

Cover

A crystal of magnetite (on an assembly of crystals of orthose) from Fiesch, Valais, Switzerland. Courtesy of Musée ENSMP. Photo copyright: J. M. Le Cléach, Musée de Minéralogie ENSMP, Paris, France (pp. 481–487).

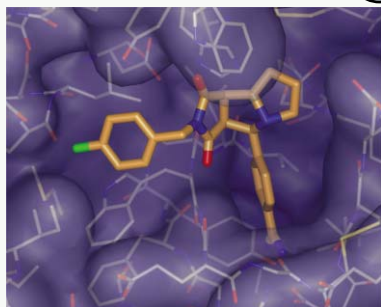


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contents

FOCUS ARTICLE

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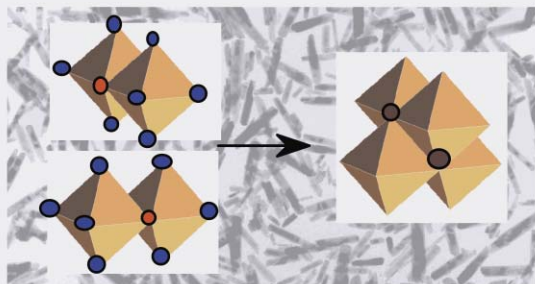
Medicinal chemistry in academia: molecular recognition with biological receptors

Fraser Hof and François Diederich*

Medicinal chemistry has traditionally been the realm of industry, but this rich field also provides ample opportunities for academic researchers. Academic medicinal chemistry investigations serve both as fundamental learning tools and as a complement to the endeavours of the private healthcare industry.

FEATURE ARTICLE

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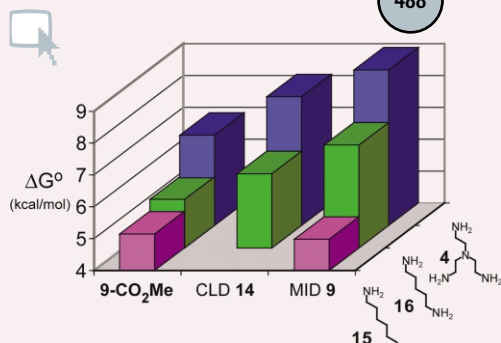
Iron oxide chemistry. From molecular clusters to extended solid networks

Jean-Pierre Jolivet, Corinne Chanéac and Elisabeth Tronc

This overview features the chemical background on the formation of molecular clusters or nanosized solid phases in aqueous solution. Ferrous, ferric and mixed valent compounds are considered showing the versatility of the iron chemistry in solution.

COMMUNICATIONS

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A monomolecularly imprinted dendrimer (MID) capable of selective binding with a tris(2-aminoethyl)amine guest through multiple functional group interactions

James B. Beil and Steven C. Zimmerman*

A molecularly imprinted dendrimer (MID) with a colorimetric reporter group exhibits three-point binding of tris(aminoethyl)amine in THF with a $K_{\text{assoc}} = 3.3 \times 10^6 \text{ M}^{-1}$.

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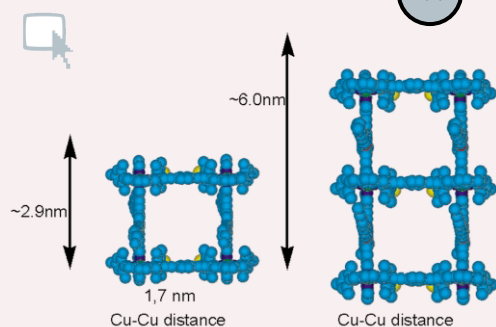
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Self-assembly of heteroleptic [2 × 2] and [2 × 3] nanogrids

Michael Schmittl,* Venkateswarlu Kalsani, Dieter Fenske and Andreas Wiegrefe

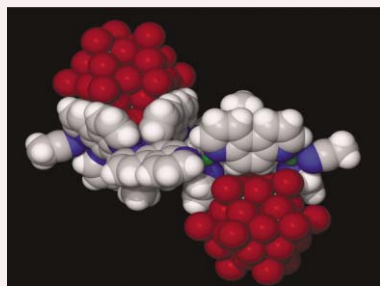
Using the HETPHEN concept a general approach to heteroleptic nanogrids is illustrated. Mechanistic investigations propose a three-step pathway.



492

A host-guest complex between a metal-organic cyclotrimeratrylene analog and a polyoxometalate: $[\text{Cu}_6(4,7\text{-phenanthroline})_8(\text{MeCN})_4]2\text{PM}_{12}\text{O}_{40}$ (M = Mo or W)

Jacqueline M. Knaust, Chad Inman and Steven W. Keller*

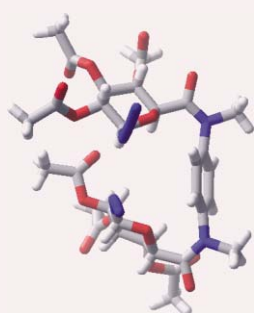
A novel Cu(I)-molecular hexamer is described in which the metal cations and phenanthroline molecules self-assemble into a dimer of shallow triangular-shaped bowls, within which are located large spherical polyoxometalate anions $\text{PM}_{12}\text{O}_{40}^{3-}$ (M = Mo or W).

494

Synthesis and X-ray single crystal structure of a bivalent glycocluster

Manuela Tosin, Helge Müller-Bunz and Paul V. Murphy*

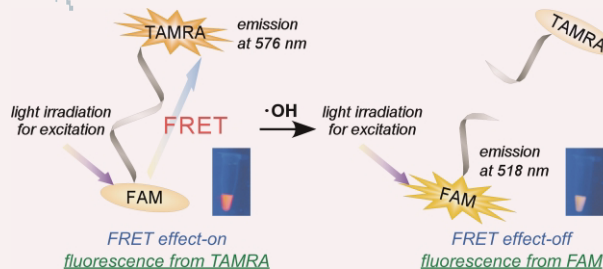
The X-ray single crystal structure of a bivalent glycocluster shows that amide alkylation alters carbohydrate presentation and facilitates non covalent interactions and carbohydrate-carbohydrate stacking.



496

A ratiometric fluorescent probe for imaging hydroxyl radicals in living cells

Nobuaki Soh, Koji Makihara, Emino Sakoda and Toshihiko Imato*

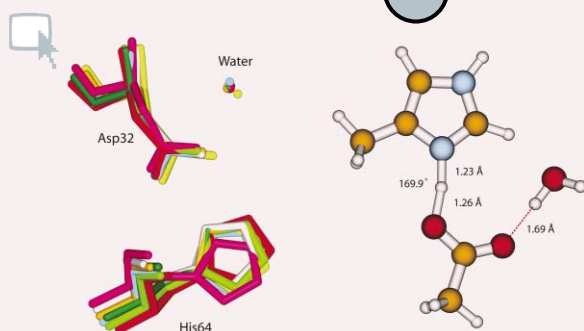
A novel fluorescent probe, the detection mechanism of which is based on the 'on-off' switching of a FRET triggered by the $\cdot\text{OH}$ -induced cleavage of a DNA strand, has been developed for the ratiometric imaging of $\cdot\text{OH}$.

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The influence of solvation on short strong hydrogen bonds: a density functional theory study of the Asp-His interaction in subtilisins

Birgit Schiøtt*

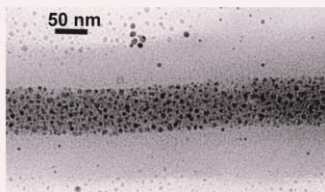
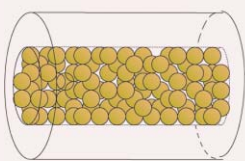
A high-level DFT study reveals that a structural water molecule favors a short strong hydrogen bond in the catalytic triad of subtilisins in sharp contrast to some current beliefs.



500

Confined organization of Au nanocrystals in glycolipid nanotube hollow cylinders

Bo Yang, Shoko Kamiya, Kaname Yoshida and Toshimi Shimizu*

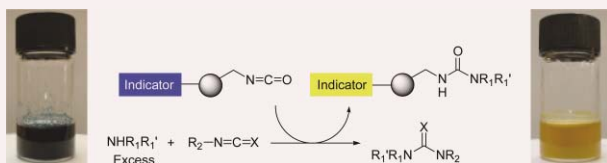


Mild fabrication of anisotropic metal–lipid nanotube (LNT) nanocomposites, in which Au nanocrystals of 3–10 nm wide are organized in a glycolipid nanotube hollow cylinder, has been achieved by filling the internal channel of the LNT with HAuCl_4 aqueous solution by capillary force and subsequent photochemical reduction of $[\text{AuCl}_4]^-$.

502

Self-indicating amine scavenger resins

Jin Ku Cho, Peter D. White, Wolfgang Klute, Tony W. Dean and Mark Bradley*

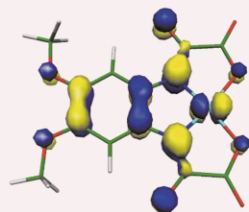
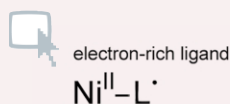


Self-indicating methylisocyanate resin, which functions as both a scavenger and an indicator for amines, was used for *in situ* reaction monitoring and purification of a urea based library.

504

From metal to ligand electroactivity in nickel(II) oxamato complexes

Xavier Ottenwaelder, Rafael Ruiz-García, Geneviève Blondin, Rosa Carasco, Joan Cano, Doris Lexa, Yves Journaux and Ally Aukauloo*

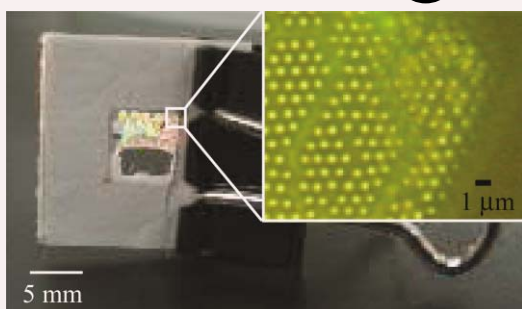


The locus of oxidation in square-planar nickel(II) oxamato complexes can be continuously shifted from the metal to the ligand by an appropriate choice of electron-donating substituents on the aromatic moiety of the ligand.

506

Influence of substrate on self-assembled photonic crystal

Sachiko I. Matsushita and Masatsugu Shimomura*

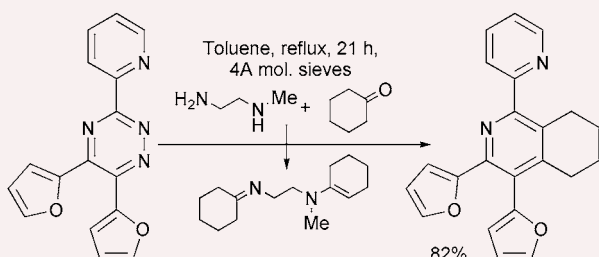


Freestanding monolayers of self-assembled photonic crystals were prepared. The spectrum of the freestanding monolayer has less noise than that of the monolayer on the substrate, and besides, agrees with the theoretical result particularly in the near-field discussion.

508

Highly substituted pyridines via tethered imine–enamine (TIE) methodology

Steven A. Raw* and Richard J. K. Taylor*



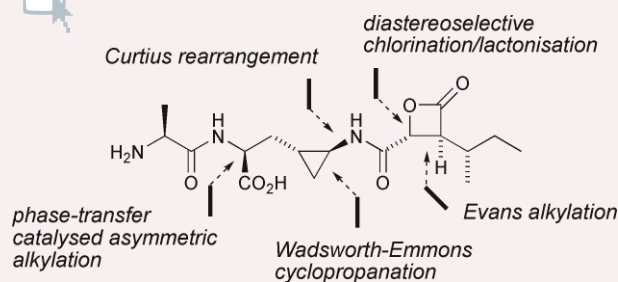
Tethered imine–enamine methodology has been developed for the direct conversion of 1,2,4-triazines into highly substituted pyridines *via* the inverse electron demand Diels–Alder reaction which avoids the need for a discrete aromatisation step.

510

Total synthesis of (+)-belactosin A

Alan Armstrong* and James N. Scutt

A concise and stereocontrolled first total synthesis of the antitumour antibiotic belactosin A is reported, involving coupling of a β -lactone carboxylic acid to *N*-Ala-aminocyclopropyl alanine.

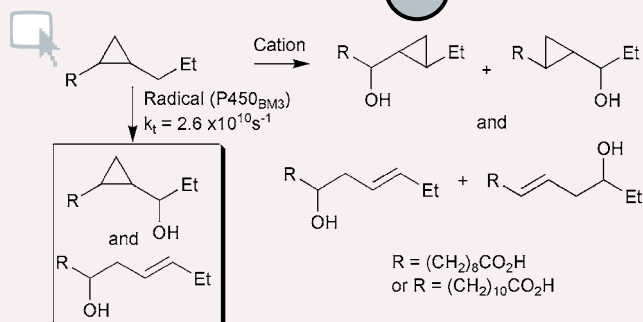


512

Cyclopropyl fatty acids implicate a radical but not a cation as an intermediate in P450_{BM3}-catalysed hydroxylations

Max J. Cryle, Julia M. U. Stuthe, Paul R. Ortiz de Montellano and James J. De Voss*

Novel cyclopropyl containing fatty acids are good substrates for P450_{BM3} catalysed hydroxylation. Oxidation products indicate the presence of a radical intermediate (rebound rate $\sim 2.6 \times 10^{10} \text{ s}^{-1}$) but not a cationic intermediate.

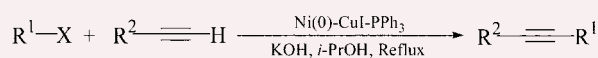


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The Sonogashira coupling reaction catalyzed by ultrafine nickel(0) powder

Lei Wang,* Pinhua Li and Yicheng Zhang

The Sonogashira coupling reaction catalyzed by ultrafine nickel(0) powder has been developed. Terminal alkynes couple with aryl, alkenyl iodide and aryl bromide in the presence of cuprous iodide, triphenylphosphine, potassium hydroxide and ultrafine particle nickel(0) to provide the corresponding cross-coupling products with high yields.

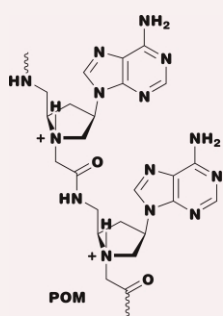


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Nucleic acid binding properties of thyminy and adeniny pyrrolidine-amide oligonucleotide mimics (POM)

T. H. Samuel Tan, David T. Hickman, Jordi Morral, Ian G. Beadham and Jason Micklefield*

Adeniny POM, prepared by solid-phase synthesis, exhibits higher affinity than adeniny PNA for DNA and RNA. Moreover thyminy POM binds much more rapidly to single stranded RNA than DNA.

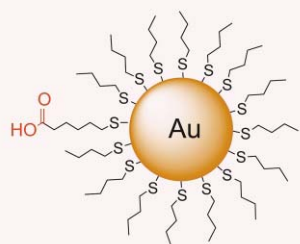


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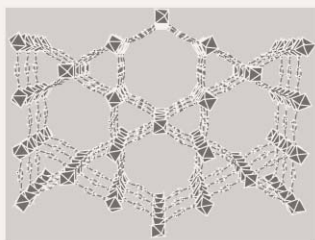
Controlled functionalization of gold nanoparticles through a solid phase synthesis approach

James G. Worden, Andrew W. Shaffer and Qun Huo*

Gold nanoparticles with controlled functionality are prepared through a solid phase synthesis technique.



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$V^{III}(OH)\{O_2C-C_6H_4-CO_2\}_x(HO_2C-C_6H_4-CO_2H)_y(DMF)_z(H_2O)_z$ (or MIL-68), a new vanadocarboxylate with a large pore hybrid topology : reticular synthesis with infinite inorganic building blocks?

K. Barthelet, J. Marrot, G. Férey and D. Riou*

MIL-68 is a vanado(III)terephthalate compound whose porous framework is described as an 'augmented' hexagonal bronze structure. This allows the extension of the reticular synthesis concept to edifices built from infinite inorganic building blocks.

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Electrospray mass spectrometry of undiluted ionic liquids

Glen P. Jackson and Douglas C. Duckworth*

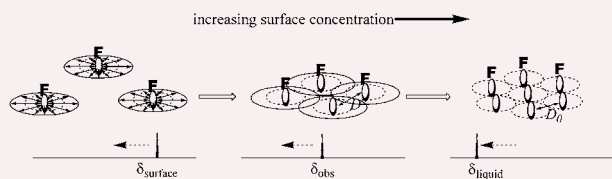


An *undiluted* ionic liquid Taylor cone forms during an electrospray mass spectrometric (ESMS) analysis. ESMS of neat ionic liquids provides a new approach for analyzing reactive ionic liquids or dissolved catalysts.

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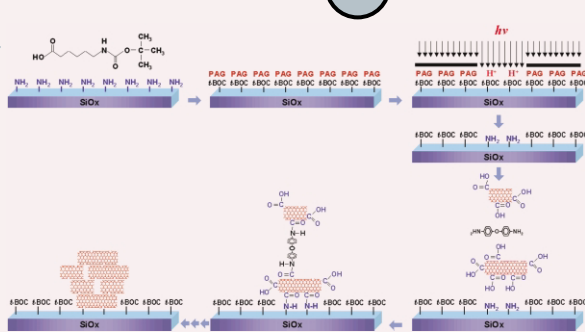
Surface energy and surface area measurements by ^{19}F MAS NMR of adsorbed trifluoroacetic acid

Vitaliy L. Budarin, James H. Clark and Stewart J. Tavener*



Trifluoroacetic acid, when adsorbed on the surface of inorganic materials, is a useful ^{19}F NMR probe molecule for studying surface properties including surface energy and surface area.

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Carbon nanotube conducting arrays by consecutive amidation reactions

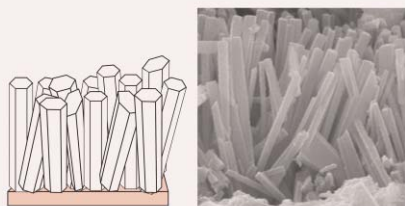
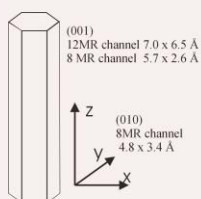
Dae-Hwan Jung, Myung Sup Jung, Young Koan Ko, Seung Joo Seo and Hee-Tae Jung*

Carbon nanotube conducting arrays with high-density multilayers were constructed *via* consecutive amidation reactions with the aid of a linker molecule and a condensation agent on a patterned amine-terminated glass substrate.

528

Preparation of highly accessible mordenite coatings on ceramic monoliths at loadings exceeding 50% by weight

M. A. Ulla, E. Miro, R. Mallada, J. Coronas and J. Santamaría*

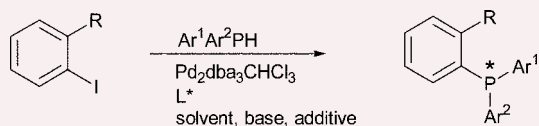


Mordenite coatings with a high accessibility have been synthesised on cordierite monolith supports at loadings exceeding 50% by weight.

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Preparation of chiral triarylphosphines by Pd-catalysed asymmetric P–C cross-coupling

Christian Korff and Günter Helmchen*

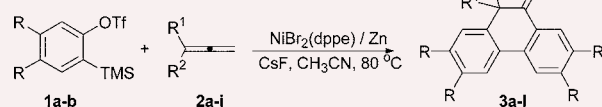


Enantioselective C–P cross-coupling of diarylphosphines and *ortho*-substituted aryl iodides has been achieved with >90% ee, using an *in situ* catalyst prepared from Et₂Et-FerroTANE, Pd₂(dba)₃ and LiBr.

532

Nickel-catalyzed highly chemoselective cocyclotrimerization of arynes with allenes: a novel method for 10-methylene-9,10-dihydrophenanthrenes

Jen-Chieh Hsieh, Dinesh Kumar Rayabarapu and Chien-Hong Cheng*

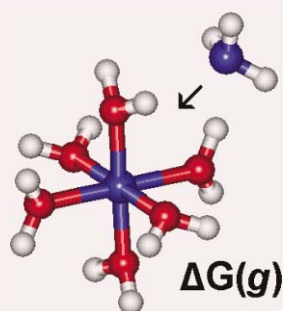


The [2+2+2] cocyclotrimerization of benzyne with allenes catalyzed by the NiBr₂(dppe)–Zn system affords dihydrophenanthrene derivatives in moderate to good yields and in very high selectivity.

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Prediction of formation constants of metal–ammonia complexes in aqueous solution using density functional theory calculations

Robert D. Hancock* and Libero J. Bartolotti*

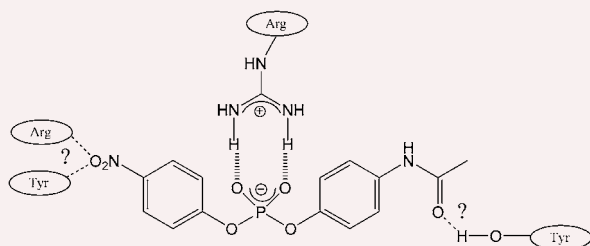


Density Functional Theory calculated gas-phase free energies of formation of mono-ammonia complexes from metal hexa-aquo ions correlate well with free energies of formation of these complexes in aqueous solution.

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Novel imprinted soluble microgels with hydrolytic catalytic activity

Stacey C. Maddock, Pamela Pasetto and Marina Resmini*

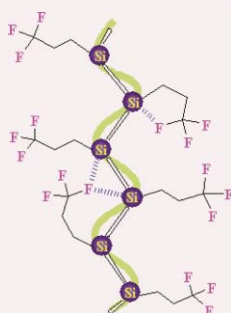


Synthesis and kinetic characterisation of soluble imprinted acrylamide based microgels incorporating arginine and tyrosine derivatives as additional functional monomers.

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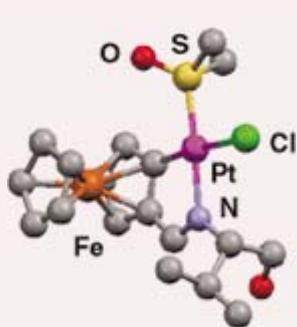
Cooperative C–F⋯Si interaction in optically active helical polysilanes

Sun-Young Kim, Anubhav Saxena, Giseop Kwak, Michiya Fujiki* and Yusuke Kawakami



We synthesized the first optically active polysilanes containing a fluoroalkyl moiety and investigated the effect of the intramolecular C–F⋯Si weak interaction on the helical conformation of polysilanes.

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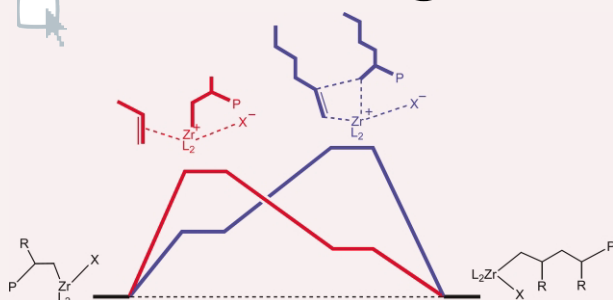


Easy access to diastereomerically pure platinumacycles

Concepción López,* Amparo Caubet, Sonia Pérez, Xavier Solans and Mercè Font-Bardía

The method for the preparation and isolation of the first examples of diastereomerically pure platinumacycles containing simultaneously a chiral carbon and a $\sigma[\text{Pt-Csp}^2(\text{ferrocene})]$ bond is described, and the factors affecting their formation are also discussed.

542

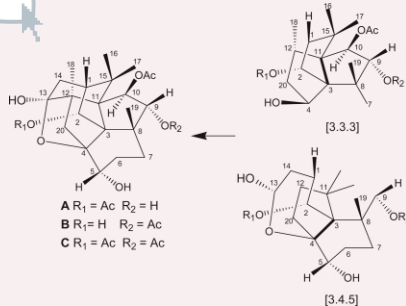


The kinetics of propene and hexene polymerisation with $[(\text{SBI})\text{ZrR}]^+\text{X}^-$: evidence for monomer-dependent early or late transition states

Fuquan Song, Roderick D. Cannon and Manfred Bochmann*

Whereas the rates of *propene* polymerisation catalysed by zirconocene ion pairs are strongly anion-dependent, *hexene* polymerisations are not: the findings demonstrate the existence of very different kinetic regimes for two closely related reactions.

544

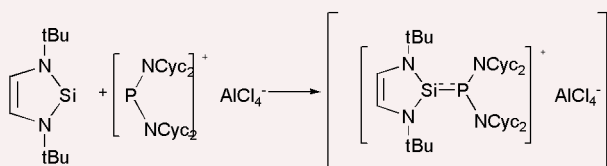


First three examples of taxane-derived di-propellanes in *Taxus canadensis* needles

Qing Wen Shi, Françoise Sauriol, Alain Lesimple and Lolita O. Zamir*

The first three examples of taxane-derived [3.3.3][3.4.5] di-propellanes isolated from the needles of a yew tree are reported. They differ in their acetylation pattern and their biogenesis from a putative taxane precursor is proposed.

546

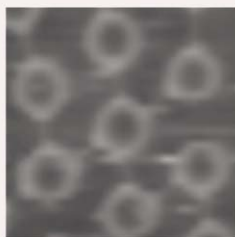


Insights into the reactivity and structure of silylene phosphonium ions

Rudolf Pietschnig*

Experimental evidence for the intermediate occurrence of a so far unknown silylene phosphonium ion is presented and its reactivity and bond situation is discussed on the basis of *ab initio* calculations.

548



Fabrication of two-dimensionally ordered macroporous silica materials with controllable dimensions

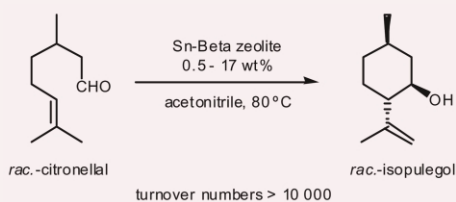
Mandakini Kanungo and Maryanne M. Collinson*

The formation of 2-D arrays of cavities of varying size and depth on an electrode surface *via* colloidal templating is described.

550

Sn-Beta zeolite as diastereoselective water-resistant heterogeneous Lewis-acid catalyst for carbon–carbon bond formation in the intramolecular carbonyl–ene reaction

Avelino Corma* and Michael Renz



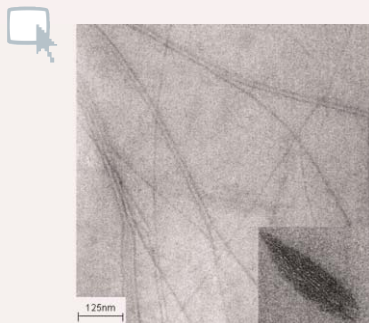
Sn-Beta is a heterogeneous water-tolerant Lewis acid that catalyses the isomerisation of citronellal to isopulegol with high diastereoselectivity. Due to its heterogeneous nature it can be employed not only in batch reactors but also in fixed bed reactors achieving very high turnover numbers.

552

Porphyrin–acetylene–thiophene polymer wires

Guangtao Li, Tianyu Wang, Andrea Schulz, Sheshanath Bhosale, Matthias Lauer, Pamela Espindola, Jürgen Heinze and Jürgen-Hinrich Fuhrhop*

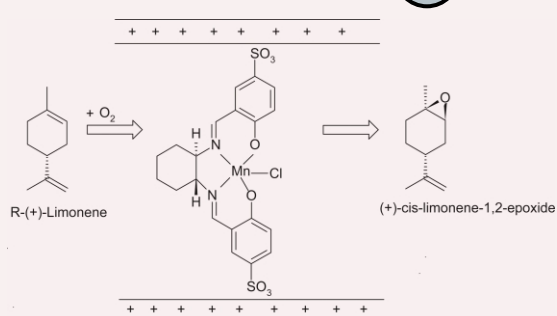
5,15-Bis[acetylene-4-(ethylenedioxy)thiophene]-10,20-bis(4-carboxyphenyl)-porphyrin was synthesized by a Sonogashira coupling and polymerized to fibres; TEM and AFM images show uniform porphyrin wires with a length of several micrometers and monomolecular thickness.



554

Synthesis and characterization of novel chiral sulfonato–salen–manganese(III) complex in a zinc–aluminium LDH host

Samiran Bhattacharjee and James A. Anderson*



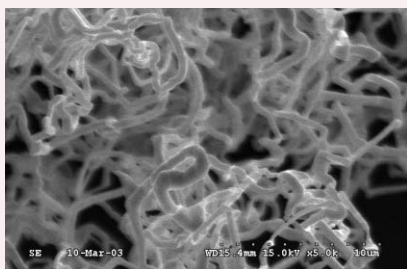
A salen–Mn(III) complex, intercalated within the layers of an LDH host acted as an effective, stable, stereoselective heterogeneous catalyst for the epoxidation of *R*-(+)-limonene using molecular oxygen at room temperature.

556

Template-free synthesis of single-crystalline cadmium nanotubes

Pingàn Hu, Yunqi Liu,* Lei Fu, Lingchao Cao and Daoben Zhu*

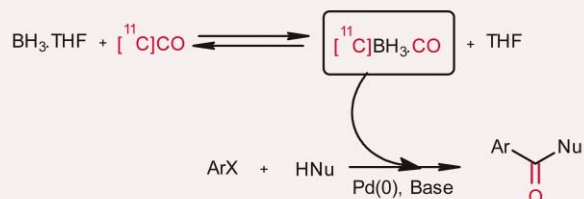
Single-crystalline cadmium nanotubes growing in the form of a heap were produced for the first time by a template-free method in high yield



558

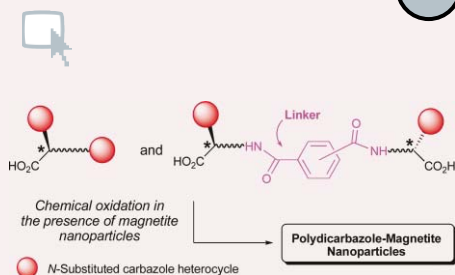
Utilisation of [¹¹C]-labelled boron carbonyl complexes in palladium carbonylation reaction

Hélène Audrain,* Laurent Martarello, Antony Gee and Dirk Bender



The use of the [¹¹C]BH₃–CO complex as a source of carbon monoxide in the carbonylation of iodobenzene catalysed by palladium(0) is described, which allows the synthesis of an amide and a lactone in a straightforward manner.

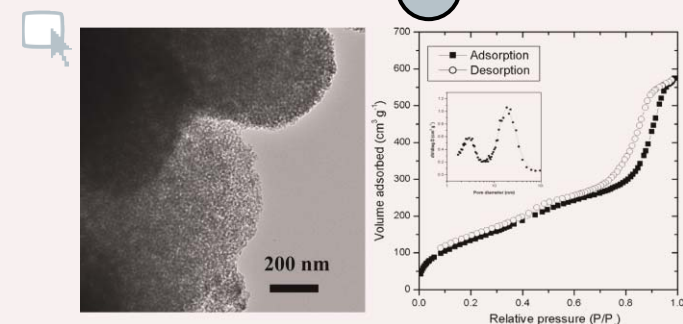
560

**New magnetically responsive polydicarbazole-magnetite nanoparticles**

Jean-Paul Lellouche,* Nurit Perlman, Augustine Joseph, Senthil Govindaraji, Ludmila Buzhansky, Aline Yakir and Ian Bruce

Magnetically responsive COOH-polydicarbazole-magnetite nanocomposites have been prepared by chemical oxidation of COOH-dicarbazole monomers in the presence of magnetite nanoparticles. Resulting nanoparticles have been tested for DNA hybridization experiments.

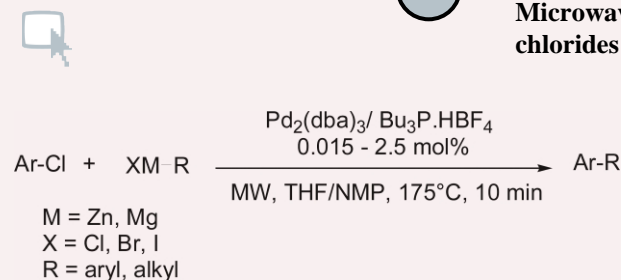
562

**Mesocellular polymer foams with unprecedented uniform large mesopores and high surface areas**

Jinwoo Lee, Jaeyun Kim, Sang-Wook Kim, Chae-Ho Shin* and Taeghwan Hyeon*

Mesocellular polymer foams with uniform ~17 nm cellular pores were fabricated using mesocellular silica foams as inorganic templates. The mesocellular polymer foams have high surface areas up to ~600 m²g⁻¹ and pore volumes of 1.6 cm³g⁻¹

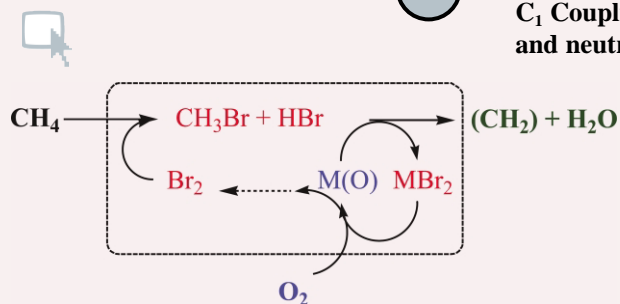
564

**Microwave-assisted Negishi and Kumada cross-coupling reactions of aryl chlorides**

Peter Walla and C. Oliver Kappe*

Fast and efficient microwave protocols for C–C coupling reactions of the Negishi and Kumada type involving aryl chlorides are described. The application to solid-phase synthesis is also reported.

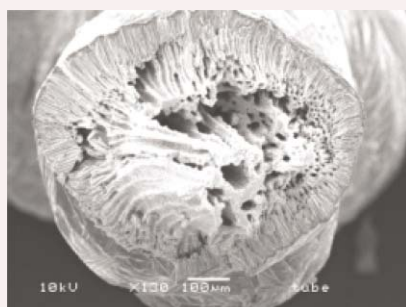
566

**C₁ Coupling via bromine activation and tandem catalytic condensation and neutralization over CaO/zeolite composites**

Ivan Lorkovic,* Maria Noy, Mike Weiss, Jeff Sherman, Eric McFarland, Galen D. Stucky and Peter C. Ford

Methane is partially oxidized by O₂ to olefins using Br₂ as a mediator for methane activation. Intermediate CH_xBr_{4-x} are condensed to higher hydrocarbons and HBr is neutralized over a regenerable CaO/ZSM-5 composite. Br₂ is released upon treating the spent composite with O₂.

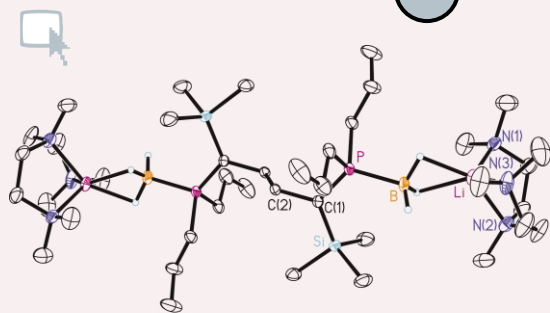
568

**Spontaneous template-free assembly of ordered macroporous titania**

Andrew Collins, Daniel Carriazo, Sean A. Davis* and Stephen Mann

Titania powders and fibres with ordered macroporosity have been produced by the facile reaction of titanium alkoxides with aqueous ammonia solution.

570

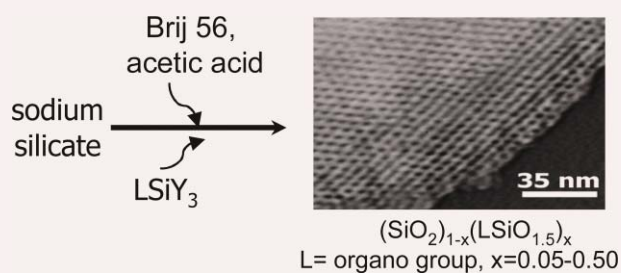


Synthesis and structural characterisation of a novel phosphine-borane-stabilised dicarbanion and an unusual bis(phosphine-borane)

Keith Izod,* William McFarlane, Brent V. Tyson, William Clegg and Ross W. Harrington

The X-ray crystal structure of the phosphine-borane-stabilised dicarbanion **2b** reveals that the lithium is bound by the BH₃ hydrogens rather than the carbanion centre.

572

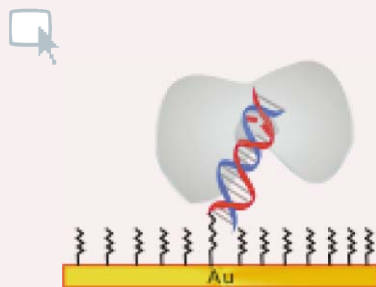


A versatile pathway for the direct assembly of organo-functional mesostructures from sodium silicate

Jainisha Shah, Seong-Su Kim and Thomas J. Pinnavaia

Silica mesostructures with well-expressed hexagonal and wormhole framework structures and up to 50% organo-functionalization of the framework silicon sites have been directly assembled from sodium silicate.

574

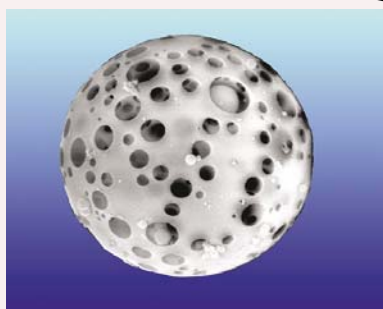


Protein–DNA interaction: impedance study of MutS binding to a DNA mismatch

Chen-Zhong Li, Yi-Tao Long, Jeremy S. Lee* and Heinz-Bernhard Kraatz*

Electrochemical impedance spectroscopy is a highly sensitive tool for the detection of single base-pair mismatches in double stranded DNA by monitoring the binding of MutS to a diluted DNA film.

576

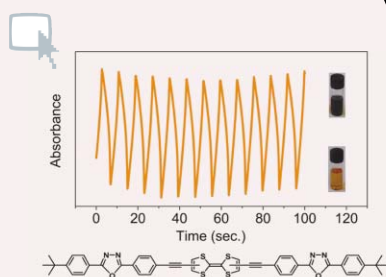


Single-step fabrication of drug-encapsulated inorganic microspheres with complex form by sonication-induced nanoparticle assembly

Alexander Kulak, Simon R. Hall and Stephen Mann*

Drug-loaded porous silica or titania microspheres with complex morphologies and storage/release properties can be prepared by sonication of nanoparticle suspensions confined within aqueous droplets of drug solutions dispersed in toluene.

578



Electrochromic tetrathiafulvalene derivatives functionalised with 2,5-diaryl-1,3,4-oxadiazole chromophores

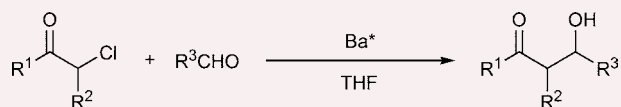
Changsheng Wang, Andrei S. Batsanov and Martin R. Bryce*

Electrochromic switching of 2,5-diaryl-1,3,4-oxadiazole extended tetrathiafulvalene derivatives, between orange (neutral) and dark-green (oxidised) states, has been demonstrated.

580

Reactive barium-promoted Reformatsky-type reaction of α -chloroketones with aldehydes

Akira Yanagisawa,* Hiroshi Takahashi and Takayoshi Arai

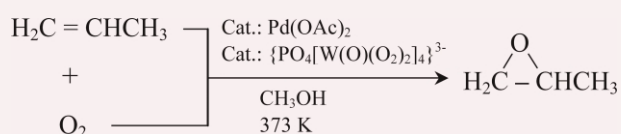


A Reformatsky-type reaction of α -chloroketones with aldehydes has been achieved using reactive barium as a low-valent metal in THF.

582

Direct epoxidation of propylene by molecular oxygen over a catalyst system containing palladium and a peroxy-heteropoly compound in methanol

Yanyong Liu,* Kazuhisa Murata and Megumu Inaba

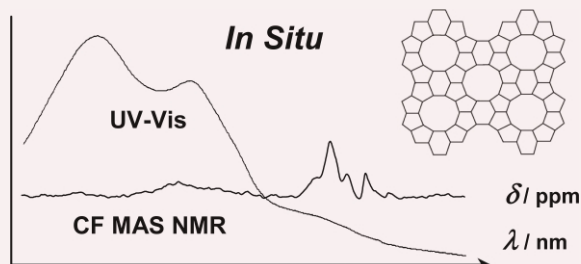


A catalyst system consisting of palladium and a peroxy-heteropoly compound in methanol showed high selectivity for propylene oxide in the oxidation of propylene using O_2 as an oxidant at 373 K.

584

Formation of cyclic compounds and carbenium ions by conversion of methanol on weakly dealuminated zeolite H-ZSM-5 investigated via a novel *in situ* CF MAS NMR/UV-Vis technique

Michael Hunger* and Wei Wang

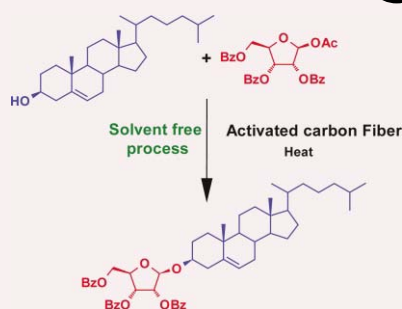


Combining MAS NMR spectroscopy under continuous-flow (CF) conditions and UV-Vis spectroscopy in a novel *in situ* technique, the formation of cyclic compounds and carbenium ions by the conversion of methanol on weakly dealuminated zeolite H-ZSM-5 is investigated.

586

A new method of solvent free *O*- and *N*-glycosylation using activated carbon fiber (ACF) as a promoter. Application to the synthesis of saponin and nucleoside analogues

Sophie Lautrette, Robert Granet and Pierre Krausz*

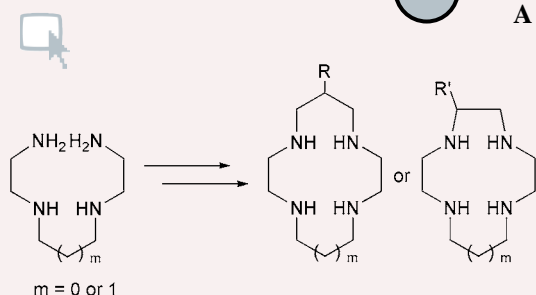


Sterol/triterpene *O*-glycosides and 6-chloropurine *N*-glycoside have been obtained with acidic activated carbon fiber as promoter, without solvent.

588

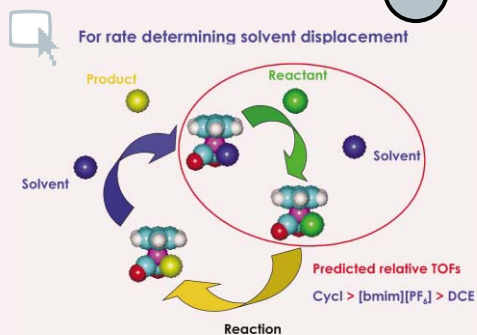
A powerful route to *C*-functionalised tetraazamacrocycles

Frédéric Boschetti, Franck Denat, Enrique Espinosa, Jean-Marie Lagrange and Roger Guillard*



A straightforward route for the preparation of various *C*-functionalised tetraazacycloalkanes is reported where the bisaminal template approach used may advantageously replace the known synthetic procedures for such precursors of bifunctional chelating agents.

590



Modelling catalytic turnover frequencies in ionic liquids: the determination of the bimolecular rate constant for solvent displacement from [(C₆H₆)Cr(CO)₂Solv] in 1-*n*-butyl-3-methylimidazolium hexafluorophosphate

Konrad Swiderski, Andrew McLean,* Charles M. Gordon* and D. H. Vaughan

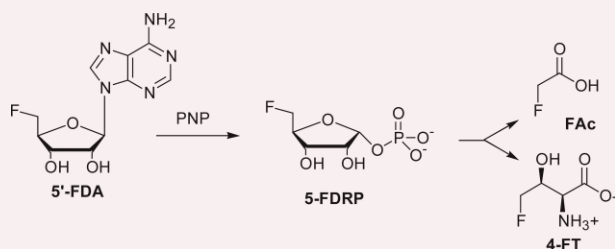
The bimolecular rate constant for solvent displacement from [(C₆H₆)Cr(CO)₂Solv] by an incoming ligand has been determined in the room temperature ionic liquid, [bmim][PF₆], and is compared to that in cyclohexane and dichloroethane.

592

Identification of 5-fluoro-5-deoxy-D-ribose-1-phosphate as an intermediate in fluorometabolite biosynthesis in *Streptomyces cattleya*

Steven L. Cobb, Hai Deng, John T. G. Hamilton, Ryan P. McGlinchey and David O'Hagan*

5'-Fluoro-5'-deoxy-D-ribose-1-phosphate (FDRP) has been identified as a biochemical intermediate during fluorometabolite biosynthesis in *Streptomyces cattleya*.

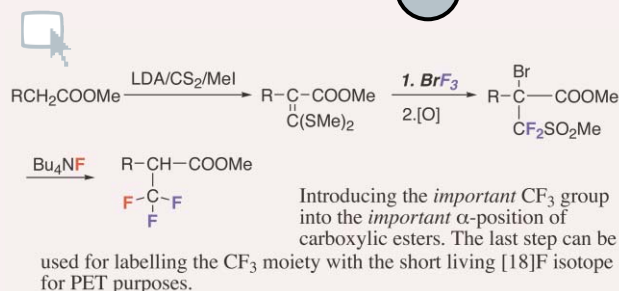


594

The first general method for α -trifluoromethylation of carboxylic acids using BrF₃

Aviv Hagooly and Shlomo Rozen*

2-Carbomethoxy-1,1-bis(methylsulfide)-1-alkenes, treated with BrF₃, produce the desired α -trifluoromethyl carboxylate derivatives – RCH(CF₃)COOR' – in good yields.

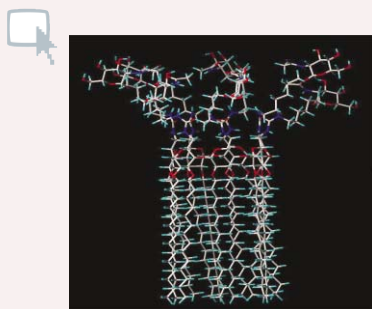


596

A practical synthesis of amphiphilic cyclodextrins fully substituted with sugar residues on the primary face

Florence Sallas, Kenichi Niikura and Shin-Ichiro Nishimura*

The first synthesis of a fully glycosylated cyclodextrin amphiphile has been achieved: the primary rim is substituted with 7 *N*-acetyl-D-glucosamine units while the secondary rim is substituted with 14 palmitoyl ester chains.

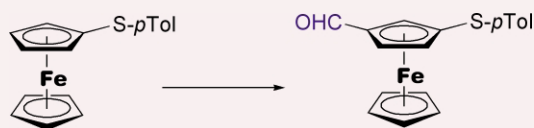


598

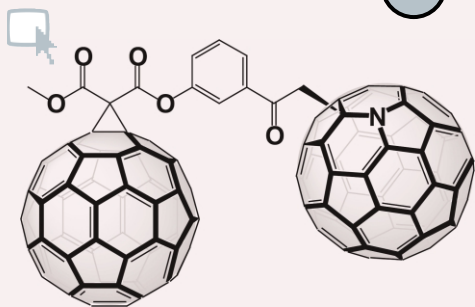
A direct *meta*-lithiation route to 1,3-disubstituted ferrocenes

Christophe Pichon, Barbara Odell and John M. Brown*

A non-directed lithiation of ferrocenyl sulfides affords easy access to *meta*-disubstituted ferrocenes.



600

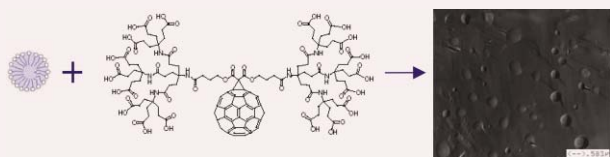


The first fullerene–heterofullerene dyad

Frank Hauke, M. Ángeles Herranz, Luis Echegoyen,* Dirk Guldi,* Andreas Hirsch* and Stefan Atalick

In this paper we present the first example of a fullerene–heterofullerene dyad, synthesized *via* a highly regioselective addition reaction. This molecule represents a very interesting functional architecture that allows for a uni-directional transduction of energy.

602

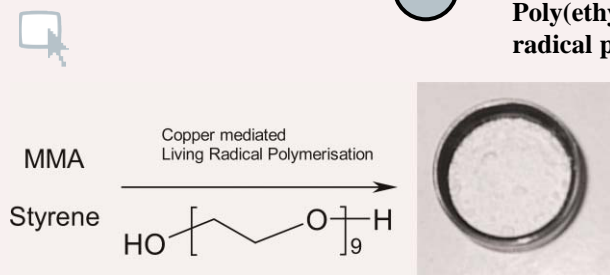


Well-defined self-assembling supramolecular structures in water containing a small amount of C₆₀

Jingcheng Hao,* Hongguang Li, Weimin Liu and Andreas Hirsch*

The well-defined spherical bilayer vesicles of the dendritic C₆₀-amphiphile–surfactant hybrids were prepared in aqueous solutions containing a small amount of C₆₀.

604

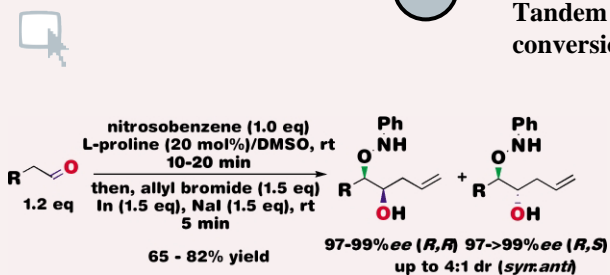


Poly(ethylene glycol) as solvent for transition metal mediated living radical polymerisation

Sébastien Perrier,* Hesna Gemici and Song Li

The use of low molecular weight poly(ethylene glycol) (PEG) as novel solvent for the copper mediated living radical polymerisation of methyl methacrylate and styrene leads to well-defined polymers with low residual copper content.

606

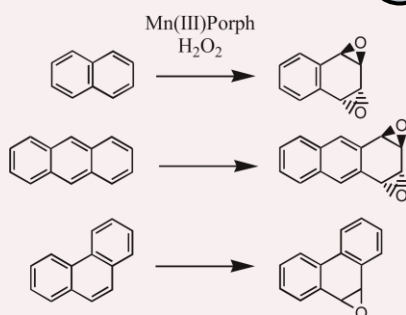


Tandem aminoxylation–allylation reactions: a rapid, asymmetric conversion of aldehydes to mono-substituted 1,2-diols

Guofu Zhong*

Enantiopure mono-substituted 1,2-diols were easily made by a rapid one-pot aminoxylation–allylation reaction. The discovery of *in situ* allylation extends the utility and importance far beyond the initial discovery of the asymmetric α -aminooxylation.

608



An efficient approach for aromatic epoxidation using hydrogen peroxide and Mn(III) porphyrins

Susana L. H. Rebelo, Mário M. Q. Simões, M. Graça P. M. S. Neves, Artur M. S. Silva and José A. S. Cavaleiro*

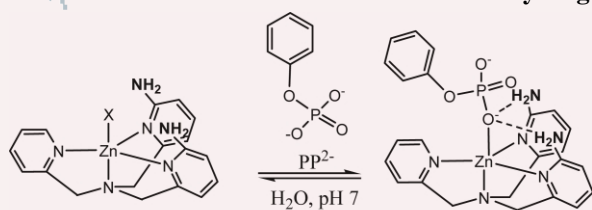
In the presence of Mn(III)porphyrins and H₂O₂, naphthalene and anthracene afford the *anti*-1,2:3,4-arene dioxides whereas phenanthrene gives rise to the 9,10-oxide, all in very high conversions and selectivities.

610

The affinity of phosphates to zinc(II) complexes can be increased with hydrogen bond donors

Juan C. Mareque-Rivas,* Rafael Torres Martín de Rosales and Simon Parsons

Non-coordinating amino H-bond donors adjacent to a zinc(II)-centre enhance the affinity of phosphates to the zinc(II) centre



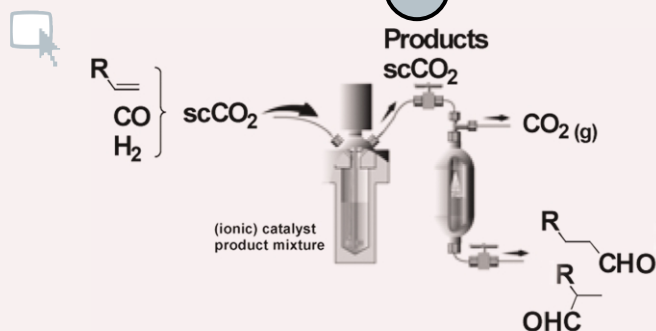
X = H₂O:OH; 1:2

612

Continuous flow homogeneous catalysis using supercritical fluids

Paul B. Webb and David J. Cole-Hamilton*

1-Octene is hydroformylated in a continuous flow process by retaining the catalyst within a reactor dissolved in the steady state mixture of reactants and products and transporting the substrates and products into and out of the reactor dissolved in scCO₂.



614

A novel scandium fluoride, [C₂N₂H₁₀]_{0.5}[ScF₄], with an unprecedented tungsten bronze-related layer structure.

Nicholas F. Stephens, Alexandra M. Z. Slawin and Philip Lightfoot*

[C₂N₂H₁₀]_{0.5}[ScF₄] exhibits a novel structure that consists of single octahedrally connected scandium fluoride layers and has features similar to those of the tungsten bronzes and layered perovskites. It may represent the first in a family of new layered structure types based on these general structural and compositional features.

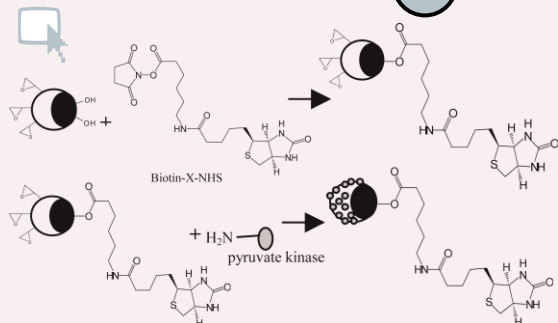


616

Biotinylated and enzyme-immobilized carrier prepared by hetero-bifunctional latex beads

Yong-Zhong Du, Takenori Tomohiro, Gao Zhang, Kazuhiko Nakamura and Masato Kodaka*

Biotinylated and pyruvate kinase immobilized nano-bio element have been prepared using hetero-bifunctional latex beads, where the enzyme activity is roughly half of the free enzyme.

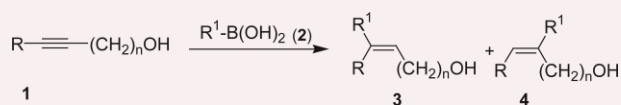


618

On the regioselectivity of Pd-catalyzed additions of organoboronic acids to unsymmetrical alkynes

Nakjoon Kim, Ki Seong Kim, Aruna Kumar Gupta and Chang Ho Oh*

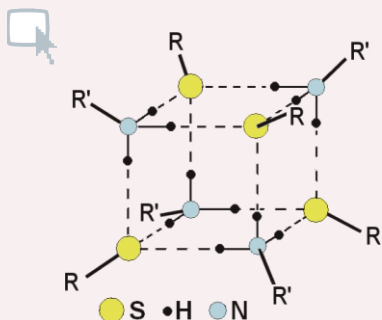
The Pd-catalyzed reaction of unsymmetrical alkynes **1** with organoboronic acids **2** gave a mixture of products **3** and **4**, whose ratios were controlled by the electronic as well as steric effects of the substrates **1**.



cond: Pd(PPh₃)₄ (3mol%), AcOH (10mol%), 60–80 °C, 1,4-Dioxane.

2a: PhB(OH)₂; **2b**: *n*-C₄H₉CH=CHB(OH)₂

620



Cubane-like structure of a silanethiol – primary amine assembly – a novel, unusual hydrogen bond pattern

Barbara Becker,* Katarzyna Baranowska, Jarosław Chojnacki and Wiesław Wojnowski

Four molecules of a silanethiol RSH and four molecules of a primary amine R'NH₂ combine giving a 'cubane-like' supermolecule, where a somewhat idealized picture shows how its twelve N–H...S hydrogen bonds form a novel, previously unknown pattern.

CONFERENCE DIARY

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Dates, venues and contact details of forthcoming events.

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NOTE: An asterisk in the heading of each paper indicates the author who is to receive any correspondence.