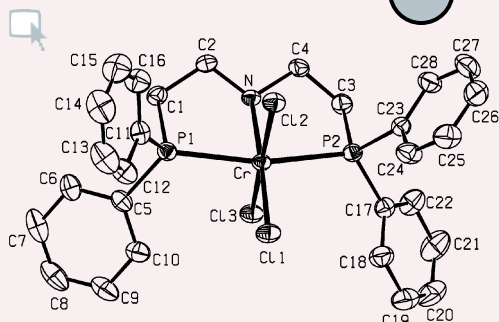


Direct Zn–diamine promoted reduction of C=O and C=N bonds by polymethylhydrosiloxane in methanol

Virginie Bette, André Mortreux, Christian W. Lehmann and Jean-François Carpentier*

Ketones and imines are chemoselectively reduced in methanol to the corresponding alcohols and amines in a one-step procedure using polymethylhydrosiloxane (PMHS) and a simple zinc–diamine catalyst (19 examples, 50–99% yield).

334

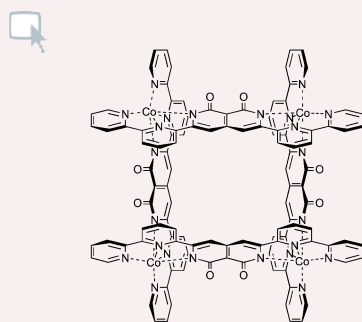


Novel Cr–PNP complexes as catalysts for the trimerisation of ethylene

David S. McGuinness,* Peter Wasserscheid,* Wilhelm Keim, Chunhua Hu, Ulli Englert, John T. Dixon and Cronje Grove

$Cr(III)$ complexes of tridentate PNP ligands have been prepared and evaluated as catalysts for ethylene trimerisation, with several giving high activity and excellent selectivity towards 1-hexene when activated with methylaluminoxane.

336

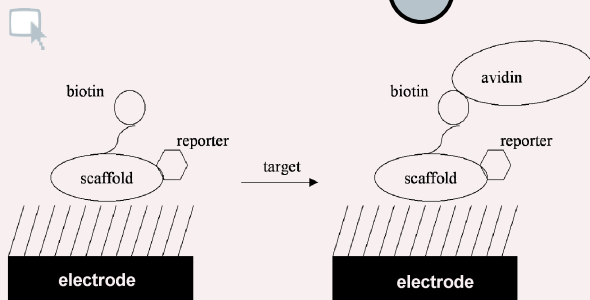


A rigid cavity containing tetra-cobalt(III) $[2 \times 2]$ grid complex

Jeffrey P. Plante, Paul D. Jones, Douglas R. Powell and Timothy E. Glass*

The synthesis and structure of a rigid, cavity containing tetra-cobalt(III) $[2 \times 2]$ grid complex using an unusual bis(bipyridine)dimethoxynaphthyridine ligand is described.

338



A reagentless electrochemical biosensor based on a protein scaffold

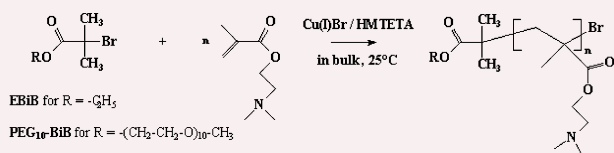
Sulay D. Jhaveri, J. Matthew Mauro, Harold M. Goldston, Caroline L. Schauer, Leonard M. Tender* and Scott A. Trammell*

Apo-myoglobin, labeled with the environmentally sensitive redox probe $Ru^{II}(NH_3)_4(1,10\text{-phenanthroline-5-maleimide})^{2+}$, was immobilized onto modified gold electrodes and subsequently labeled with biotin. The resulting protein scaffold transduced the molecular recognition of avidin into a measurable electrochemical signal.

340

Solvent-free synthesis and purification of poly[2-(dimethylamino)ethyl methacrylate] by atom transfer radical polymerization

Nadège Pantoustier, Sébastien Moins, Michaël Wautier, Philippe Degée and Philippe Dubois*

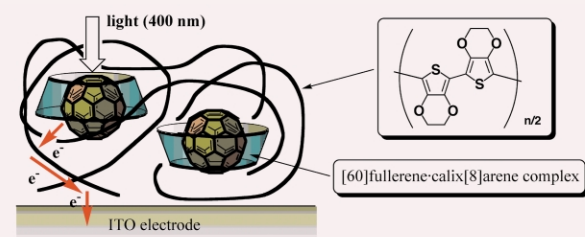


The original combination of solvent-free ATRP of amino-functionalized methacrylate (DMAEMA) and straightforward purification of polymers by catalyst removal in water allows for the synthesis of well defined PDMAEMA homopolymers and diblock copolymers with polyethylene glycol.

342

Facile deposition of [60]fullerene on the electrode by electrochemical oxidative polymerization of thiophene

Tsukasa Hatano, Masayuki Takeuchi, Atsushi Ikeda and Seiji Shinkai*

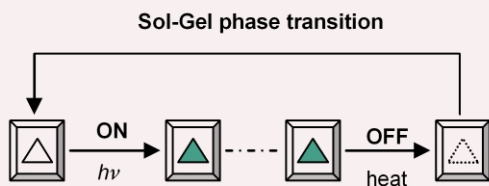


It was found that [60]fullerene encapsulated in anionic calix[8]arenes can be readily deposited by electrochemical oxidative polymerization of ethylenedioxythiophene: the resultant electrode generates a photocurrent wave (*ca.* 100 nA cm⁻²) in response to visible light irradiation.

344

Photo-induced colour generation and colour erasing switched by the sol-gel phase transition

Tao Yi, Kazuki Sada, Kazunori Sugiyasu, Tsukasa Hatano and Seiji Shinkai*

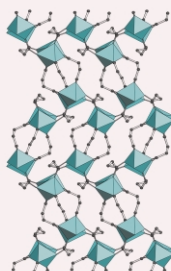


Alkylammonium polyoxomolybdates are successfully incorporated into an organogel system, in which colour is generated by irradiation, but controllably erased by heating through a gel-to-sol phase transition.

346

First high thermally stable organo-inorganic 3D polymer scandium derivative as a heterogeneous Lewis acid catalyst

Josefina Perles, Marta Iglesias, Caridad Ruiz-Valero* and Natalia Snejko

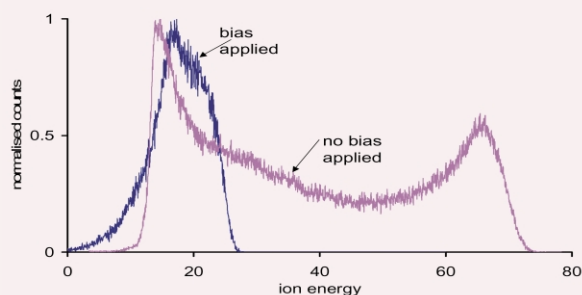


The new hybrid organo-inorganic polymer Sc₂(OOCCH₂H₄COO)_{2,5}(OH) has been hydrothermally obtained, it has high thermal stability, and can be used as an effective Lewis acid catalyst.

348

The effect of ion energy upon plasma polymerization deposition rate for acrylic acid

David Barton, Robert D. Short,* Stuart Fraser and James W. Bradley

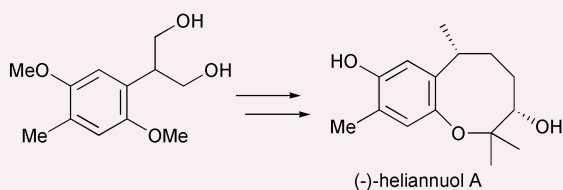


A novel technique of plasma ion energy control is used to study the effect of this parameter on deposition rates and derived film chemistry for acrylic acid polymer films.

350

Enantioselective total synthesis of (–)-heliannuol A

Hidetoshi Kishuku, Mitsuru Shindo and Kozo Shishido*

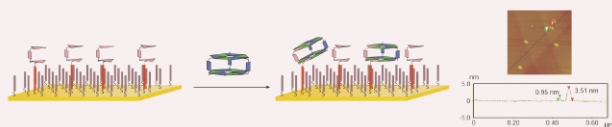


An efficient and enantiocontrolled total synthesis of (–)-heliannuol A has been accomplished by employing ring closing metathesis and sequential diastereoselective epoxidation and regioselective reductive cleavage of the epoxide ring.

352

Growth of individual hydrogen-bonded nanostructures on gold monolayers

Juan J. Garcia-Lopez, Szczepan Zapotoczny, Peter Timmerman, Frank C. J. M. van Veggel, G. Julius Vancso, Mercedes Crego-Calama* and David N. Reinhoudt*

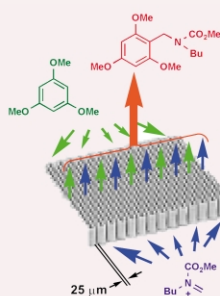


The growth of the nanostructures was achieved through an exchange reaction between single isolated species of calix[4]arene dimelamine (1.1 ± 0.2 nm) embedded in hexanethiol monolayers and double rosette hydrogen bonded assemblies in solution.

354

Highly selective Friedel–Crafts monoalkylation using micromixing

Seiji Suga, Aiichiro Nagaki and Jun-icuh Yoshida*



Highly selective Friedel–Crafts monoalkylation of aromatic compounds with *N*-acyliminium ions has been achieved by efficient 1 : 1 mixing using a multilamination-type micromixer.

356

Engineering redox functions in a nucleic acid binding protein

Jon R. Wilson, Daren J. Caruana and Gianfranco Gilardi*

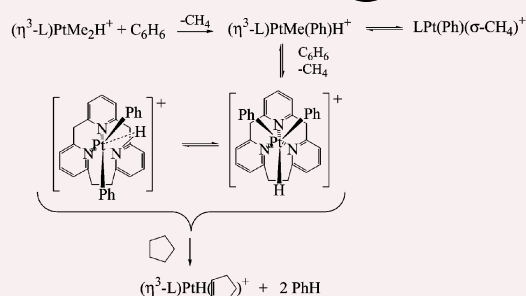


Proteins with diverse functions are often found within the same superfamily. An interesting challenge for protein engineering is to enable the combination of functions for proteins of the same superfamily. Here we show how a RNA-binding protein can be engineered to bind haem, exhibiting the electrochemistry typical of cytochromes of the same superfamily.

358

 N -Pt^{IV}-H/N-H...Pt^{II} intramolecular redox equilibrium in a product of H–C(sp²) cleavage and unusual alkane/arene C–H bond selectivity of ([2.1.1]pyridinophane)Pt^{II}(CH₃)⁺

Andrei N. Vedernikov* and Kenneth G. Caulton*

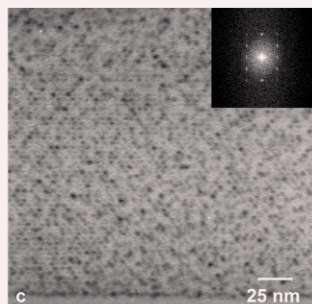


The stability of an olefin coordinated to Pt(II) makes possible the use of a phenyl complex of Pt(IV) for cyclopentane dehydrogenation to coordinated cyclopentene.

360

Silver nanoparticle growth in 3D-hexagonal mesoporous silica films

Sophie Besson, Thierry Gacoin, Christian Ricolleau and Jean-Pierre Boilot*

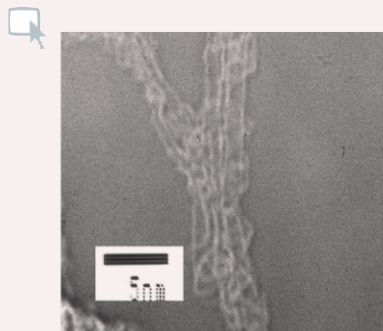


The 3D-hexagonal mesoporous films are used as templates to grow uniform silver nanoparticles. The grafting of hydrophobic groups at the pore surface, significantly slows down the silver ion diffusion, anchoring small silver clusters in micropores and leading to organized domains of silver particles in mesopores with a narrow size distribution.

362

Sidewall functionalization of single-walled carbon nanotubes with organic peroxides

Haiqing Peng, Paul Reverdy, Valery N. Khabashesku* and John L. Margrave

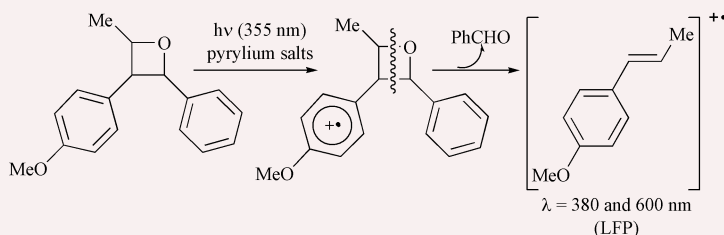


The single-wall carbon nanotubes (SWNTs), covalently functionalized by a bulky long-chain group, *e.g.*, undecyl, shown here on a TEM image, are prepared by reactions of SWNT materials with organic peroxides.

364

Chemical and transient spectroscopic evidence for C₂-C₃ cleavage of 2,3-diaryloxetane radical cations

Miguel A. Miranda* and M. Angeles Izquierdo

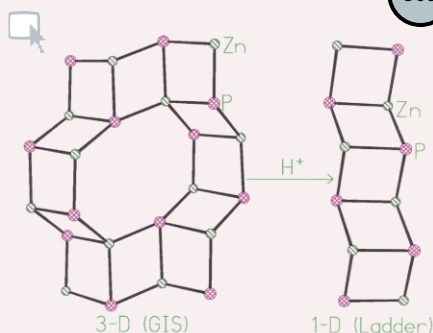


Methoxy substitution at the 3-aryl group of 2,3-diphenylloxetanes induces C₂-C₃ bond cleavage. The reaction mechanism is supported by detection of *trans*-anthole radical cation as transient intermediate.

366

Understanding the building-up process of three dimensional open-framework metal phosphates: Acid degradation of the 3D structures to lower dimensional structures

Amitava Choudhury and C. N. R. Rao*

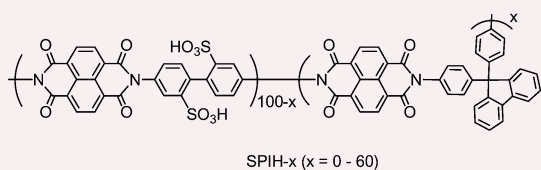


A zinc phosphate with a three-dimensional channel structure is shown to transform to lower dimensional structures on treatment with acid.

368

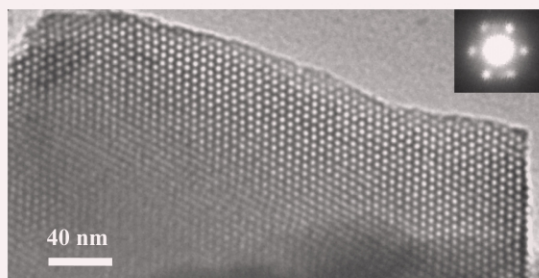
Highly proton conductive polyimide electrolytes containing fluorenyl groups

Kenji Miyatake, Hua Zhou, Hiroyuki Uchida and Masahiro Watanabe*



Novel sulfonated polyimides have been synthesized as a potential electrolyte for polymer electrolyte fuel cells operationable at high temperature.

370

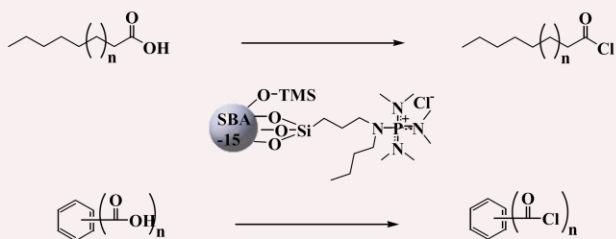


Synthesis and characterization of highly ordered mesoporous thin films with –COOH terminated pore surfaces

Nanguo Liu, Roger A. Assink and C. Jeffrey Brinker*

Highly ordered mesoporous thin films with negatively chargeable –COOH terminated surfaces, useful for mimicking biological ion channels, were synthesized by evaporation induced self-assembly.

372

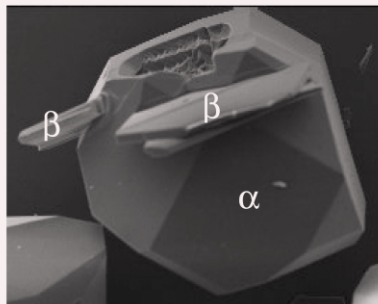


Phosphazene chloride catalysts immobilized on SBA-15 mesoporous material and silica gel: new exceptionally active catalysts for the chlorination of organic acids

Keun-Sik Kim, Jong-Ho Kim and Gon Seo*

Phosphazene chloride catalysts immobilized on SBA-15 mesoporous material and silica gel show exceptional activities and selectivities even in the continuous chlorination reaction of organic acids with thionyl chloride or phosgene.

374

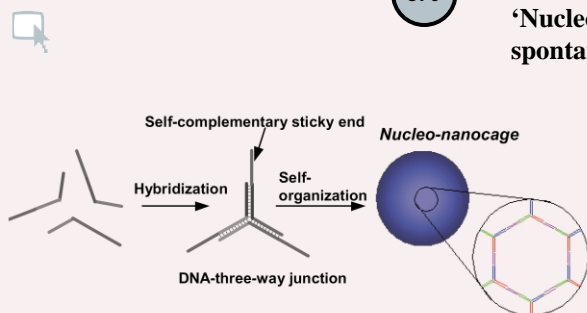


Secondary nucleation of the β -polymorph of L-glutamic acid on the surface of α -form crystals

C. Cashell,* D. Corcoran and B. K. Hodnett

Secondary nucleation of β -L-glutamic acid at the surface of α -form crystals is observed for the first time by SEM and confirmed by Raman spectroscopy. Nucleation takes place at certain crystallographic faces, the absence of which prevents this transition. There is only one other report in the literature of formation of a stable polymorph of an organic compound on the surface of its metastable form.

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'Nucleo-nanocages': designed ternary oligodeoxyribonucleotides spontaneously form nanosized DNA cages

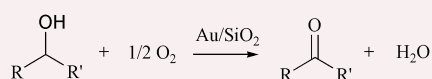
Kazunori Matsuura, Taro Yamashita, Yuuko Igami and Nobuo Kimizuka*

'Nucleo-nanocages' are spontaneously self-assembled from the suitably designed DNA three-way junctions that possess self-complementary sticky ends.

378

Gas phase oxidation of alcohols to aldehydes or ketones catalysed by supported gold

Serena Biella and Michele Rossi*

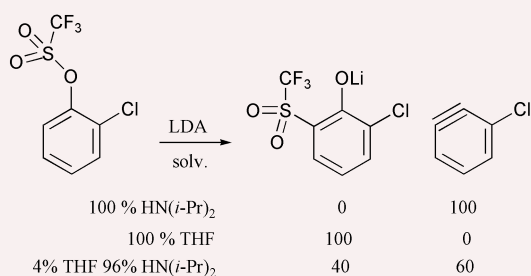


Gold supported on silica shows remarkable selectivity in the clean catalytic oxidation of aliphatic alcohols to carbonyl derivatives.

380

The anionic thia-Fries rearrangement of aryl triflates

Jonathan P. H. Charmant, Alan M. Dyke and Guy C. Lloyd-Jones*

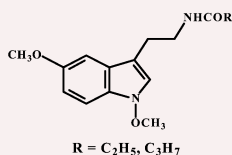


In THF and in the absence of excess HN(*i*-Pr)₂, LDA mediates an 'anionic thia-Fries rearrangement' of a number of aryl triflates. In the presence of excess HN(*i*-Pr)₂, anilines are generated *via* benzyne. The regiochemistry of the rearrangement complements the known thermal process with tosylates.

382

Design and synthesis of potent N1-substituted indole melatonin receptor agonists

Andrew Tsotinis,* Andreas Eleutheriades, Katherine Hough and David Sugden

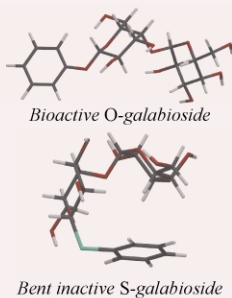


The design and expeditious synthesis of two new indole analogs with up to 5-fold potency of that of the hormone melatonin is described.

384

Conformational studies on phenyl thioglycosides: a remote effect on disaccharide linkage by phenyl aglycons attenuates recognition of galabiosides by a bacterial adhesin

Jörgen Ohlsson, Anders Sundin and Ulf J. Nilsson*

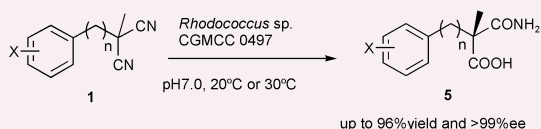


The aglycon of phenyl thiogalabiosides bends inwards against the galabiose disaccharide moiety and forces the disaccharide bond to adopt a conformation with lowered affinity for a papG adhesin of uropathogenic *E. coli*.

386

Highly enantioselective synthesis of α,α -disubstituted malonamic acids through asymmetric hydrolysis of dinitriles with *Rhodococcus* sp. CGMCC 0497

Zhong-Liu Wu and Zu-Yi Li*

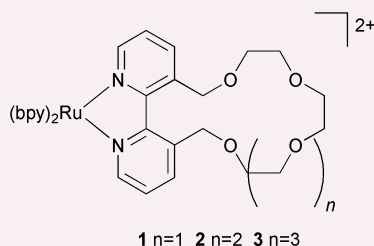


Highly enantioselective hydrolysis of α,α -disubstituted malonitriles by the strain *Rhodococcus* sp. CGMCC 0497 expressing both nitrile hydratase and amidase activity are reported in this paper. The yields of the products were improved remarkably at a lower reaction temperature.

388

Modulating the efficiency of Ru(II) luminescence *via* ion binding-induced conformational restriction of bipyridyl ligands

S. A. McFarland and N. S. Finney*



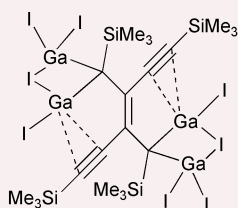
The use of binding-induced conformational restriction as a signaling mechanism has been extended to luminescent Ru(II) complexes. These long-wavelength luminophores provide several potential advantages relative to their organic counterparts, including response to heavy metal ions.

390

The reaction of 'GaI' with a 1,3-diyne: synthesis, characterisation and reactivity of a novel C–C coupled ene–diyne–bis(*gem*-organogallium(III)) complex

Robert J. Baker and Cameron Jones*

Reaction of 'GaI' with a 1,3-diyne, $\text{Me}_3\text{SiC}\equiv\text{CC}\equiv\text{CSiMe}_3$, leads to C–C coupling reactions and the isolation of the novel organogallium species, $[\text{Ga}_4\text{I}_8\{\text{C}_8(\text{SiMe}_3)_4\}]$, as two isomeric forms.

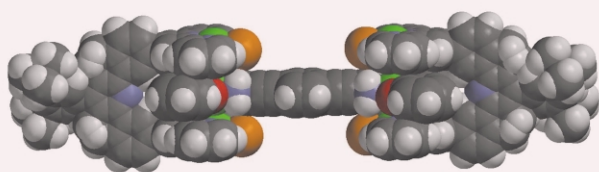


392

Molecular recognition. Electrostatic effects in supramolecular self-assembly

James D. Crowley, Andrew J. Goshe and B. Bosnich*

It is found that formation of 2:1 adducts between rigid, linear, di-site linkers and positively charged molecular cleft receptors is controlled by electrostatic repulsion which can overcome the binding energy.

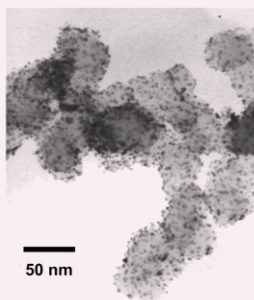


394

Novel synthesis of highly active Pt/C cathode electrocatalyst for direct methanol fuel cell

Zhenhua Zhou, Suli Wang, Weijiang Zhou, Guoxiong Wang, Luhua Jiang, Wenzhen Li, Shuqin Song, Jianguo Liu, Gongquan Sun and Qin Xin*

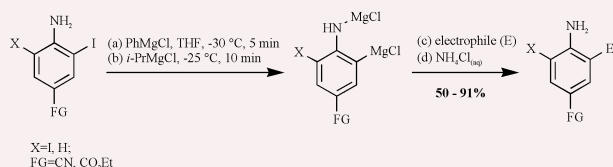
A 40 wt% Pt/C cathode electrocatalyst with controlled Pt particle size of ~ 2.9 nm showing better performance than commercial catalyst for direct methanol fuel cell was prepared by a polyol process with water but without using stabilizing agent.



396

Direct preparation of polyfunctional amino-substituted arylmagnesium reagents *via* an iodine–magnesium exchange reaction

Greta Varchi, Christiane Kofink, David M. Lindsay, Alfredo Ricci and Paul Knochel*

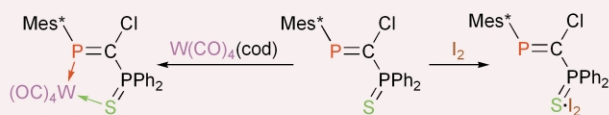


The preparation of polyfunctional unprotected amino-substituted arylmagnesium reagents using a selective iodine–magnesium exchange and their reaction with a broad range of electrophiles is described.

398

Preparation, structure, and some coordination properties of 2-chloro-3,3-diphenyl-3-thioxo-1-(2,4,6-tri-*t*-butylphenyl)-1,3-diphosphapropene

Shigekazu Ito, Hongze Liang and Masaaki Yoshifuji*



Mes* = 2,4,6-*t*-Bu₃C₆H₂
cod = cycloocta-1,5-diene

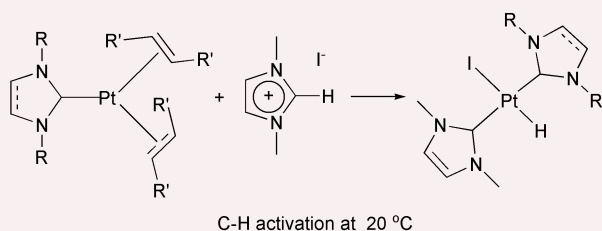
A kinetically stabilised compound with the P=C–P=S skeleton bearing the 2,4,6-*t*-butylphenyl group was prepared and its coordination properties were studied with carbonyl tungsten(0) reagents or iodine.

400

C–H Activation of imidazolium salts by Pt(0) at ambient temperature: synthesis of hydrido platinum bis(carbene) compounds

Marcel A. Duin, Nicolas D. Clement, Kingsley J. Cavell* and Cornelis J. Elsevier*

Hydridoplatinum(II) bis(carbene) compounds have been synthesised for the first time from a Pt(0)(carbene) complex with two monoalkene ligands. Due to the strong donor capacity of the carbene ligand, the Pt(0) complex is able to intermolecularly activate C–H bonds at the 2-position of imidazolium salts at room temperature.

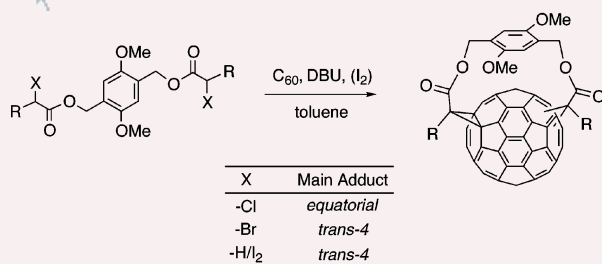


402

Unexpected switch in regioselectivity of tether-directed Bingel-type bicyclopropanations depending on the leaving groups at tethered active methylene moieties

Tetsuo Hino and Kazuhiko Saigo*

The reaction of C₆₀ with unhalogenated tethered bis(active methylene) derivatives/I₂ and with brominated derivatives in the presence of DBU gave *trans*-4-adducts predominantly, while the reactions with chlorinated derivatives afforded *equatorial*-adducts almost exclusively.

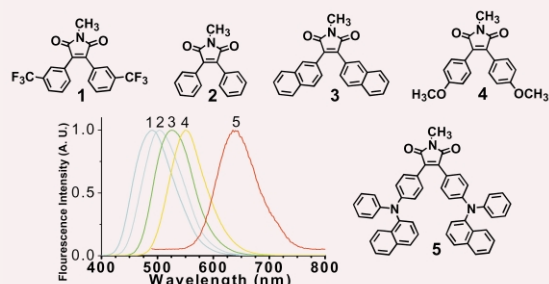


404

The colourful fluorescence from readily-synthesised 3,4-diaryl-substituted maleimide fluorophores

Hsiu-Chih Yeh, Wei-Ching Wu and Chin-Ti Chen*

We have developed a one-step synthesis of 3,4-diaryl-substituted maleimides directly from commercially available acetonitrile derivatives. These maleimides exhibit a large variation of emission spectra spanning the entire visible range.

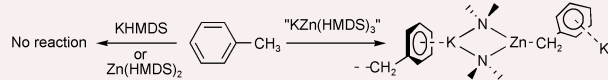


406

Potassium–zinc induced synergic enhancement of the basicity of hexamethyldisilazide (HMDS) towards methylbenzene molecules

William Clegg, Glenn C. Forbes, Alan R. Kennedy, Robert E. Mulvey* and Stephen T. Liddle

Following the old adage that two heads are better than one, when the base HMDS is supported by both K and Zn then it can readily metallate toluene to form a novel mixed-metal mixed amido-benzyl product, but in the company of either metal alone no such deprotonation occurs.

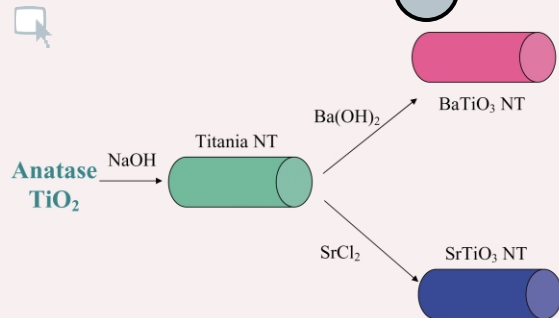


408

Hydrothermal synthesis of perovskite nanotubes

Yuanbing Mao, Sarbajit Banerjee and Stanislaus S. Wong*

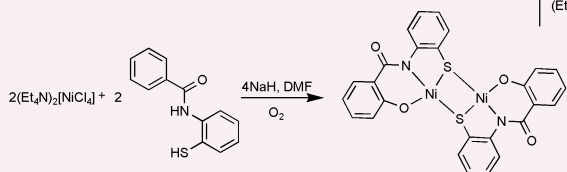
Titania nanotubes as precursors in the hydrothermal synthesis of BaTiO₃ and SrTiO₃ nanotubes under ambient temperature and strong alkaline conditions.



410

Dioxygen activation by a dinuclear nickel thiolate complex: structural characterization of the ligand oxidized product

Todd C. Harrop, Marilyn M. Olmstead and Pradip K. Mascharak*

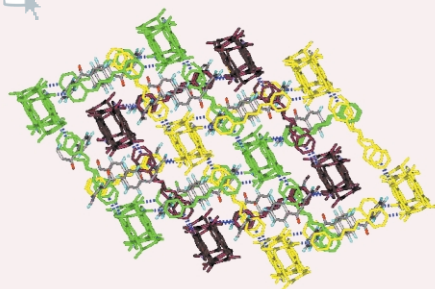


A dinuclear nickel(II) complex with carboxamido N and thiolato S donors reacts with oxygen to give the ligand oxidized product with Ni-bound phenolates.

412

Three-fold interpenetrating three-dimensional networks based on C-methylcalix[4]resorcinarene incorporating benzophenone guest molecules

Bao-Qing Ma and Philip Coppens*

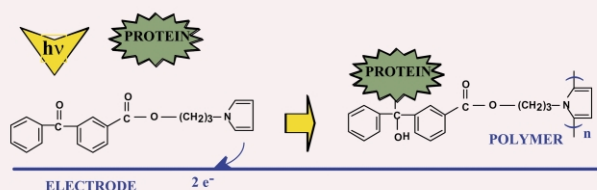


Two benzophenone molecules are entrapped within the cavity left after the formation of three-fold interpenetrating hydrogen-bonded frameworks based on C-methylcalix[4]resorcinarene and the spacer bis(4-pyridylmethylidene)hydrazine.

414

An electrogenerated poly(pyrrole-benzophenone) film for the photografting of proteins

Serge Cosnier* and Anne Senillou

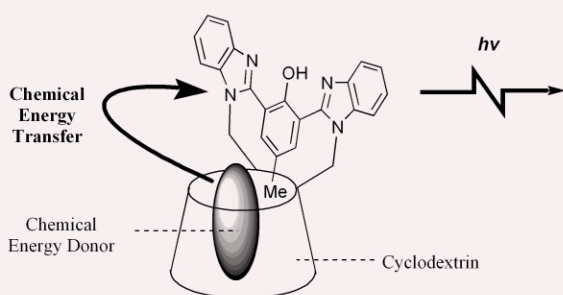


A new electropolymerisable photoreactive pyrrole-benzophenone was synthesized and polymerized, the resulting polymer, upon irradiation, gives rise to protein attachment.

416

Fluorophore-capped cyclodextrins as efficient chemical-to-light energy converters

De-Qi Yuan,* Naoya Kishikawa, Cheng Yang, Kazutaka Koga, Naotaka Kuroda and Kahee Fujita*

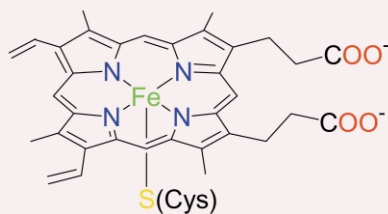


The conjugated binding site greatly contributes to the efficiency of the fluorophore cap in converting chemical energy to light.

418

Electrochemistry of P450_{cin}: new insights into P450 electron transfer

Kondo-François Aguey-Zinsou, Paul V. Bernhardt,* James J. De Voss and Kate E. Slessor



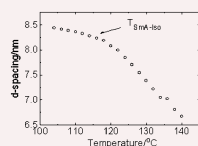
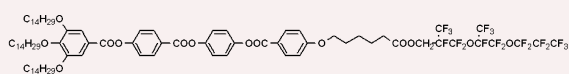
Electrochemistry of bacterial cytochrome P450_{cin} (CYP176A) reveals that, unusually, substrate binding does not affect the heme redox potential, although a marked pH dependence is consistent with a coupled single electron/single proton transfer reaction in the range 6 < pH < 10.

420

A polycatenar mesogen with a perfluorinated moiety showing continuous phase transformation between a smectic A phase and a structured, fluid, optically isotropic phase

Etsushi Nishikawa,* Jun Yamamoto and Hiroshi Yokoyama

The polycatenar mesogen shows a continuous phase transformation between a smectic A phase and a structured, fluid, optically isotropic liquid phase.

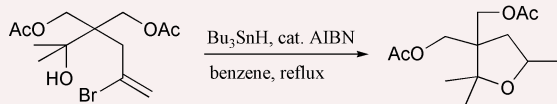


422

A novel synthesis of tetrahydrofuran via alkoxy radical cyclisation

Masahiro Yokota, Masahiro Toyota* and Masataka Ihara*

Tetrahydrofurans were synthesised *via* 5-*exo-trig* cyclisation of alkoxy radical generated by unprecedented 1,5-hydrogen shift from hydroxy group to vinyl radical.

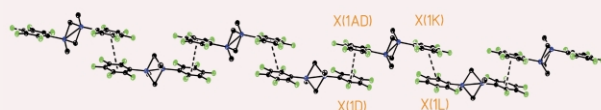


424

Novel supramolecular architectures in group 13 perfluoroaryl complexes. Synthesis and structures of [AlMe(C₆F₅)(μ -Me)]₂ and GaMe(C₆F₅)₂

Gregory S. Hair, Alan H. Cowley,* John D. Gorden, Jamie N. Jones, Richard A. Jones* and Charles L. B. Macdonald

Novel supramolecular structures for [AlMe(C₆F₅)(μ -Me)]₂ and Ga(C₆F₅)₂Me are reported.



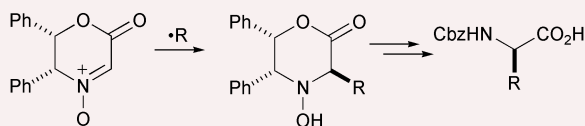
View of the supramolecular structure of [AlMe(C₆F₅)(μ -Me)]₂.

426

Novel intermolecular carbon radical addition to a nitron: asymmetric synthesis of α -amino acids

Masafumi Ueda, Hideto Miyabe, Masako Teramachi, Okiko Miyata and Takeaki Naito*

A nitron was used as a synthetically useful radical acceptor in carbon-carbon bond-forming radical reactions. A high degree of stereocontrol in radical addition to glyoxylic nitron was achieved to provide a new method for asymmetric synthesis of α -amino acids.

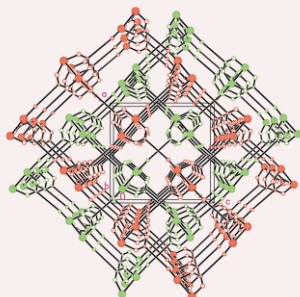


428

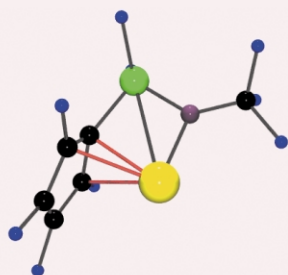
A novel three-dimensional coordination polymer constructed with mixed-valence dimeric copper(I,II) units

Ming-Liang Tong, Li-Jun Li, Katsunori Mochizuki, Ho-Chol Chang, Xiao-Ming Chen, Ying Li and Susumu Kitagawa*

A novel three-dimensional twofold interpenetrated α -Po coordination network with a mixed-valence localized copper(I,II) dimeric unit was hydrothermally synthesized *via* a simultaneous *in-situ* redox and hydrolysis reaction of Cu(II) and 4-cyanopyridine.



430

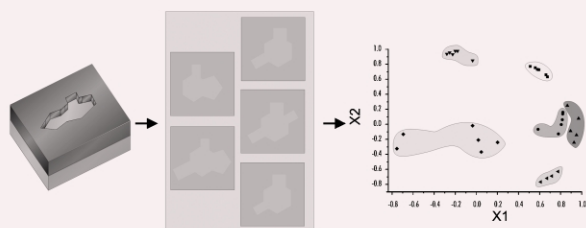


The contrasting behaviour of bridged amido-cyclopentadienyl (constrained geometry) group 15 chlorides and cations derived therefrom

Robert J. Wiacek, Charles L. B. Macdonald, Jamie N. Jones, Jeffrey M. Pietryga and Alan H. Cowley*

The first amido-cyclopentadienyl (constrained geometry) phosphonium, arsenium and stibonium cations have been isolated as their tetrachloroaluminate salts.

432

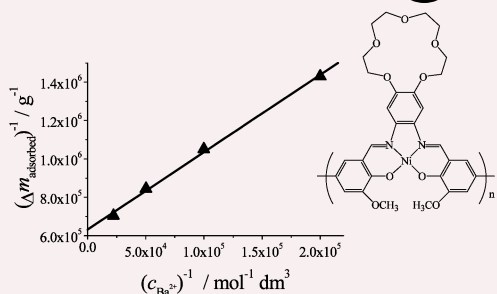


A simple strategy for preparation of sensor arrays: molecularly structured monolayers as recognition elements

Thomas Hirsch, Hubert Kettenberger, Otto S. Wolfbeis and Vladimir M. Mirsky*

The spreader-bar approach is a simple method for producing a huge variety of receptors with different selectivities. A sensor-array consisting of five such receptors is presented. A pattern recognition provides selective detection of different purines and pyrimidines.

434

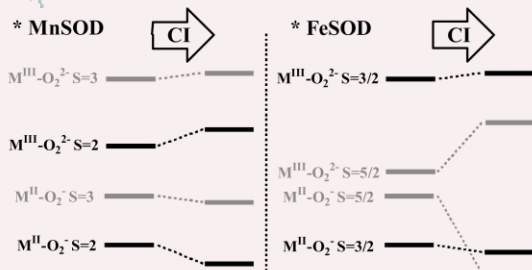


Acoustic wave sensor for barium based on poly[Ni(salen)(crown)] recognition chemistry

Magda Martins, Cristina Freire* and A. Robert Hillman*

Interfacial recognition of barium ions by a polymeric crown ether receptor is quantified using an acoustic wave sensor, and the isotherm rationalised on the basis of solution complexation chemistry and polymer viscoelastic properties.

436

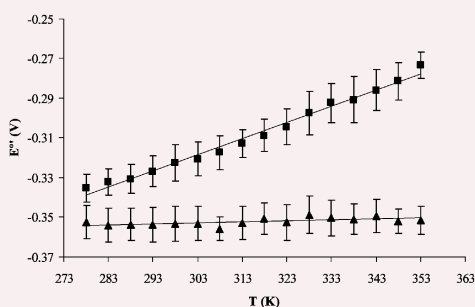


Charge transfers influence on the spin ground state of manganese and iron superoxide dismutases: a DFT study on a model of the reduced active site interacting with O₂⁻

Rosa Carrasco, Irène Morgenstern-Badarau and Joan Cano*

From DFT and time-dependent DFT calculations on Mn^{II}SOD and Fe^{II}SOD active site models interacting with O₂⁻ we have determined that metal–ligand charge transfers stabilise the *S* = 2 and *S* = 5/2 spin states as ground spin states for the [Mn^{II}SOD–O₂⁻] and [Fe^{II}SOD–O₂⁻] model complexes, respectively.

438

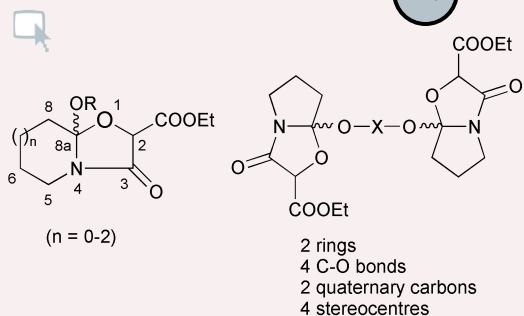


The redox thermodynamics of microperoxidase are dependent on the solvent medium

David O' Donoghue and Edmond Magner*

The redox thermodynamics of the heme undecapeptide, microperoxidase have been examined in aqueous buffer and in glycerol. The change in *E*^{o'} on transition from water to glycerol is dominated by the change in Δ*S*^{o'}.

440

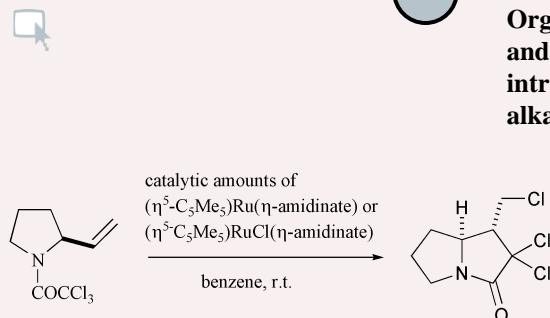


Rh₂(OAc)₄-catalyzed reactions of α -diazouimides: a simple and novel synthesis of mono- and bis(2,3-fused perhydrooxazol-4-one) systems

Sengodagounder Muthusamy* and Chidambaram Gunanathan

The unstable isomünchnones generated from the α -diazouimides have efficiently been trapped using the oxygen nucleophiles. This forms a facile entry into the new family of 2,3-fused perhydrooxazol-4-one and bis(2,3-fused perhydrooxazol-4-one) systems.

442



Organoruthenium(II) and (III) amidinates, (η^5 -C₅Me₅)Ru(η -amidinate) and (η^5 -C₅Me₅)RuCl(η -amidinate), as unique redox catalysts for the intramolecular Kharasch reactions: Facile access to a pyrrolizidine alkaloid skeleton under mild conditions

Hideo Nagashima,* Mitsuru Gondo, Satoshi Masuda, Hideo Kondo, Yoshitaka Yamaguchi and Kouki Matsubara

Both of the Ru(II) and Ru(III) amidinate complexes are good catalysts for construction of a pyrrolizidine alkaloid skeleton under mild conditions.

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Dates, venues and contact details of forthcoming events.

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