

Cover

The universe of transition-metal-containing chiral bidentate ligands is rapidly expanding, and is symbolized on the cover as a solar system with a ferrocene-based sun and celestial bodies featuring ligands and metals that play a prominent role in the feature article.



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

contents

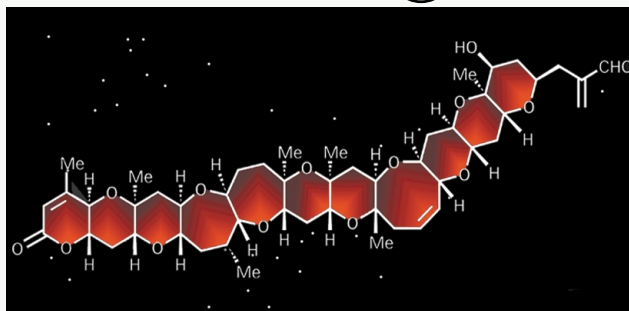
FOCUS ARTICLE

661

Creating complexity – the beauty and logic of synthesis

K. C. Nicolaou

The author's work in the total synthesis of natural products, marked by the conquest of some extraordinarily challenging target compounds, is described.



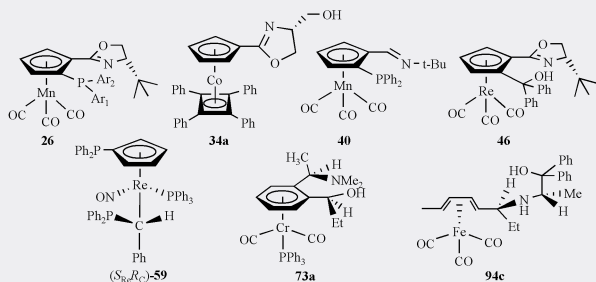
FEATURE ARTICLE

665

Transition-metal-containing chiral bidentate ligands for enantioselective catalysis: non-metallocene architectural units come of age

Olivier Delacroix and John A. Gladysz*

The title paradigm represents an exciting new frontier for ligand design for metal-catalyzed enantioselective reactions, some examples of which include **26**, **34a**, **40**, **46**, (*S_{Re}R_C*)-**59**, **73a**, and **94c**.



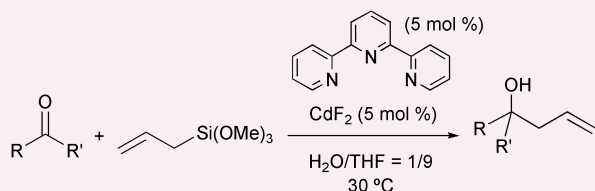
COMMUNICATIONS

676

Allylation reactions of carbonyl compounds using an organosilicon reagent in aqueous media

Naohiro Aoyama, Tomoaki Hamada, Kei Manabe and Shu Kobayashi*

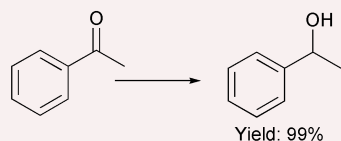
Allylation reactions of carbonyl compounds such as aldehydes and reactive ketones using allyltrimethoxysilane in aqueous media proceeded smoothly in the presence of 5 mol% of a CdF₂-terpyridine complex.



678

Transfer hydrogenation using recyclable polyurea-encapsulated palladium: efficient and chemoselective reduction of aryl ketones

Jin-Quan Yu, Hai-Chen Wu, Chandrashekar Ramarao, Jonathan B. Spencer* and Steven V. Ley*



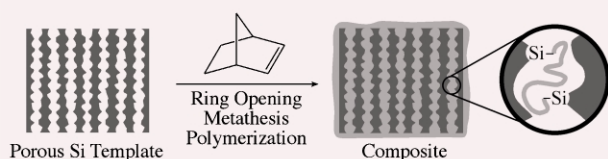
Reagents and conditions: 10 mol% Pd⁰-EnCat, 0.8 mmol HCOOH, 0.8 mmol Et₃N, 200 μL EtOAc, 24 °C, 21 hrs

The treatment of polyurea-encapsulated palladium(II) acetate with formic acid provides a robust and recyclable palladium catalyst [Pd⁰EnCat] which is demonstrated to be an efficient and chemoselective transfer hydrogenation catalyst for the reduction of aryl ketones.

680

Covalent crosslinking of 1-D photonic crystals of microporous Si by hydrosilylation and ring-opening metathesis polymerization

Myeong Sik Yoon, Kyo Han Ahn,* Ronnie W. Cheung, Honglae Sohn, Jamie R. Link, Frédérique Cunin and Michael J. Sailor*

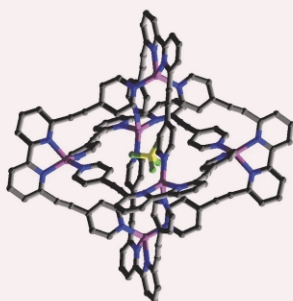


A flexible and stable composite photonic material is prepared by “*in situ*” ring-opening metathesis polymerization in porous Si multilayer dielectric mirrors, in which poly(norbornene) is covalently attached to the porous Si matrix.

682

A novel synthetic strategy for hexanuclear supramolecular architectures

Oleg V. Dolomanov, Alexander J. Blake, Neil R. Champness,* Martin Schröder and Claire Wilson

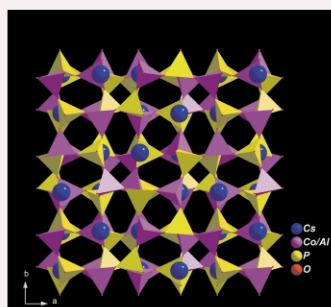


Hexanuclear cage complexes [M₆L₆X](X)₅ [M = Cu(I), Ag(I); L = 6,6'-bis(4-ethynylpyridine)2,2'-bipyridine; X = BF₄⁻, SbF₆⁻] have been prepared using a self-assembly approach; these architectures encapsulate anions in the solid-state and are fluxional in solution.

684

High temperature synthesis of a noncentrosymmetric site-ordered cobalt aluminophosphate related to the pollucite structure

J. P. Hirst, J. B. Claridge, M. J. Rosseinsky and P. Bishop

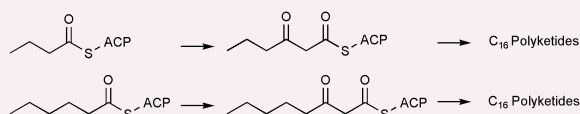


Partial Co²⁺ and Al³⁺ ordering over the tetrahedral sites produces a noncentrosymmetric decoration of the pollucite network accessible by high-temperature synthesis.

686

First *in vitro* directed biosynthesis of new compounds by a minimal type II polyketide synthase: evidence for the mechanism of chain length determination

T. P. Nicholson, C. Winfield, J. Westcott, J. Crosby, T. J. Simpson and R. J. Cox*

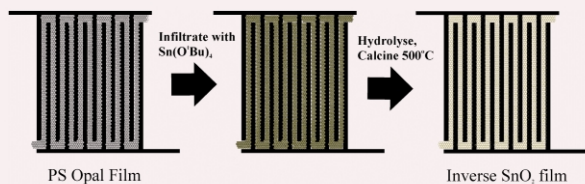


Reactions catalysed by the purified actinorhodin minimal polyketide synthase (PKS) *in vitro* give rise to new C₁₆ polyketides regardless of the length of the starter unit. This gives the first experimental evidence that type II PKS control chain length by measuring.

688

Electronically addressable SnO₂ inverted opal gas sensors fabricated on interdigitated gold microelectrodes

Robert W. J. Scott, San Ming Yang, David E. Williams and Geoffrey A. Ozin*

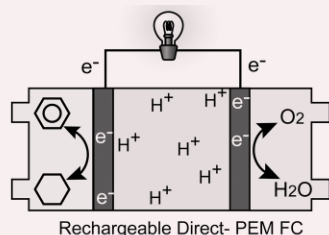
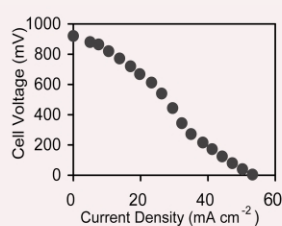


We report the fabrication of inverted SnO₂ opal films on interdigitated gold electrodes and show these devices have reproducible sensor-to-sensor responses to carbon monoxide due to the precise microstructural control of the SnO₂.

690

Zero-CO₂ emission and low-crossover 'rechargeable' PEM fuel cells using cyclohexane as an organic hydrogen reservoir

Nobuko Kariya, Atsushi Fukuoka and Masaru Ichikawa*

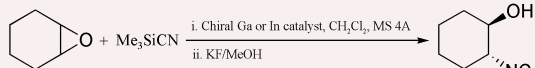


High performance (open circuit voltage = 920 mV, maximum power density = 14–15 mW cm⁻²) of the PEM fuel cell was achieved by using cyclohexane as a fuel with zero-CO₂ emission and lower-crossover through PEM than with a methanol-based fuel cell.

692

The first example of enantioselective isocyanosilylation of *meso* epoxides with TMSCN catalyzed by novel chiral organogallium and indium complexes

Chengjian Zhu,* Fang Yuan, Weijin Gu and Yi Pan*

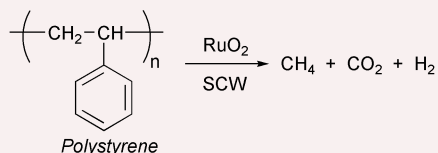


The desymmetrization ring opening of *meso* epoxides with trimethylsilyl cyanide catalyzed by novel chiral organogallium and indium complexes as soft Lewis acids gave β -isocyanohydrins with moderate to excellent enantioselectivities.

694

Gasification reaction of organic compounds catalyzed by RuO₂ in supercritical water

Ki Chul Park and Hiroshi Tomiyasu*



Carbon conversion: quant.

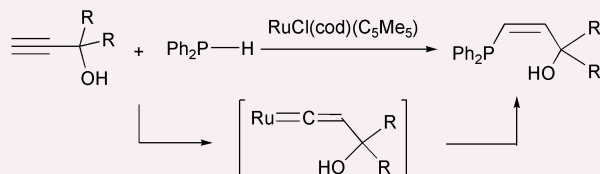
Product distribution: CH₄ (54%), CO₂ (39%), H₂ (7%)

Nearly complete gasification of organic compounds has been achieved by the catalysis of RuO₂ in supercritical water (SCW) to produce CH₄, CO₂ and H₂. Catalysis by RuO₂ results from a Ru^{IV}/Ru^{II} redox couple induced by SCW.

696

Ruthenium catalyzed regioselective hydrophosphination of propargyl alcohols

François Jérôme Florian Monnier, Hania Lawicka, Sylvie Dérien and Pierre H. Dixneuf*

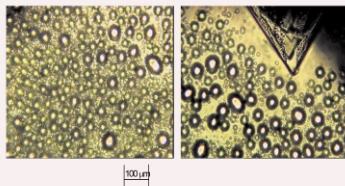


Catalytic hydrophosphination of propargyl alcohols by ruthenium complexes leads to the formation of functionalized vinylphosphines via a ruthenium vinylidene intermediate.

698

Solution crystallisation *via* a submerged liquid–liquid phase boundary: oiling out

P. E. Bonnett, K. J. Carpenter, S. Dawson and R. J. Davey*

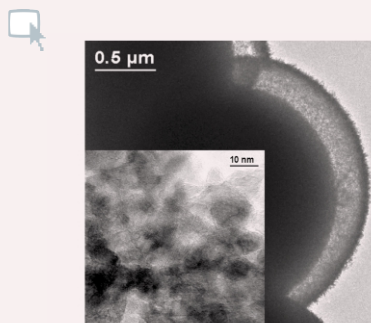


In the context of crystal nucleation from solution the route *via* which molecules make the transition from liquid to solid is of central interest. Here we show direct evidence for the creation of a crystalline state *via* a liquid–liquid dispersion.

700

Fabrication of mesoporous core-shell structured titania microspheres with hollow interiors

Chang-Wen Guo, Yong Cao,* Song-Hai Xie, Wei-Lin Dai and Kang-Nian Fan*

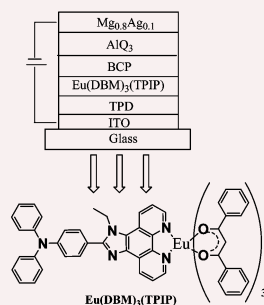


Thermally stable mesoporous core-shell structured titania microspheres with well-defined hollow interiors were directly prepared by a novel hydrothermal precipitation of TiCl_4 in the presence of urea and ammonium sulfate.

702

Bright and monochromic red light-emitting electroluminescence devices based on a new multifunctional europium ternary complex

Min Sun, Hao Xin, Ke-Zhi Wang,* Yong-An Zhang, Lin-Pei Jin and Chun-Hui Huang*

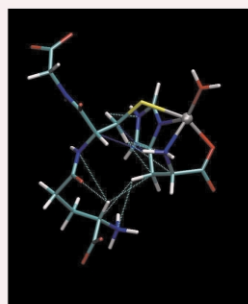


A maximum Eu^{III} -based pure red emitting luminance of 1305 cd m^{-2} was achieved at 16 V and 255 mA cm^{-2} with an onset driving voltage of 6 V; the maximum external quantum yield and luminous yield are estimated to be 0.85% and 1.44 lm W^{-1} , respectively, at 7.5 V and 0.25 mA cm^{-2} .

704

May GSH and L-His contribute to intracellular binding of zinc? Thermodynamic and solution structural study of a ternary complex

Artur Krężel, Jacek Wójcik, Maciej Maciejczyk and Wojciech Bal*

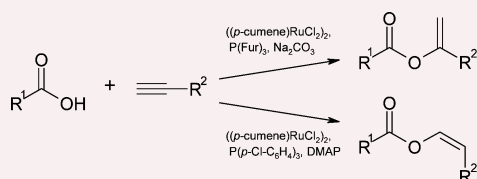


The solution structure of $\text{ZnH}(\text{GSH})(\text{L-His})(\text{H}_2\text{O})$ explains its stereoselectivity over the D-His isomer, through multiple weak interligand H-bonds. However, simulations indicate binary rather than ternary GSH complexes as likely intracellular species.

706

Regiocontrolled Ru-catalyzed addition of carboxylic acids to alkynes: practical protocols for the synthesis of vinyl esters

Lukas J. Goossen, Jens Paetzold and Debasis Koley



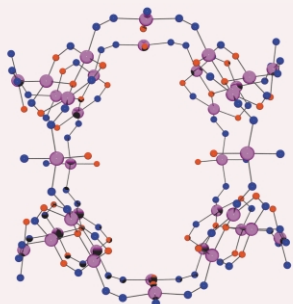
Efficient catalyst systems for the addition of carboxylic acids to alkynes were developed. Catalytic amounts of base accelerate the reaction, and the nature of the base determines the regioselectivity.

708

Structural and magnetic properties of a self-assembled spheroidal triakonta-hexanuclear Cu₃₆ cluster

Tareque S. M. Abedin, Laurence K. Thompson,* David O. Miller and Erik Krupicka

Self-assembly of the heptadentate tritopic ligand 'dpocco' with copper acetate leads to a novel anti-ferromagnetically coupled Cu₃₆ cluster with eight triangular Cu₃(μ-OH) subunits linked by twelve Cu(μ-N₂)₂ bridges.

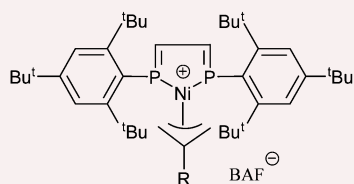


710

New thermally stable cationic η³-allyl(1,4-diphospha-(1,3)-butadiene)nickel complexes for ethylene polymerization

Alex Ionkin* and William Marshall

Novel η³-allyl nickel complexes featuring 1,4-diphospha-(1,3)-butadiene ligand with two sp²-hybridized phosphorus atoms have been obtained by reaction of the (*E,E*)-stereoisomer of the ligand, π-allylnickel halide dimers and sodium tetrakis[3,5-bis(trifluoromethyl)phenyl]borate. The complexes were found to be remarkably thermally stable catalysts for ethylene polymerization.

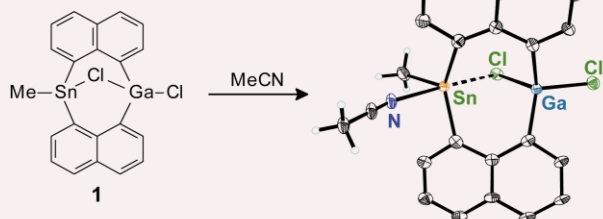


712

Cooperative effects in the complexation of anions and Lewis bases by a heteronuclear bifunctional Lewis acid

James D. Hoefelmeyer and François P. Gabbaï*

Coordination of electron rich substrates to the bifunctional Lewis acid **1** occurs at the tin centre whose electron deficiency is enhanced *via* partial abstraction of its chloride ligand by the neighbouring gallium centre.

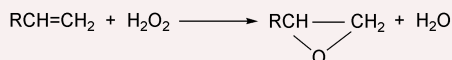


714

Polyoxometalate-catalysed epoxidation of 1-octene with hydrogen peroxide in microemulsions coupled with ultrafiltration

Arnold Lambert, Pawel Plucinski and Ivan V. Kozhevnikov*

Epoxidation of 1-octene with hydrogen peroxide catalysed by amphiphilic salts of peroxo tungstophosphate {PO₄[WO(O₂)₂]₄}³⁻ in water-in-oil microemulsions is an efficient and environmentally benign reaction which, coupled with ultrafiltration, shows the potential for continuous production of epoxides.

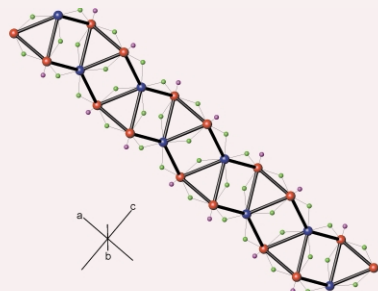


716

The first organically templated 1D lithoberyllofluoride chain, [LiBe₂F₇][C₄N₂H₁₂][H₂O]_{1.5}

Lee A. Gerrard* and Mark T. Weller

The first 1D chain compound containing [MF₄] tetrahedra, where M = Li and Be, has been synthesised and consists of unique repeating 4- and 3-net units.

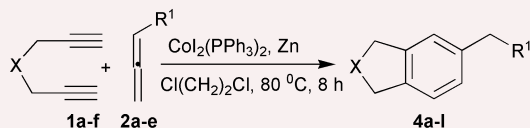


718

Highly regio- and chemoselective [2 + 2 + 2] cycloaddition of 1,6-heptadiynes with allenes catalyzed by cobalt complexes

Ming-Si Wu, Muthian Shanmugasundaram and Chien-Hong Cheng*

The [2 + 2 + 2] cycloaddition of 1,6-heptadiynes with allenes catalyzed by the $\text{CoI}_2(\text{PPh}_3)_2/\text{Zn}$ system affords polysubstituted benzene derivatives in good to excellent yields.

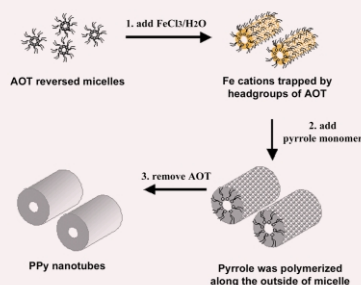


720

Facile fabrication of polypyrrole nanotubes using reverse microemulsion polymerization

Jyongsik Jang* and Hyeonseok Yoon

Polypyrrole nanotubes have been fabricated by reverse microemulsion polymerization for the first time, and factors affecting the formation of polypyrrole nanotubes have also been investigated.

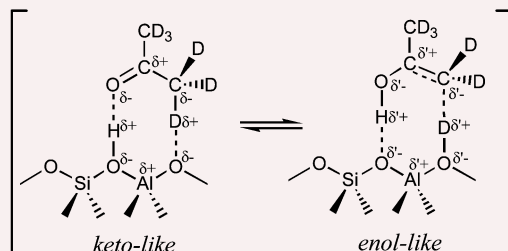


722

Formation of acetone enol on acidic zeolite ZSM-5 evidenced by H/D exchange

Mingcan Xu, Wei Wang and Michael Hunger*

The H/D exchange occurring between acetone molecules adsorbed on zeolite ZSM-5 and acidic surface OH groups indicates a concerted function of Brønsted acid sites and neighbouring Lewis base sites of this solid catalyst.

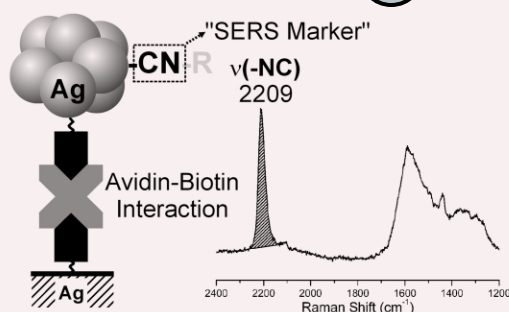


724

Isocyanide and biotin-derivatized Ag nanoparticles: an efficient molecular sensing mediator via surface-enhanced Raman spectroscopy

Nam Hoon Kim, Seung Joon Lee and Kwan Kim*

Isocyanide and biotin-derivatized Ag nanoparticles can be used via SERS as very effective sensing units between avidin and biotin molecules.

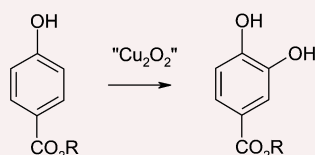


726

The phenol *ortho*-oxygenation by mononuclear copper(I) complexes requires a dinuclear $\mu\text{-}\eta^2\text{:}\eta^2$ -peroxodicopper(II) complex rather than mononuclear CuO_2 species

Giuseppe Battaini, Marco De Carolis, Enrico Monzani, Felix Tucek and Luigi Casella*

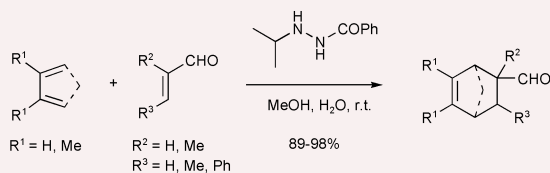
A dinuclear $\mu\text{-}\eta^2\text{:}\eta^2$ -peroxodicopper(II) complex is the necessary intermediate for the phenol *ortho*-oxygenation mediated by the mononuclear Cu(I) complex derived from the tridentate ligand *N,N*-bis(2-*N*-methylbenzimidazol-2-yl)ethyl)benzylamine in the presence of O_2 .



728

Iminium ion catalysis: Use of the α -effect in the acceleration of the Diels–Alder reaction

Julie L. Cavill, Jens-Uwe Peters and Nicholas C. O. Tomkinson*

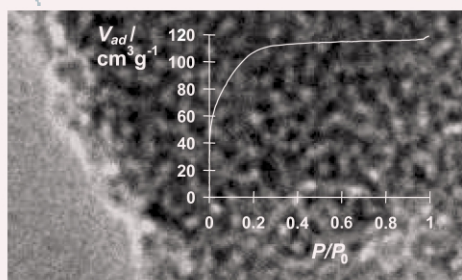


The α -effect can be used as an effective platform for iminium ion catalysis, providing acyclic structures capable of catalysing the Diels–Alder reaction.

730

Template assisted design of microporous gallium nitride materials

Gérald Chaplais, Klaus Schlichte, Oliver Stark, Roland A. Fischer and Stefan Kaskel*

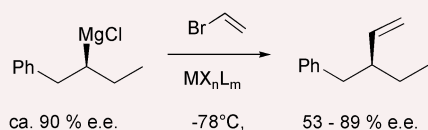


Highly porous GaN materials with pore sizes below 2 nm and extremely high internal surface area comparable to zeolitic solids were obtained using an amine assisted molecular precursor condensation reaction.

732

Kumada–Corriu coupling of Grignard reagents, probed with a chiral Grignard reagent

Bettina Hölzer and Reinhard W. Hoffmann*

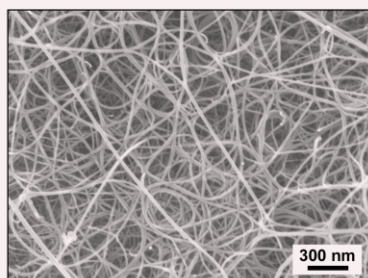


Kumada–Corriu coupling of a chiral Grignard reagent proceeded with full retention of configuration or with partial racemisation depending on the catalyst used.

734

Synthesis of high-quality single-walled carbon nanotubes by catalytic decomposition of C_2H_2

S. C. Lyu, B. C. Liu, T. J. Lee, Z. Y. Liu, C. W. Yang, C. Y. Park and C. J. Lee*

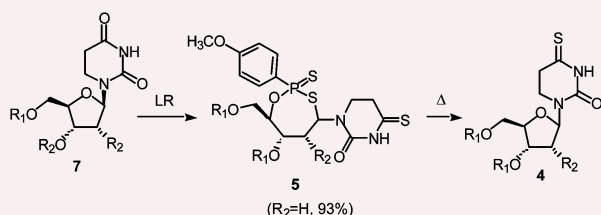


High-quality single-walled carbon nanotubes free of defects and amorphous carbon coating have been produced by catalytic decomposition of C_2H_2 over Fe–Mo/ Al_2O_3 catalyst.

736

Thiation of 2'-deoxy-5,6-dihydropyrimidine nucleosides with Lawesson's reagent: Characterisation of oxathiaphosphepane intermediates

Frédéric Peyrane, Jean-Louis Fourrey and Pascale Clivio*



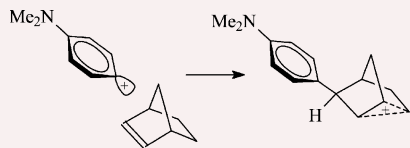
Oxathiaphosphepane nucleosides are formed upon the treatment of dihydropyrimidine nucleosides with Lawesson's reagent. The incorporation of the AnPS₂ unit within the furane ring is heat reversible and allows the attainment of the C4-thiolated compounds.

738

A novel access to 3-aryl-2-norbornyl cation

Mariella Mella, Silvia Esposti, Maurizio Fagnoni and Angelo Albini

Addition to norbornene of 4-aminophenyl cation formed by photoheterolysis of chloroaniline in MeCN or alcohols offers a novel entry to a 2-norbornyl cation under mild, non acidic conditions.

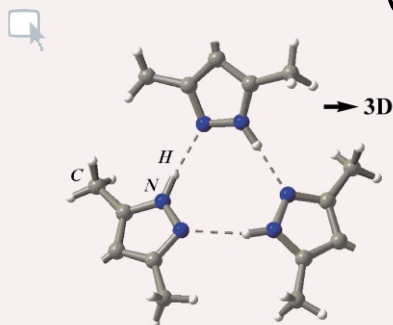


740

Construction of extended networks with a trimeric pyrazole synthon

Ishtvan Boldog, Eduard B. Rusanov, Joachim Sieler, Steffen Blaurock and Konstantin V. Domasevitch*

Self-association of bifunctional bipyrazole generates highly interpenetrated 3D frameworks. The study features effective control over degree of the interpenetration and a rational approach for crystallization of a novel polymorph.

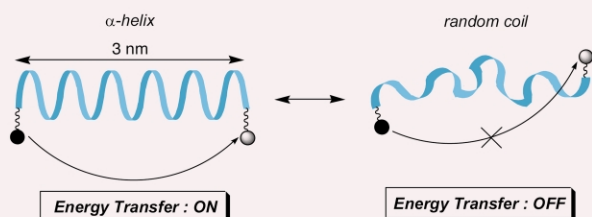


742

A distance-controlled oligopeptide linker as a novel photo-induced energy transfer switch by secondary structural transition

Akira Kishimoto, Toshiki Mutai and Koji Araki*

By using an oligopeptide chain as a functional linker and introducing coumarin 2 and coumarin 343 at the chain ends, a distance-controlled photo-induced energy transfer switch induced by a helix-coil transition of the linker was constructed.

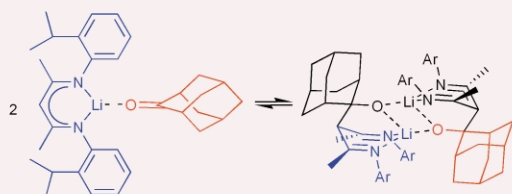


744

Reversible C–C bond formation: solid state structure of the aldol-like addition product of adamantanone to a 1,5-diazapentadienyllithium, and its solution state retro-aldol dissociation

Lee-Jon Ball, Anthony P. Dickie, Francis S. Mair,* David A. Middleton and Robin G. Pritchard

Crystals of the lithium diimine alkoxide formed upon addition of adamantanone to a 1,5-diazapentadienyllithium complex display a long C–C bond which ruptures upon dissolution in non-co-ordinating solvents.

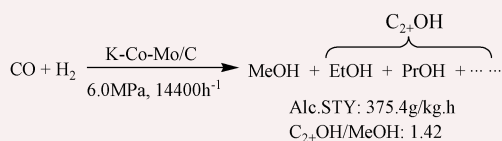


746

A highly active K-Co-Mo/C catalyst for mixed alcohol synthesis from CO + H₂

Jun Bao,* YiLu Fu, ZhongHai Sun and Chen Gao

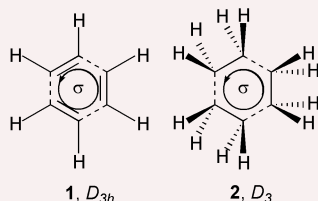
A highly homogeneous, highly dispersed K-Co-Mo/C catalyst has been prepared for the first time by a simple sol-gel method. It exhibits much higher alcohol yield, especially higher C₂₊OH selectivity for mixed alcohol synthesis from CO + H₂ than those of similar catalyst systems reported.



748

The diatropic σ ring currents of $[\pi 2_s + \pi 2_s + \pi 2_s]$ pericyclic transition states

Remco W. A. Havenith, Leonardus W. Jenneskens,* Patrick W. Fowler* and Erich Steiner

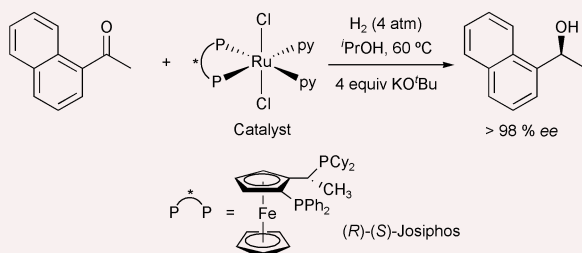


The $(4n + 2)$ -electron transition states for the thermally allowed $[\pi 2_s + \pi 2_s + \pi 2_s]$ trimerisations of ethyne (**1**, D_{3h}) and ethene (**2**, D_3) both sustain *four-electron* σ diatropic ring currents.

750

A ruthenium catalyst that does not require an N–H ligand to achieve high enantioselectivity for hydrogenation of an alkyl-aryl ketone

Carolyn G. Leong, Okwado M. Akotsi, Michael J. Ferguson and Steven H. Bergens*

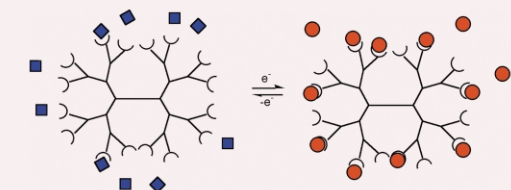


Ruthenium catalysts of the form $trans-RuCl_2((R)-(S)\text{-Josiphos})L_2$ where L_2 = pyridine (**5**) or 1,2-diamine (**6**, **7**), have been synthesized that display high catalytic activity towards the hydrogenation of 1'-acetonaphthone.

752

Electrochemically tuneable hydrogen bonding interactions between a phenyl-urea terminated dendrimer and phenanthrenequinone

Graeme Cooke,* Vladimir Sindelar and Vincent M. Rotello

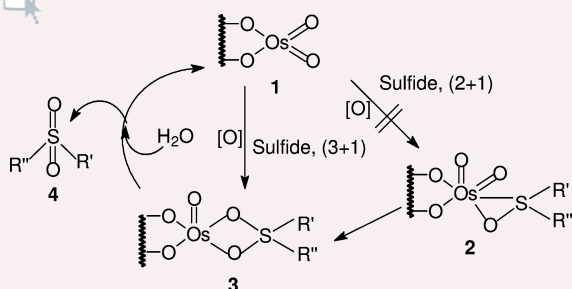


Electrochemically tuneable hydrogen bonding interactions are described between a phenyl-urea terminated dendrimer and phenanthrenequinone.

754

The first example of direct oxidation of sulfides to sulfones by an osmate molecular oxygen system

Boyapati M. Choudary,* Chinta Reddy V. Reddy, Billakanti V. Prakash, Mannepalli L. Kantam and B. Sreedhar

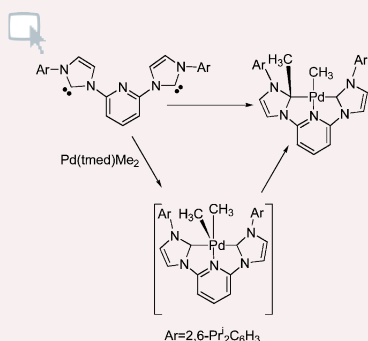


Osmate-exchanged Mg–Al layered double hydroxides catalysed the delivery of two oxygen atoms simultaneously *via* a 3 + 1 cycloaddition to sulfide to form sulfone directly for the first time, reminiscent of 3 + 2 cycloaddition in asymmetric dihydroxylation reactions.

756

Migratory insertion in N-heterocyclic carbene complexes of palladium; an experimental and DFT study

Andreas A. Danopoulos,* Nikolaos Tsoureas, Jennifer C. Green* and Michael B. Hursthouse

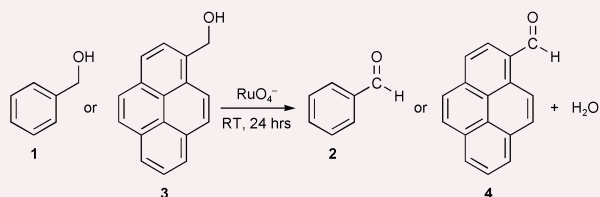


The first authenticated example of migration of a methyl group from palladium(II) to a coordinated N-heterocyclic carbene is described.

758

Shape-selective oxidation of primary alcohols using perruthenate-containing zeolites

Daniel L. Wu, Andrea P. Wight and Mark E. Davis*

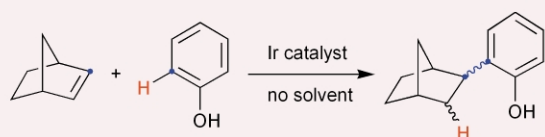


Potassium perruthenate (K₂RuO₄) is impregnated into zeolite X and shown to be a shape-selective oxidant using benzyl alcohol (reacted) and pyrenemethanol (not reacted).

760

Addition of the *ortho*-C–H bonds of phenol across an olefin catalysed by a chiral iridium(I) diphosphine complex

Romano Dorta* and Antonio Togni

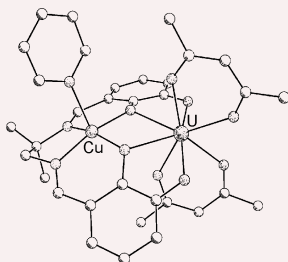


A chiral iridium(I) complex catalyses the atom-economical, solvent-free *ortho*-alkylation of phenol with norbornene via C–H activation to form new C–C bonds.

762

Structure and magnetism of the first strictly dinuclear compound containing paramagnetic 3d and 5f metal ions. Major influence of the Cu^{II} ion coordination on the exchange Cu^{II}–U^{IV} interaction

Lionel Salmon,* Pierre Thuéry, Eric Rivière, Jean-Jacques Girerd and Michel Ephritikhine*

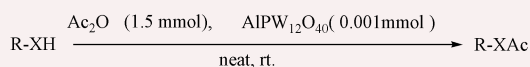


In the complex represented here, the Cu–U interaction is antiferromagnetic; comparison of the magnetic properties of trinuclear Cu₂U compounds with different Schiff base ligands indicates that the Cu(II) ion coordination has a strong influence on the Cu–U exchange interaction.

764

Aluminium dodecatungstophosphate (AIPW₁₂O₄₀) as a highly efficient catalyst for the selective acetylation of –OH, –SH and –NH₂ functional groups in the absence of solvent at room temperature

Habib Firouzabadi,* Nasser Iranpoor,* Farhad Nowrouzi and Kamal Amani



X = O, NH, S

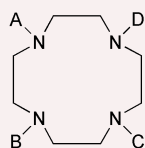
R = alkyl(1°, 2°, 3°), benzyl aryl, allyl, propargyl

Catalytic amount of aluminium dodecatungstophosphate (AIPW₁₂O₄₀, 0.001 mmol) as a water stable and a non-hygroscopic compound has been used effectively for the selective acetylation of –OH, NH₂, and –SH in the absence of solvent at room temperature.

766

Regioselective *N*-substitution of cyclen with two different alkyl groups: synthesis of all possible isomers

Jeongsoo Yoo, David E. Reichert and Michael J. Welch*



- 1 A = B = C = R₁, D = R₂
- 2 A = B = R₁, C = D = R₂
- 3 A = C = R₁, B = D = R₂
- 4 A = R₁, B = C = D = R₂

R₁ = CH₂CO₂HR₂ = CH₂Ph(4-*t*Bu)

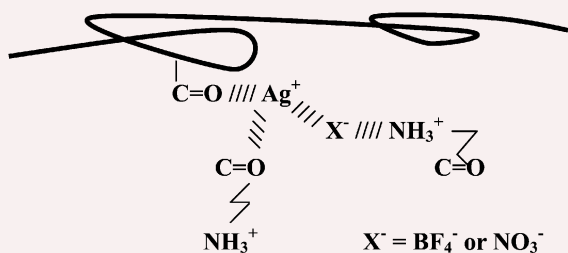
All possible configurations of two different groups on the four nitrogen atoms of cyclen were achieved using four differently protected cyclen intermediates including the novel mono-protected cyclen compound, mono-*N*-Cbz-cyclen.

768

Enhancement of facilitated olefin transport by amino acid in silver–polymer complex membranes

Sang Wook Kang, Jong Hak Kim, Jongok Won, Kookheon Char and Yong Soo Kang*

Silver ions dissolved in a polymer matrix are additionally coordinated by carbonyl oxygens of asparagines and their counter anions interact with cationic sites, resulting in enhanced activity of the silver ion as an olefin carrier for facilitated olefin transport.

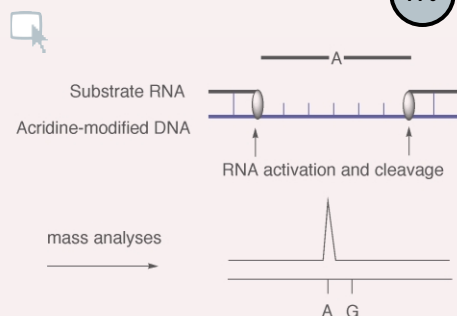


770

Site-selective RNA scission at two sites for precise genotyping of SNPs by mass spectrometry

Akinori Kuzuya, Ryo Mizoguchi, Fumi Morisawa and Makoto Komiyama*

Short RNA fragments have been selectively clipped out of the substrate by using DNA having two acridine residues and Lu^{III}, and the genotype is precisely determined by mass analyses.

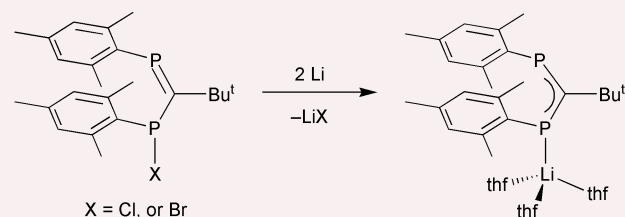


772

The first structurally authenticated alkali metal 1,3-diphosphaallyl complex $[\{\text{Bu}^t\text{C}(\text{PMes})_2\}\text{Li}(\text{thf})_3]$ (Mes = 2,4,6-Me₃C₆H₂): an alternative synthetic approach to substituted 1,3-diphosphaallyl complexes

Stephen T. Liddle* and Keith Izod

Reaction of the chloro-1,3-diphosphapropene compound $[\text{Z-MesP}=\text{C}(\text{Bu}^t)\text{P}(\text{X})\text{Mes}]$ (X = Cl or Br; Mes = 2,4,6-Me₃C₆H₂) with two equivalents of elemental lithium in thf affords $[\{\text{Bu}^t\text{C}(\text{PMes})_2\}\text{Li}(\text{thf})_3]$, which contains an asymmetric η^1 -1,3-diphosphaallyl ligand.

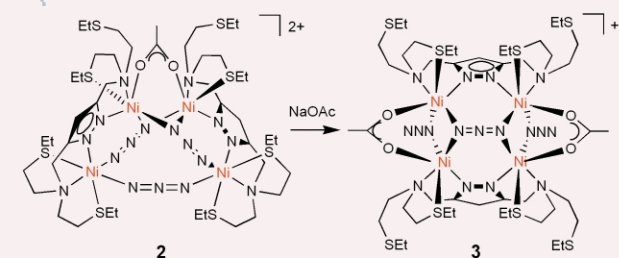


774

Tetranuclear nickel(II) complexes with genuine μ_3 -1,1,3 and μ_4 -1,1,3,3 azide bridges

Franz Meyer,* Peter Kircher and Hans Pritzkow

Unique tetranickel(II) complexes that incorporate genuine μ_3 -1,1,3 (2) and μ_4 -1,1,3,3 (3) bridging azido ligands have been synthesized. Identification of two distinct isomeric μ_4 -1,1,3,3 binding modes reveals considerable structural flexibility of the quadruply bridging azide.

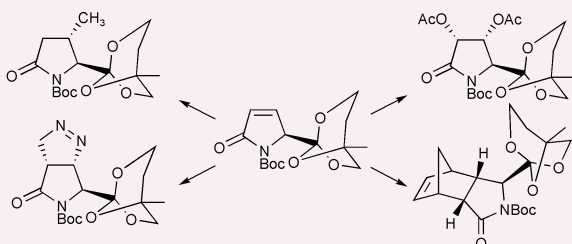


776

Synthesis and reactions of a novel 3,4-didehydropyroglytamate derivative

Makoto Oba,* Naohiro Nishiyama and Kozaburo Nishiyama*

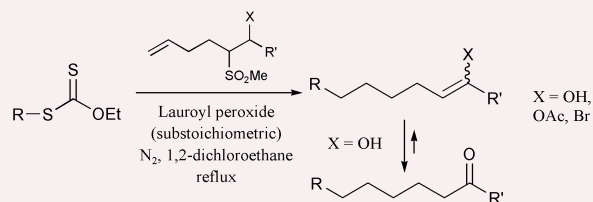
Some reactions of the novel 3,4-didehydropyroglytamic ABO ester such as Diels–Alder reaction, cyclopropanation, dihydroxylation, and Michael addition are found to proceed stereospecifically without loss of enantiomeric purity at the α -position.



778

Convergent access to ketones, vinyl esters and vinyl bromides by a tin-free radical addition-intramolecular hydrogen atom transfer

Gilles Ouvry* and Samir Z. Zard

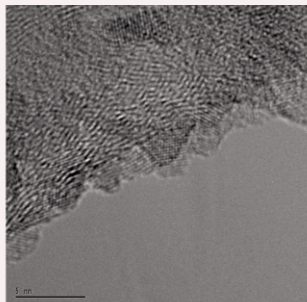


Xanthate-mediated intermolecular radical addition, hydrogen atom transfer and sulfonyl radical elimination have been efficiently combined in a new convergent synthesis of ketones and substituted olefins.

780

Formation of anatase TiO₂ nanoparticles on carbon nanotubes

Seung-woo Lee and Wolfgang M. Sigmund*

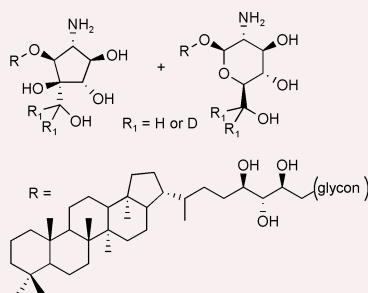


Anatase TiO₂ nanoparticles with a size range of 2 to 10 nm have been formed on carbon nanotubes by the controlled hydrolysis and condensation of titanium bis-ammonium lactato dihydroxide in water and electrosterically dispersed carbon nanotubes.

782

Composite hopanoid biosynthesis in *Zymomonas mobilis*: *N*-acetyl-D-glucosamine as precursor for the cyclopentane ring linked to bacteriohopanetetrol

Stéphane P. Vincent, Pierre Sinay and Michel Rohmer

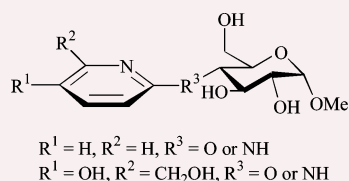


A selective labelling of the two major composite hopanoids of *Z. mobilis* with deuterated *N*-acetyl-D-glucosamine showed that this carbohydrate is a common precursor of the glucosamine or the cyclopentitol moieties respectively linked to bacteriohopanetetrol by a glycosidic or an ether bond.

784

Pyridine–sugar conjugates as potent inhibitors of enzyme-catalysed glycoside hydrolysis

Peter A. Nkansah, Alan H. Haines and N. Patrick J. Stamford*

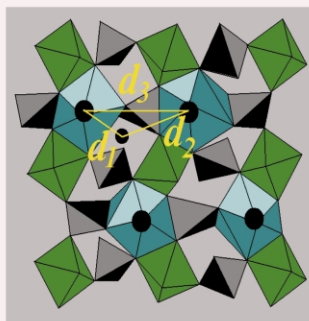


Simple substituted pyridines were identified as likely mimics of the proposed transition state of enzyme-catalysed glycoside hydrolysis. A series of *O*- and *N*-linked pseudo-disaccharides incorporating simple functionalised pyridines were synthesized and demonstrated potent inhibition of the glucoamylase-catalysed reaction.

786

Dopant incorporation into garnet solid solutions—a breakdown of Goldschmidt's first rule

W. van Westrenen, N. L. Allan,* J. D. Blundy, M. Yu. Lavrentiev, B. R. Lucas and J. A. Purton



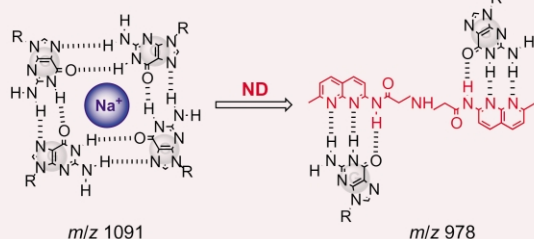
Atomistic simulations suggest trace elements are more soluble in a 50:50 pyrope–grossular garnet mixture than in either end-member; contrary to Goldschmidt's first rule, large trace element cations may substitute for Mg²⁺, small cations for Ca²⁺.

788

Formation and destruction of the guanine quartet in solution observed by cold-spray ionization mass spectrometry

Shigeru Sakamoto, Kazuhiko Nakatani, Isao Saito and Kentaro Yamaguchi*

The dynamic solution behavior during formation of the 2'-deoxyguanosine tetrad (G-quartet) upon addition of alkali metal cations and destruction of the G-quartet upon addition of the guanine–guanine mismatch recognition molecule naphthyridine dimer was observed by cold-spray ionization mass spectrometry.

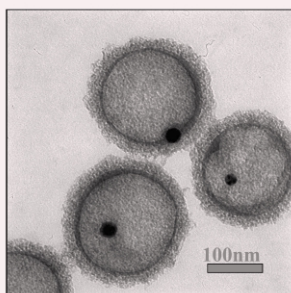


790

Fabrication of nanocapsules with Au particles trapped inside carbon and silica nanoporous shells

Jeong Yeon Kim, Suk Bon Yoon and Jong-Sung Yu*

A synthetic procedure has been described that allows the incorporation of preformed gold particles within uniform carbon or silica capsules with nanostructured shells.

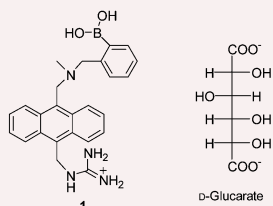


792

The first fluorescent sensor for D-glucarate based on the cooperative action of boronic acid and guanidinium groups

Wenqian Yang, Jun Yan, Hao Fang and Binghe Wang*

A new fluorescent sensor with a recognition unit consisting of a boronic acid moiety and a guanidinium unit shows selective binding of D-glucarate in aqueous solution.

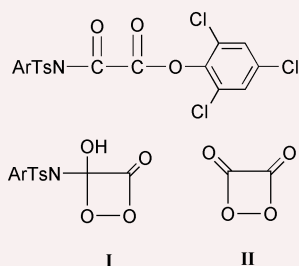


794

The key intermediates that interact with the fluorophores in the peroxyoxalate chemiluminescence reaction of 2,4,6-trichlorophenyl N-aryl-N-tosyloxamates

Ryu Koike, Jiro Motoyoshiya,* Yutaka Takaguchi and Hiromu Aoyama

A kinetic study of peroxyoxalate chemiluminescence reactions employing newly prepared oxamates supports 1,2-dioxetanones (I) as the key intermediates that interact with the fluorophores rather than 1,2-dioxetanedione (II).

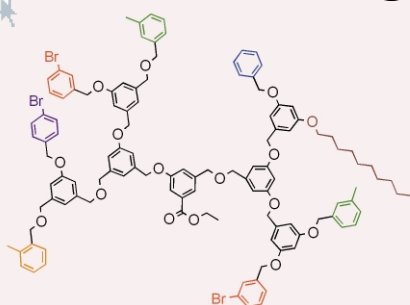


796

Synthesis of dendrimers with multifunctional periphery using an ABB' monomer

Dharma Rao Vutukuri, Kulandaivelu Sivanandan and S. Thayumanavan*

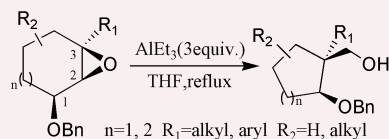
A new methodology using an ABB' monomer for synthesizing dendrons with multiple functionalities in the periphery is described.



798


A novel AlEt₃-promoted tandem reductive rearrangement of 1-benzyloxy-2,3-epoxides: new route to 2-quaternary 1,3-diol units

De Run Li, Wu Jiong Xia, Yong Qiang Tu,* Fu Min Zhang and Lei Shi

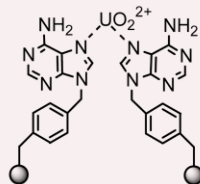


A novel and highly stereoselective tandem rearrangement–reduction reaction of 1-benzyloxy-2,3-epoxide, under the promotion of triethylaluminum (AlEt₃), has been developed to construct a quaternary stereocenter and the hydroxymethyl attached to the carbon center in one-step.

800

Reusable photonucleases: plasmid scission by a uranyl ion impregnated adenine homopolymer in the presence of visible light and sunlight

C. Madhavaiah and Sandeep Verma*



An adenylated homopolymer containing uranyl ions relaxed supercoiled plasmid through a photolytic pathway with a singular feature of reusability.

ADDITIONS AND CORRECTIONS

802

F. Terrier, E. Le Guével, A. P. Chatrousse, G. Moutiers and E. Buncel

The levelling effect of solvational imbalances in the reactions of oximate α -nucleophiles with electrophilic phosphorus centers. Relevance to detoxification of organophosphorus esters

802

Matthew L. Becker, Jianquan Liu and Karen L. Wooley

Peptide-polymer bioconjugates: hybrid block copolymers generated *via* living radical polymerizations from resin-supported peptides

COPIES OF CITED ARTICLES

The Library and Information Centre (LIC) of the RSC offers a first class Document Delivery Service for items in Chemistry and related subjects. Contact the LIC, The Royal Society of Chemistry, Burlington House, Piccadilly, London W1V 0BN, UK.

This service is only available from the LIC in London and not the RSC in Cambridge.

ADVANCE CONTENTS LISTS

Contents lists in advance of publication are available on the web via www.rsc.org/chemcomm – or take advantage of our free e-mail alerting service (www.rsc.org/ej_alert) to receive notification each time a new list becomes available.

ADVANCE ARTICLES AND ELECTRONIC JOURNAL

Free site-wide access to Advance Articles and the electronic form of this journal is provided with a full-rate institutional subscription. See www.rsc.org/ejs for more information.

* Indicates the author for correspondence: see article for contact details.



Electronic supplementary information is available on <http://www.rsc.org/esi>: see article for further information.

AUTHOR INDEX

- Abedin, Tareque S. M., 708
 Ahn, Kyo Han, 680
 Akotsi, Okwado M., 750
 Albini, Angelo, 738
 Allan, N. L., 786
 Amani, Kamal, 764
 Aoyama, Hiromu, 794
 Aoyama, Naohiro, 676
 Araki, Koji, 742
 Bal, Wojciech, 704
 Ball, Lee-Jon, 744
 Bao, Jun, 746
 Battaini, Giuseppe, 726
 Becker, Matthew L., 802
 Bergens, Steven H., 750
 Bishop, P., 684
 Blake, Alexander J., 682
 Blaurock, Steffen, 740
 Blundy, J. D., 786
 Boldog, Ishtvan, 740
 Bonnett, P. E., 698
 Buncel, E., 802
 Cao, Yong, 700
 Carpenter, K. J., 698
 Casella, Luigi, 726
 Cavill, Julie L., 728
 Champness, Neil R., 682
 Chaplais, Gérald, 730
 Char, Kookheon, 768
 Chatrousse, A. P., 802
 Cheng, Chien-Hong, 718
 Cheung, Ronnie W., 680
 Choudary, Boyapati M., 754
 Claridge, J. B., 684
 Clivio, Pascale, 736
 Cooke, Graeme, 752
 Cox, R. J., 686
 Crosby, J., 686
 Cunin, Frédérique, 680
 Dai, Wei-Lin, 700
 Danopoulos, Andreas A., 756
 Davey, R. J., 698
 Davis, Mark E., 758
 Dawson, S., 698
 De Carolis, Marco, 726
 Delacroix, Olivier, 665
 Dérien, Sylvie, 696
 Dickie, Anthony P., 744
 Dixneuf, Pierre H., 696
 Dolomanov, Oleg V., 682
 Domasevitch, Konstantin V., 740
 Dorta, Romano, 760
 Ephritikhine, Michel, 762
 Esposti, Silvia, 738
 Fagnoni, Maurizio, 738
 Fan, Kang-Nian, 700
 Fang, Hao, 792
 Ferguson, Michael J., 750
 Firouzabadi, Habib, 764
 Fischer, Roland A., 730
 Fourey, Jean-Louis, 736
 Fowler, Patrick W., 748
 Fu, YiLu, 746
 Fukuoka, Atsushi, 690
 Gabbaï, François P., 712
 Gao, Chen, 746
 Gerrard, Lee A., 716
 Girerd, Jean-Jacques, 762
 Gladysz, John A., 665
 Goossen, Lukas J., 706
 Green, Jennifer C., 756
 Gu, Weijin, 692
 Guo, Chang-Wen, 700
 Haines, Alan H., 784
 Hamada, Tomoaki, 676
 Havenith, Remco W. A., 748
 Hirst, J. P., 684
 Hoefelmeyer, James D., 712
 Hoffmann, Reinhard W., 732
 Hölzer, Bettina, 732
 Huang, Chun-Hui, 702
 Hunger, Michael, 722
 Hursthouse, Michael B., 756
 Ichikawa, Masaru, 690
 Ionkin, Alex, 710
 Iranpoor, Nasser, 764
 Izod, Keith, 772
 Jang, Jyongsik, 720
 Jenneskens, Leonardus W., 748
 Jérôme, François, 696
 Jin, Lin-Pei, 702
 Kang, Sang Wook, 768
 Kang, Yong Soo, 768
 Kantam, Manne palli L., 754
 Kariya, Nobuko, 690
 Kaskel, Stefan, 730
 Kim, Jeong Yeon, 790
 Kim, Jong Hak, 768
 Kim, Kwan, 724
 Kim, Nam Hoon, 724
 Kircher, Peter, 774
 Kishimoto, Akira, 742
 Kobayashi, Shū, 676
 Koike, Ryu, 794
 Koley, Debasis, 706
 Komiyama, Makoto, 770
 Kozhevnikov, Ivan V., 714
 Krężel, Artur, 704
 Krupicka, Erik, 708
 Kuzuya, Akinori, 770
 Lambert, Arnold, 714
 Lavrentiev, M. Yu., 786
 Lawicka, Hania, 696
 Le Guével, E., 802
 Lee, C. J., 734
 Lee, Seung Joon, 724
 Lee, Seung-woo, 780
 Lee, T. J., 734
 Leong, Carolyn G., 750
 Ley, Steven V., 678
 Li, De Run, 798
 Liddle, Stephen T., 772
 Link, Jamie R., 680
 Liu, B. C., 734
 Liu, Jianquan, 802
 Liu, Z. Y., 734
 Lucas, B. R., 786
 Lyu, S. C., 734
 Maciejczyk, Maciej, 704
 Madhavaiah, C., 800
 Mair, Francis S., 744
 Manabe, Kei, 676
 Marshall, William, 710
 Mella, Mariella, 738
 Meyer, Franc, 774
 Middleton, David A., 744
 Miller, David O., 708
 Mizoguchi, Ryo, 770
 Monnier, Florian, 696
 Monzani, Enrico, 726
 Morisawa, Fumi, 770
 Motoyoshiya, Jiro, 794
 Moutiers, G., 802
 Mutai, Toshiki, 742
 Nakatani, Kazuhiko, 788
 Nicholson, T. P., 686
 Nicolaou, K. C., 661
 Nishiyama, Kozaburo, 776
 Nishiyama, Naohiro, 776
 Nkansah, Peter A., 784
 Nowrouzi, Farhad, 764
 Oba, Makoto, 776
 Ouvry, Gilles, 778
 Ozin, Geoffrey A., 688
 Paetzold, Jens, 706
 Pan, Yi, 692
 Park, C. Y., 734
 Park, Ki Chul, 694
 Peters, Jens-Uwe, 728
 Peyrane, Frédéric, 736
 Plucinski, Pawel, 714
 Prakash, Billakanti V., 754
 Pritchard, Robin G., 744
 Pritzkow, Hans, 774
 Purton, J. A., 786
 Ramarao, Chandrashekar, 678
 Reddy, Chinta Reddy V., 754
 Reichert, David E., 766
 Rivière, Eric, 762
 Rohmer, Michel, 782
 Rosseinsky, M. J., 684
 Rotello, Vincent M., 752
 Rusanov, Eduard B., 740
 Sailor, Michael J., 680
 Saito, Isao, 788
 Sakamoto, Shigeru, 788
 Salmon, Lionel, 762
 Schlichte, Klaus, 730
 Schröder, Martin, 682
 Scott, Robert W. J., 688
 Shanmugasundaram, Muthian, 718
 Shi, Lei, 798
 Sieler, Joachim, 740
 Sigmund, Wolfgang M., 780
 Simpson, T. J., 686
 Sina, Pierre, 782
 Sindelar, Vladimir, 752
 Sivanandan, Kulandaivelu, 796
 Sohn, Honglae, 680
 Spencer, Jonathan B., 678
 Sreedhar, B., 754
 Stamford, N. Patrick J., 784
 Stark, Oliver, 730
 Steiner, Erich, 748
 Sun, Min, 702
 Sun, ZhongHai, 746
 Takaguchi, Yutaka, 794
 Terrier, F., 802
 Thayumanavan, S., 796
 Thompson, Laurence K., 708
 Thuéry, Pierre, 762
 Togni, Antonio, 760
 Tomiyasu, Hiroshi, 694
 Tomkinson, Nicholas C. O., 728
 Tsoureas, Nikolaos, 756
 Tu, Yong Qiang, 798
 Tuczek, Felix, 726
 van Westrenen, W., 786
 Verma, Sandeep, 800
 Vincent, Stéphane P., 782
 Vutukuri, Dharma Rao, 796
 Wang, Binghe, 792
 Wang, Ke-Zhi, 702
 Wang, Wei, 722
 Welch, Michael J., 766
 Weller, Mark T., 716
 Westcott, J., 686
 Wight, Andrea P., 758
 Williams, David E., 688
 Wilson, Claire, 682
 Winfield, C., 686
 Wójcik, Jacek, 704
 Won, Jongok, 768
 Wooley, Karen L., 802
 Wu, Daniel L., 758
 Wu, Hai-Chen, 678
 Wu, Ming-Si, 718
 Xia, Wu Jiong, 798
 Xie, Song-Hai, 700
 Xin, Hao, 702
 Xu, Mingcan, 722
 Yamaguchi, Kentaro, 788
 Yan, Jun, 792
 Yang, C. W., 734
 Yang, San Ming, 688
 Yang, Wenqian, 792
 Yoo, Jeongsoo, 766
 Yoon, Hyeonseok, 720
 Yoon, Myeong Sik, 680
 Yoon, Suk Bon, 790
 Yu, Jin-Quan, 678
 Yu, Jong-Sung, 790
 Yuan, Fang, 692
 Zard, Samir Z., 778
 Zhang, Fu Min, 798
 Zhang, Yong-An, 702
 Zhu, Chengjian, 692

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