

Cover
A confused porphyrin, and in the background, routes to the formation of new porphyrinoids.



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contents

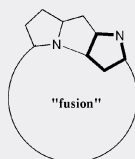
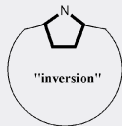
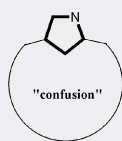
FEATURE ARTICLE

1795

Confusion, inversion, and creation—a new spring from porphyrin chemistry

Hiroyuki Furuta,* Hiromitsu Maeda and Atsuhiko Osuka*

This article mainly deals with the recent serendipity of novel porphyrin analogs such as N-confused porphyrin; the important aspect of dynamic flipping (*inversion*), induced either by *confusion* or *expansion* of the macrocyclic core, that leads to the generation of new porphyrinoids, is emphasized.



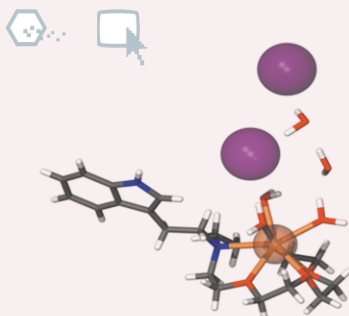
COMMUNICATIONS

1806

Calcium cation complexation by lariat ether receptors having arene-terminated sidearms

Jiaxin Hu, Leonard J. Barbour, Riccardo Ferdani and George W. Gokel*

The first reported calcium azalariat complex has an arene terminated sidearm that behaves differently from an otherwise identical indole-sidearmed complex; twin phenolic sidearms on a diaza-18-crown-6 lead to an infinite, H-bonded network.

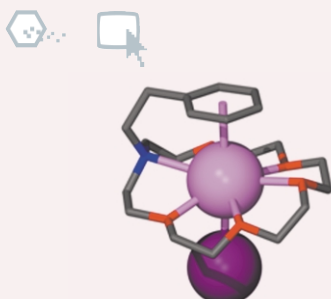


1808

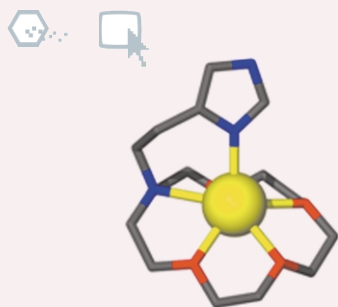
σ -Donor, π -donor, and anion competition in π -complexation of alkali metal cations

Jiaxin Hu, Leonard J. Barbour and George W. Gokel*

Removal of or replacement of one of two phenylethyl sidearms on azalariats leads to clear evidence for cation- π interactions with the remaining sidearm.



1810



Sodium cation complexation behavior of the heteroaromatic sidechains of histidine and tryptophan

Jiaxin Hu, Leonard J. Barbour, Riccardo Ferdani and George W. Gokel*

Three of the four essential amino acids that have aromatic sidechains exhibit cation- π interactions with Na^+ or K^+ ; histidine does not and is shown here to be a sigma donor.

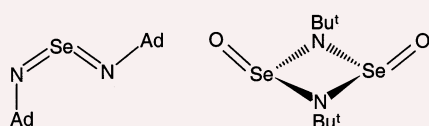
1812



A monomeric selenium(IV) diimide and a dimeric seleninylamine

Tiina Maaninen, Risto Laitinen* and Tristram Chivers*

The first X-ray structures of a selenium(IV) diimide and a seleninylamine are described. Di-1-adamantyl selenium diimide is monomeric in the solid state, whereas *tert*-butylseleninylamine is a dimer.



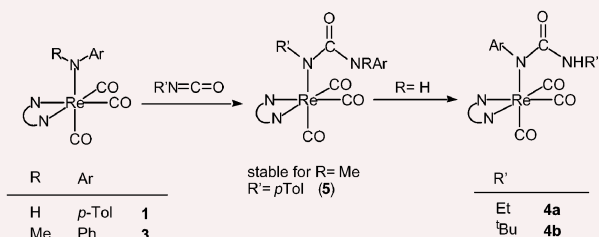
1814



Different sites of insertion in the reaction of isocyanates with $[\text{Re}(\text{N}(\text{R})\text{Ar})(\text{CO})_3(\text{bipy})]$ ($\text{R} = \text{H}$ or Me): N-H vs. Re-N

Eva Hevia, Julio Pérez,* Víctor Riera and Daniel Miguel

The reactions of isocyanates with $[\text{Re}(\text{N}(\text{R})\text{Ar})(\text{CO})_3(\text{bipy})]$ complexes lead to $\text{R}'\text{NCO}$ insertion into the Re-N bond (for $\text{R} = \text{Me}$) or the N-H bond ($\text{R} = \text{H}$).

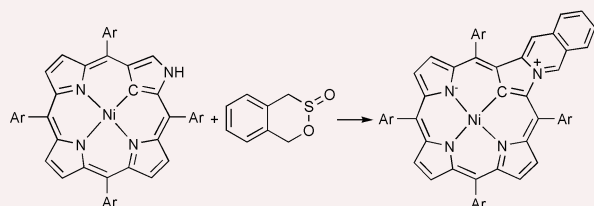


1816



Diels-Alder reactions of nickel(II) N-confused porphyrins as dienophiles

Ziwei Xiao, Brian O. Patrick and David Dolphin*



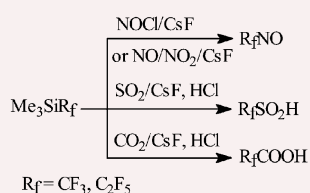
Diels-Alder reactions of nickel(II) N-confused tetraarylporphyrins as dienophiles with *o*-benzoquinodimethane yield nickel(II) N-confused isoquinoporphyrins.

1818

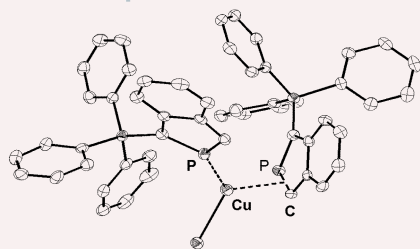
Perfluoroalkylation of simple inorganic molecules: A one step route to novel perfluoroalkylated compounds

Rajendra P. Singh and Jean'ne M. Shreeve*

Perfluoroalkylation of simple inorganic molecules: A one step route to novel perfluoroalkylated compounds.



1820



Unusual properties of the first copper complex containing a $\pi(\eta^2)$ -coordinated phosphorus–carbon double bond moiety

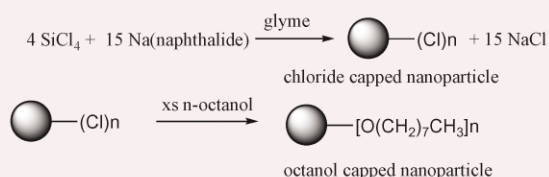
Dietrich Gudat,* Martin Nieger, Katja Schmitz and Laslo Szarvas

The ^{31}P NMR shifts for the $\eta^2(\text{P}=\text{C})$ and $\eta^1(\text{P})$ -coordinated benzophospholide ligands in the title complex are surprisingly almost degenerate. Analysis of this effect suggests a novel interpretation of ^{31}P coordination shifts in π -complexes of phosphorus containing multiple bonds.

1822

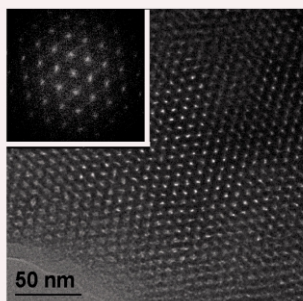
Solution reduction synthesis of surface stabilized silicon nanoparticles

Richard K. Baldwin, Katherine A. Pettigrew, Eva Ratai, Matthew P. Augustine and Susan M. Kauzlarich*



This manuscript presents a surprisingly simple route to chloride terminated silicon nanoparticles that can be further functionalized with passivating alkoxide termination groups.

1824



Fast preparation of highly ordered nonsiliceous mesoporous materials via mixed inorganic precursors

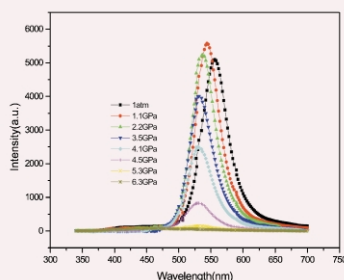
Bozhi Tian, Haifeng Yang, Xiaoying Liu, Songhai Xie, Chengzhong Yu, Jie Fan, Bo Tu and Dongyuan Zhao*

Employing metal alkoxide as the main inorganic precursor and anhydrous metal chloride as the pH 'adjuster' and hydrolysis-condensation 'controller', very fast preparation of ordered nonsiliceous mesoporous materials has been demonstrated.

1826

Mechanism of aqueous ultrasonic reaction: controlled synthesis, luminescence properties of amorphous cluster and nanocrystalline CdSe

Jian-Ping Ge, Ya-Dong Li* and Guo-Qiang Yang



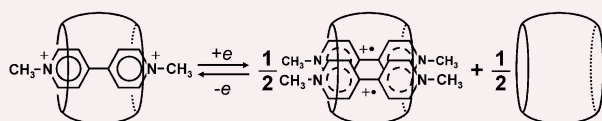
A novel sonochemical method was found to prepare amorphous CdSe cluster and hexagonal nanocrystalline CdSe in aqueous solution. An interfacial mechanism was confirmed and the exploration for luminescence properties of the as-prepared CdSe nanoparticles revealed its wide application in many fields.

1828



Control of the stoichiometry in host–guest complexation by redox chemistry of guests: Inclusion of methylviologen in cucurbit[8]uril

Woo Sung Jeon, Hee-Joon Kim, Chongmok Lee and Kimoon Kim*



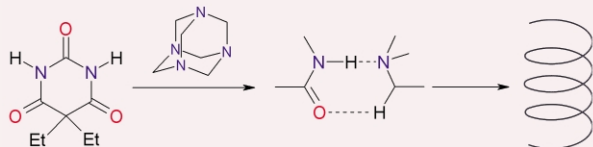
The binding stoichiometry of a host–guest complex can be effectively controlled by the redox chemistry of the guest: a 1 : 1 inclusion complex of methylviologen dication (MV^{2+}) in cucurbit[8]uril (CB[8]) converts completely and reversibly to a 2 : 1 inclusion complex of cation radical ($\text{MV}^{\bullet+}$) in CB[8] upon the reduction of the guest.

1830



Supramolecular synthons based on N–H···N and C–H···O hydrogen bonds. Crystal engineering of a helical structure with 5,5-diethylbarbituric acid

Peddy Vishweshwar, Ram Thaimattam, Mariusz Jaskólski* and Gautam R. Desiraju*



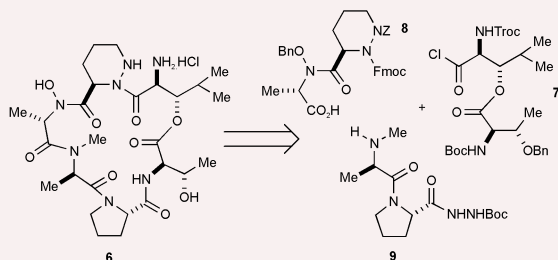
A new strong/weak synthon, N–H···N/C–H···O, is reported and shown to arise from the molecular precursor, barbituric acid. By using urotropine as the co-crystallising agent a helix structure is obtained.

1832



Synthesis of an L-proline modified mimetic of the A83586C antitumour cyclodepsipeptide

Karl J. Hale* and Linos Lazarides



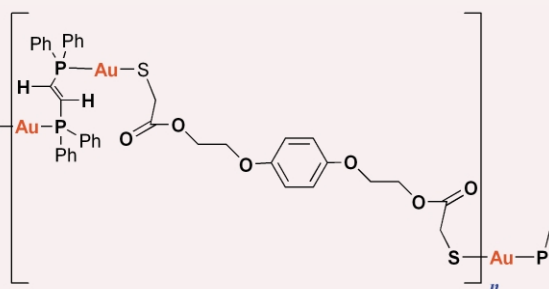
A mimetic **6** of the A83586C cyclodepsipeptide has been synthesised by a three-segment coupling protocol involving dipeptides **9**, **8** and **7**.

1834



Coordination polymers of gold(I) with dithiolate and diphosphine ligands

William J. Hunks, Michael C. Jennings and Richard J. Puddephatt*



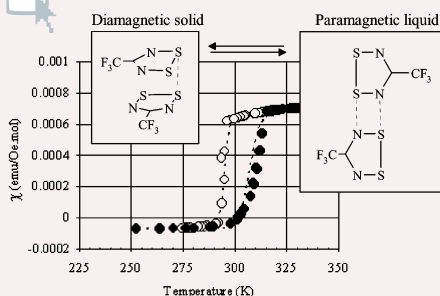
The first hybrid organic–inorganic coordination polymers with linear gold(I) centres in the backbone are easily formed on crystallization from the macrocyclic isomers.

1836



Thermal hysteresis in dithiadiazolyl and dithiazolyl radicals induced by supercooling of paramagnetic liquids close to room temperature: a study of F₃CCN₂SSN and an interpretation of the behaviour of F₃CCSN₂CCF₃

Hongbin Du, Robert C. Haddon, Ingo Krossing, Jack Passmore,* Jeremy M. Rawson* and Melbourne J. Schriver

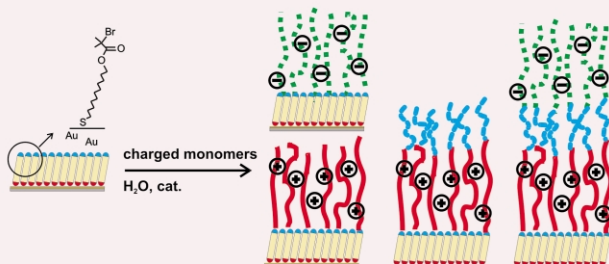


The trifluoromethyl-substituted dithiadiazolyl and dithiazolyl radicals, F₃CCN₂SSN (**1**) and F₃CCSN₂CCF₃ (**2**) associate through π*–π* covalent and electrostatic S^{δ+}...N^{δ-} interactions in the solid state, but melt with a dramatic volume increase to generate paramagnetic liquids.

1838

Controlled growth of triblock polyelectrolyte brushes

Vicky L. Osborne, Darren M. Jones and Wilhelm T. S. Huck*



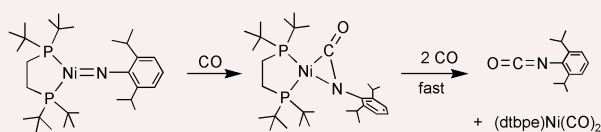
A significant breakthrough in the synthesis of polyelectrolyte brushes of controlled thickness and density is reported, demonstrated by the synthesis of triblock copolymer brushes composed of cationic, neutral, and anionic segments.

1840



Isocyanate and carbodiimide synthesis by nitrene-group-transfer from a nickel(II) imido complex

Daniel J. Mindiola and Gregory L. Hillhouse*



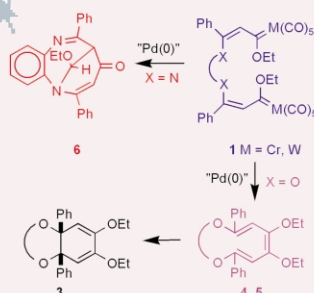
Carbon monoxide and benzyl isocyanide add across the Ni=NR bond of the imido complex (dtbpe)Ni=N(2,6-ⁱPr₂C₆H₃) to give nickel isocyanate and carbodiimide complexes which react further with CO to liberate O=C=N(2,6-ⁱPr₂C₆H₃) and PhCH₂N=C=N(2,6-ⁱPr₂C₆H₃) with formation of (dtbpe)Ni(CO)₂.

1842



New Pd-catalyzed tandem cyclization processes on group 6 bis-carbene complexes

Miguel A. Sierra,* Juan C. del Amo, María J. Mancheño, Mar Gómez-Gallego and M. Rosario Torres



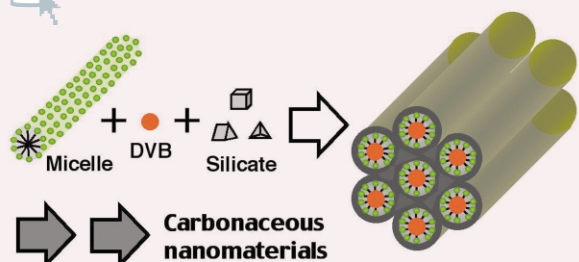
The reaction of bis-carbene complexes **1a,b** derived from catechol and Pd-catalysts gave product **3** derived from an intramolecular coupling–electrocyclization process, while nucleophilic attack–NH-carbene insertion product **6** was obtained from complexes **1c,d** derived from 1,2-diaminobenzene.

1844



Novel synthesis of polymer and carbonaceous nanomaterials via a micelle/silicate nanostructured precursor

Isamu Moriguchi,* Yasuhiro Koga, Ryosuke Matsukura, Yasutake Teraoka and Masaya Kodama



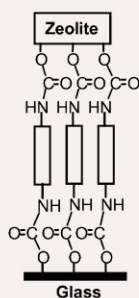
Mesoporous carbonaceous materials have been synthesized by a new method composed of *in situ* polymerization of divinylbenzene (DVB) in the hydrophobic phase of a micelle/silicate nanocomposite and a carbonization process.

1846



Diisocyanates as novel molecular binders for monolayer assembly of zeolite crystals on glass

Yu Sung Chun, Kwang Ha, Yun-Jo Lee, Jin Seok Lee, Hyun Sung Kim, Yong Soo Park and Kyung Byung Yoon*



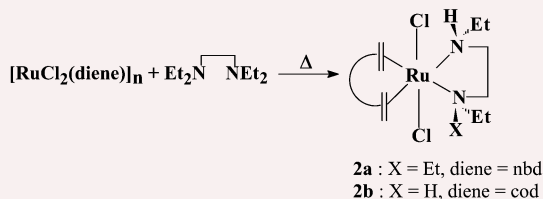
Isocyanate groups readily form urethane linkages with surface hydroxy groups on glass and zeolites and this phenomenon was utilized in the assembly of monolayers of zeolite microcrystals on glass by employing diisocyanates as novel molecular binders.

1848



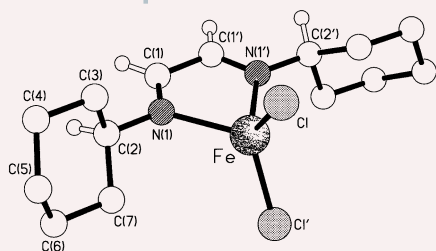
Intramolecular dealkylation of chelating diamines with Ru(II) complexes

M. Esther Morilla, Galanda Morfes, M. Carmen Nicasio, Tomás R. Belderrain, M. Mar Díaz-Requejo, Claudia Graiff, Antonio Tiripicchio, Roberto Sánchez-Delgado* and Pedro J. Pérez*



Ruthenium(II) centres mediate the intramolecular dealkylation of tertiary chelating dimines.

1850

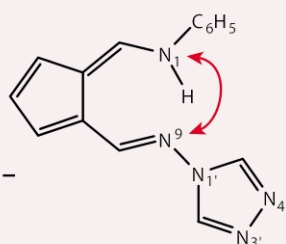
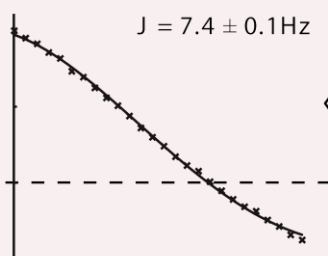


Four-coordinate iron complexes bearing α -diimine ligands: efficient catalysts for Atom Transfer Radical Polymerisation (ATRP)

Vernon C. Gibson,* Rachel K. O'Reilly, Warren Reed, Duncan F. Wass, Andrew J. P. White and David J. Williams

Four-coordinate iron(II) complexes bearing α -diimine ligands with alkyl substituents are shown to be efficient catalysts for the well-controlled atom transfer radical polymerisation of styrene; catalysts containing aryldiimine ligands support competitive β -hydrogen chain transfer processes.

1852

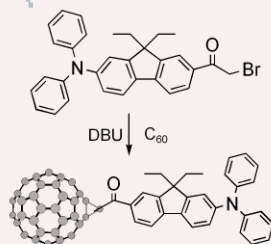


Determining hydrogen-bond strengths in the solid state by NMR: the quantitative measurement of homonuclear J couplings

S. P. Brown, M. Pérez-Torralba, D. Sanz, R. M. Claramunt and L. Emsley*

Hydrogen-bonding strengths in solids are quantified through the accurate determination (± 0.2 Hz) of hydrogen-bond mediated J couplings using a straightforward 2D spin-echo magic-angle spinning approach.

1854

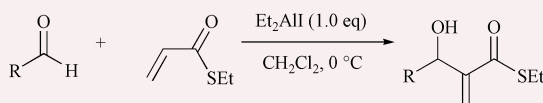


Synthesis of C_{60} -diphenylaminofluorene dyad with large 2PA cross-sections and efficient intramolecular two-photon energy transfer

Long Y. Chiang,* Prashant A. Padmawar, Taizoon Canteenwala, Loon-Seng Tan,* Guang S. He, Ramamurthi Kannan, Richard Vaia, Tzu-Chau Lin, Qingdong Zheng and Paras N. Prasad

The first, highly two-photon active C_{60} derivative comprised of a A-sp³-D conjugate structure was synthesized showing effective two-photon absorption cross-sections ($\sigma_2' = 196 \times 10^{-48} \text{ cm}^4 \text{ sec}^{-1} \text{ molecule}^{-1}$) in the nanosecond regime.

1856

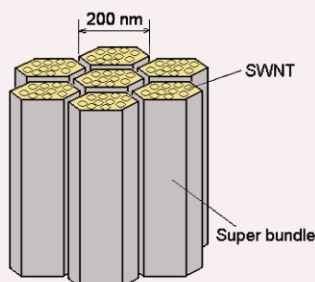


Lewis acid-promoted Baylis-Hillman-type reaction of α,β -unsaturated ethyl thioester with aldehydes without the use of a Lewis base

Wei Pei, Han-Xun Wei and Guigen Li*

The Baylis-Hillman-type reaction between α,β -ethyl thioacrylate and aldehydes was achieved by using diethylaluminium iodide as the promoter without the direct use of any Lewis bases.

1858



Long super-bundles of single-walled carbon nanotubes

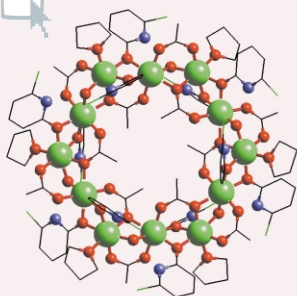
Hongwei Zhu,* Bin Jiang, Cailu Xu and Dehai Wu

A novel densely bundled structure (200 nm-thick super bundles) consisting of long single-walled carbon nanotubes showing a novel polygonization and densely aligned arrangement is reported.

1860

Synthetic and magnetic studies of a dodecanuclear cobalt wheel

Euan K. Brechin, Olivier Cador, Andrea Caneschi,* Cyril Cadiou, Steven G. Harris, Simon Parsons, Michele Vonci and Richard E. P. Winpenny*

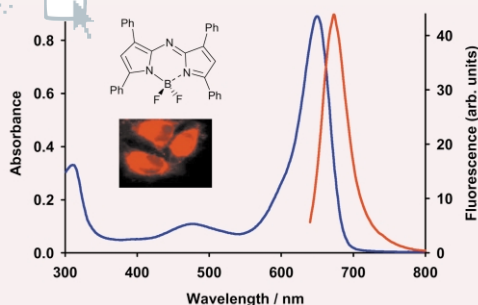
The cyclic $\{Co_{12}\}$ cage shown has a highly anisotropic $S = 6$ ground state.

1862

Synthesis of BF_2 chelates of tetraarylazadipyromethenes and evidence for their photodynamic therapeutic behaviour

John Killoran, Lorcan Allen, John F. Gallagher, William M. Gallagher and Donal F. O'Shea*

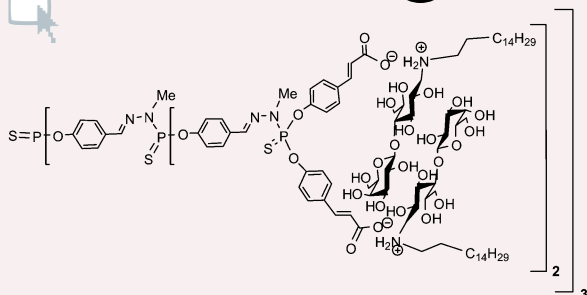
A new, non-porphyrin, class of therapeutic window photosensitiser is described with potential as photodynamic therapeutic agents.



1864

Phosphorus-containing dendrimers bearing galactosylceramide analogs: Self-assembly properties

Muriel Blanzat, Cédric-Olivier Turrin, Emile Perez, Isabelle Rico-Lattes,* Anne-Marie Caminade and Jean-Pierre Majoral*

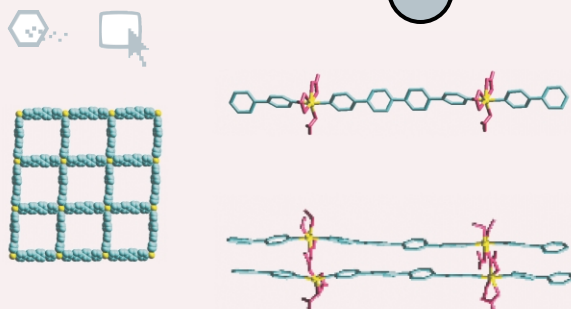
Proton transfer between carboxylic acid capped phosphorus dendrimers and gal β ,cer analogs leads to cationic dendrimers. These versatile amphiphilic supra-assemblies spontaneously form vesicles in water.

1866

A 'three-in-one' crystal of coordination networks

Kumar Biradha and Makoto Fujita*

Square grid, linear chain and double linear chain coordination polymers crystallized together in one crystal consistently in the presence of three different solvents.

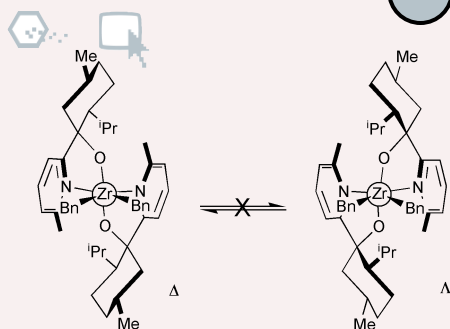


1868

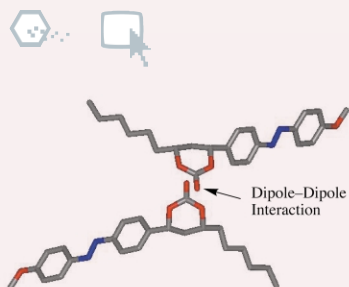
Efficient predetermination of chirality-at-zirconium

Ian J. Munslow, Adam J. Clarke, Robert J. Deeth,* Ian Westmoreland and Peter Scott*

Metal centered helicity in a stereochemically labile zirconium dialkyl complex is controlled at equilibrium by exploiting strongly the expressed chirality of a new and readily available pyridine alcohol ligand.



1870



Formation of Physical Organogels

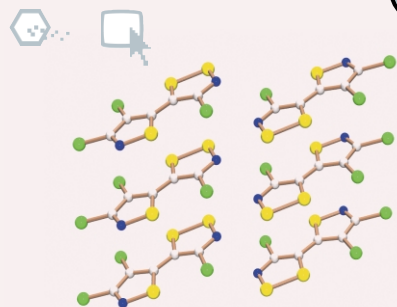


A rodlike organogelator: fibrous aggregation of azobenzene derivatives with a *syn*-chiral carbonate moiety

Jun-ichi Mamiya, Kiyoshi Kanie, Tamejiro Hiyama, Tomiki Ikeda* and Takashi Kato*

A rodlike azobenzene derivative containing a cyclic *syn*-carbonate moiety functions as a new type of organogelator; the dipole-dipole interactions of the chiral carbonate moieties drive the fibrous self-assembly of the azobenzene organogelator.

1872

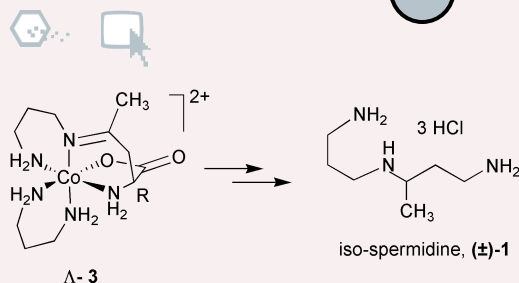


A π -stacked 1,2,3-dithiazolyl radical. Preparation and solid state characterization of $(\text{Cl}_2\text{C}_3\text{NS})(\text{ClC}_2\text{NS}_2)$

Leanne Beer, A. Wallace Cordes, Robert C. Haddon, Mikhail E. Itkis, Richard T. Oakley,* Robert W. Reed and Craig M. Robertson

A 5-isothiazolo-1,2,3-dithiazolium cation can be prepared in a one-step synthesis from glutaronitrile. Reduction affords the corresponding dithiazolyl radical, the structure of which consists of undimerized radical π -stacks, with $\sigma_{\text{RT}} = 2 \times 10^{-7} \text{ S cm}^{-1}$.

1874

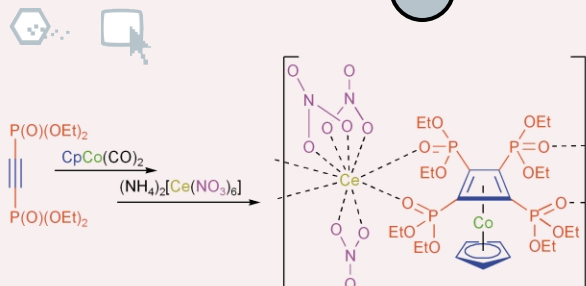


Assembly of polyamines *via* amino acids from three components using cobalt(III) template methodology

Gilles Laval, William Clegg, Christopher G. Crane, Anders Hammershøi, Alan M. Sargeson and Bernard T. Golding*

A versatile and efficient template synthesis has been developed to synthesise novel polyamines [e.g. *rac*- N^3 -(3-aminopropyl)butane-1,3-diamine, isospermidine **1**] *via* amino acids [e.g. (2*R*,4*S*/2*S*,4*R*)- N^4 -(3-aminopropyl)-2,4-diaminopentanoic acid] using cobalt(III) to assemble the three precursor components in a biomimetic manner.

1876

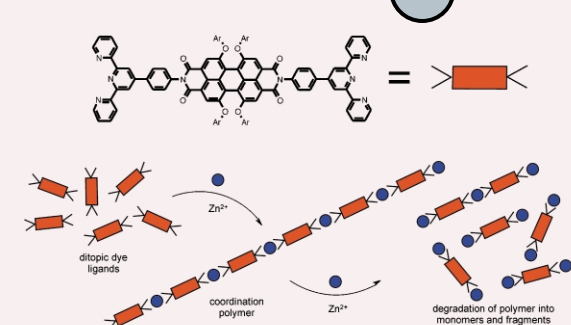


$(\eta^5\text{-Cyclopentadienyl})(\eta^4\text{-di- and tetra-phosphorylcyclobutadiene})\text{cobalt(I)}$: Synthesis, structure, and formation of 1-D coordination polymer

Shigeru Sasaki,* Yoshihiro Tanabe and Masaaki Yoshifuji*

$(\eta^5\text{-Cyclopentadienyl})(\eta^4\text{-di- and tetra-phosphorylcyclobutadiene})\text{cobalt(I)}$ complexes were synthesized by the reaction of phosphorylacetylenes with $\text{CpCo}(\text{CO})_2$. The tetraphosphoryl derivative has proved to work as a bis-bidentate ligand affording a one-dimensional coordination polymer with Ce(III).

1878



Photoluminescent supramolecular polymers: metal-ion directed polymerization of terpyridine-functionalized perylene bisimide dyes

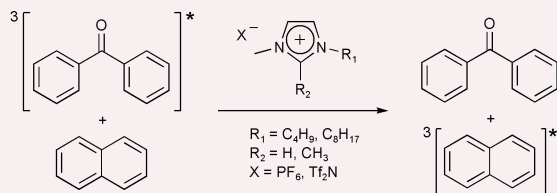
Rainer Dobrawa and Frank Würthner*

Terpyridine ligands attached to a perylene bisimide chromophore can be complexed by Zn^{2+} to spontaneously form highly fluorescent dimers or coordination polymers which are characterized by $^1\text{H NMR}$ and fluorescence spectroscopy.

1880

Bimolecular rate constants for diffusion in ionic liquids

Andrew J. McLean,* Mark J. Muldoon, Charles M. Gordon* and Ian R. Dunkin

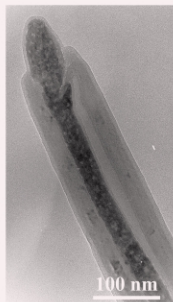


The temperature dependence of the bimolecular rate constants for a diffusion controlled reaction involving neutral reactants have been directly determined in five room temperature ionic liquids.

1882

Synthesis of $CoFe_2O_4$ nanowire in carbon nanotubes. A new use of the confinement effect

C. Pham-Huu,* N. Keller, C. Estournès, G. Ehret and M. J. Ledoux

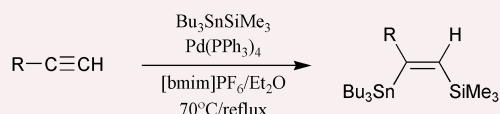


Cobalt ferrite nanowires with an average diameter of 50 nm and lengths up to several micrometers were synthesized inside carbon nanotubes under mild reaction conditions using the confinement effect provided by the carbon tubular template.

1884

Silylstannation of terminal alkynes using a recyclable palladium(0) catalyst immobilised in an ionic liquid

Ivan Hemeon and Robert D. Singer*

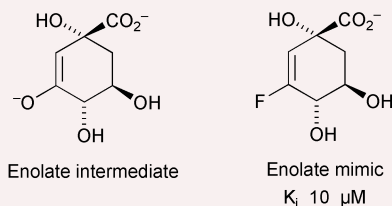


Silylstannanes can be regioselectively added across terminal alkynes in a quantitative fashion in the presence of a palladium(0) catalyst immobilised in the [bmim]PF₆ ionic liquid which can be recycled without loss of activity.

1886

Vinyl fluoride as an isoelectronic replacement for an enolate anion: Inhibition of type II dehydroquinases

Martyn Frederickson, John R. Coggins and Chris Abell*

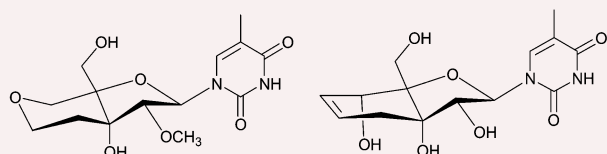


A potent inhibitor of type II dehydroquinases has been prepared using a vinyl fluoride as a molecular replacement for reactive enolate functionality.

1888

3',4'-*trans*-Linked bicyclic nucleosides locked in *S*-type conformations

Helena Thomasen, Michael Meldgaard, Morten Freitag, Michael Petersen, Jesper Wengel and Poul Nielsen*



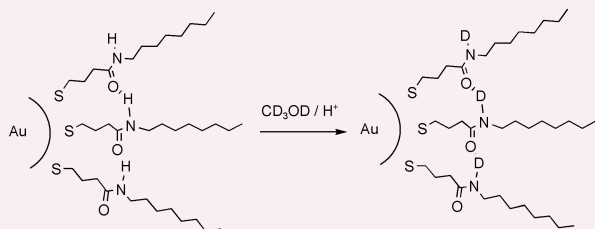
This communication presents a new synthetic concept in the construction of conformationally restricted oligonucleotide analogues. Two bicyclic nucleosides perfectly locked in *S*-type conformations are presented.

1890

Inhibition and acceleration of deuterium exchange in amide-functionalized monolayer-protected gold clusters

Cheryl Briggs, Tyler B. Norsten and Vincent M. Rotello*

Radially-dependent catalysis and inhibition of H/D exchange is observed with amide-functionalized monolayers on gold nanoparticles.

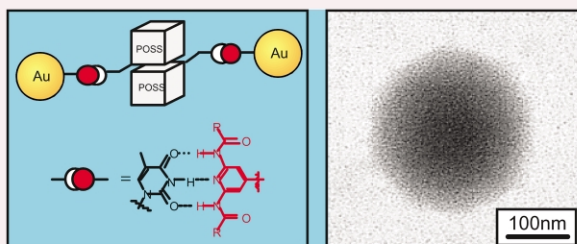


1892

Self-assembly of gold nanoparticles through tandem hydrogen bonding and polyoligosilsequioxane (POSS)–POSS recognition processes

Joseph B. Carroll, Benjamin L. Frankamp and Vincent M. Rotello

Diaminopyridine-functionalized polyhedral oligomeric silsesquioxanes (POSS-DAP) self-assemble with complementary thymine-functionalized Au nanoparticles (Thy-Au) into well-defined spherical aggregates, providing highly structured nanocomposites.

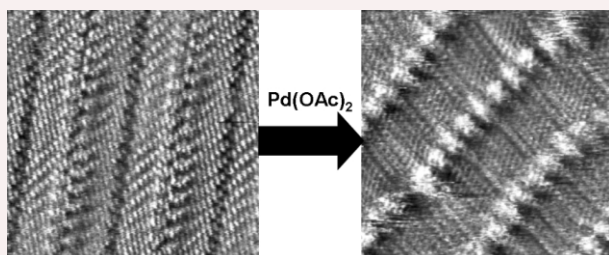


1894

Submolecular visualisation of palladium acetate complexation with a bipyridine derivative at a graphite surface

Mohamed M. S. Abdel-Mottaleb, Norbert Schuurmans, Steven De Feyter,* Jan Van Esch,* B. L. Feringa and Frans C. De Schryver*

Self-assembly of a monolayer of a bipyridine derivative and its complexation with palladium acetate at a graphite/liquid surface is described; its stability in air is demonstrated.

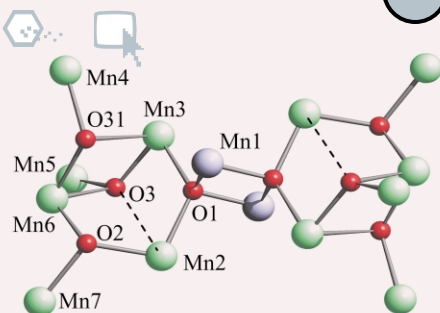


1896

Synthesis and studies of a tetradecanuclear manganese(II)/(III) cage

Guillem Aromí, Aidan Bell, Simon J. Teat, A. Gavin Whittaker and Richard E. P. Winpenny*

The first $\{Mn_{14}\}$ cage is reported, which has a core consisting of linked $\{Mn_3O_4\}$ cubanes.

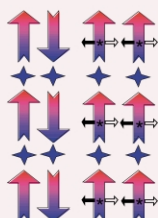


1898

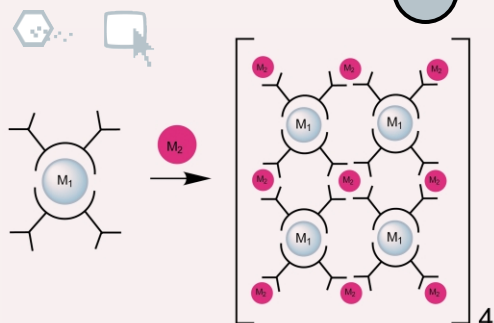
Non-centrosymmetric packing of 1-D coordination networks based on chirality

Abdelaziz Jouaiti, Mir Wais Hosseini* and Nathalie Kyritsakas

A C_2 chiral tecton possessing a monodentate and a tridentate coordination pole leads in the presence of $CoCl_2$ to the formation of a directional 1-D coordination network. The packing of the latter in parallel fashion generates a polar solid.



1900

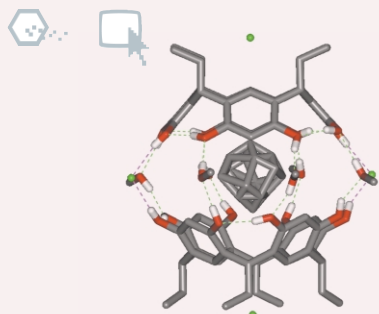


A sponge-like luminescent coordination framework *via* an *Aufbau* approach

Brett D. Chandler, Adrien P. Côté, David T. Cramb, Josephine M. Hill and George K. H. Shimizu*

A mixed Eu/Ba coordination framework is generated *via* a stepwise assembly. The solid is luminescent with a flexible structure for sorbing guest molecules.

1902

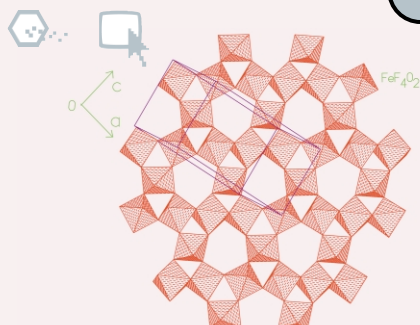


Encapsulation of diquats by resorcinarenes: a novel staggered anion–solvent mediated hydrogen bonded capsule

Heidi Mansikkamäki, Maija Nissinen and Kari Rissanen*

X-Ray structural studies of encapsulation of diquats by ethyl resorcinarene resulted in anion and/or solvent mediated capsules in which both staggered and eclipsed orientations of capsule forming hosts is observed

1904



An organically templated iron sulfate with a distorted Kagome lattice exhibiting unusual magnetic properties

Geo Paul, Amitava Choudhury and C. N. R. Rao*

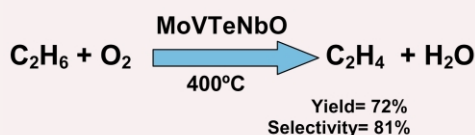
A layered iron sulfate of the composition $[\text{H}_3\text{N}(\text{CH}_2)_2\text{NH}_2(\text{CH}_2)_2\text{NH}_2(\text{CH}_2)_2\text{NH}_3][\text{Fe}^{\text{II}}_3\text{F}_6(\text{SO}_4)_2]$, possessing a distorted Kagome lattice, prepared hydrothermally, is found to exhibit magnetic hysteresis like a ferrimagnet besides the characteristics of a frustrated system, like those of a spin glass.

1906



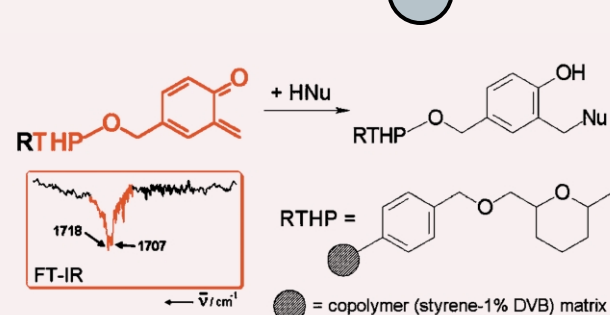
The selective oxidative dehydrogenation of ethane over hydrothermally synthesised MoVTeNb catalysts

J. M. López Nieto,* P. Botella, M. I. Vázquez and A. Dejoz



MoVTeNbO mixed oxide catalysts are active and selective in the oxidative dehydrogenation of ethane to ethene in the 350–400 °C temperature interval with a yield of ethene of about 75%.

1908

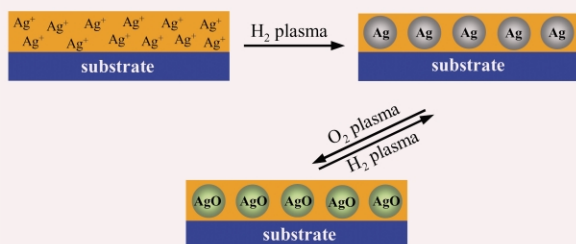


Synthesis, spectroscopic characterization and chemical reactions of stable *o*-QM on solid phase

Riccardo Zanaletti and Mauro Freccero*

A novel approach towards quinone methide stabilization has been achieved by anchoring the reactive *o*-QM intermediate on a solid phase. Supported *o*-QM maintains its reactivity with nucleophiles.

1910

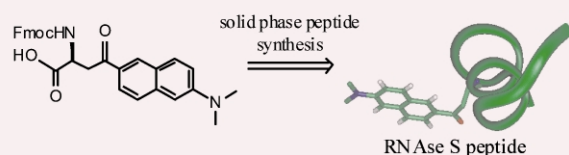


Reversible conversion of nanoparticles of metallic silver and silver oxide in ultrathin TiO₂ films: a chemical transformation in nano-space

Junhui He, Izumi Ichinose, Shigenori Fujikawa, Toyoki Kunitake* and Aiko Nakao

Interconversion of silver and silver oxide nanoparticles was achieved by H₂ and O₂ plasma treatments in ultrathin TiO₂ films. This *in-situ* approach is useful for the preparation of nano-sized materials that are not readily accessible by other means.

1912

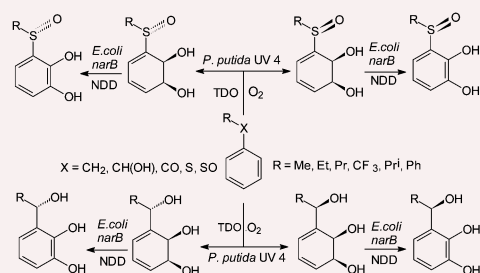


Enantioselective synthesis and application of the highly fluorescent and environment-sensitive amino acid 6-(2-dimethylaminonaphthoyl) alanine (DANA)

Mark Nitz, Adam R. Mezo, Mayssam H. Ali and Barbara Imperiali*

The amino acid DANA was prepared *via* enantioselective alkylation of glycine benzophenone imine. The spectroscopic properties of DANA were demonstrated by incorporation into the RNase S model system.

1914

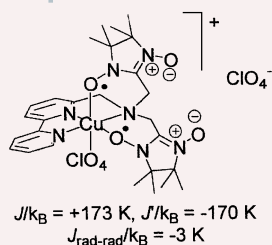


Tandem enzyme-catalysed oxidations of alkyl phenyl sulfides and alkyl benzenes: enantiocomplementary routes to chiral phenols

Derek R. Boyd,* Narain D. Sharma, Vera Ljubez, Breige E. Byrne, Steven D. Shepherd, Christopher C. R. Allen, Leonid A. Kulakov, Michael J. Larkin and Howard Dalton

Sulfoxide *cis*-dihydrodiols and triols have been produced and converted to enantiopure catechols *via* enzyme-catalysed and chemoenzymatic methods.

1916

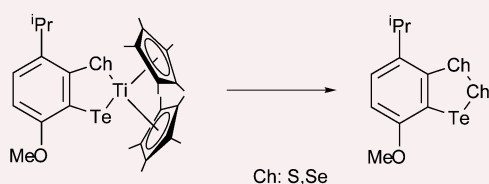


A copper(II) complex of a pentadentate ligand featuring large ferro- and antiferromagnetic interactions

Christophe Stroh and Raymond Ziessel*

An unusually high ferromagnetic and a strong antiferromagnetic copper(II)-nitroxide exchange interaction has been obtained by coordinating a ligand bearing flexible nitronyl nitroxide radicals.

1918

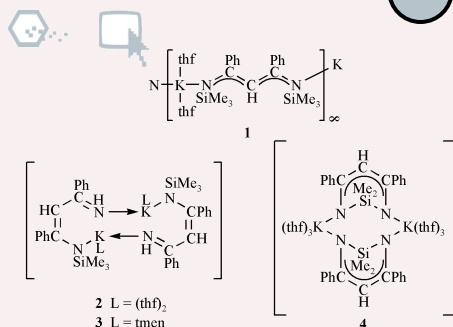


Novel multi-chalcogen ring systems with three different chalcogen atoms: synthesis, structure and redox property of five-membered trichalcogenheterocycles

Satoshi Ogawa,* Satoko Yoshimura, Noriyoshi Nagahora, Yasushi Kawai, Yuji Mikata and Ryu Sato*

The molecular structure of novel five-membered trichalcogenheterocycles with sulfur, selenium and tellurium, has been determined by crystallographic studies.

1920



Syntheses and structures of structurally diverse potassium β -diketiminates derived from the ligand $[\{N(\text{SiMe}_3)\text{C}(\text{Ph})\}_2\text{CH}]^-$

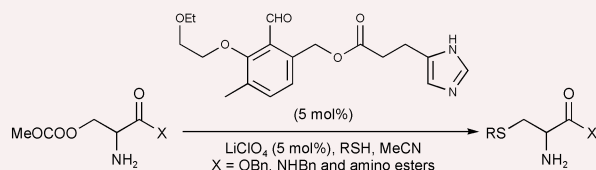
Peter B. Hitchcock, Michael F. Lappert,* Diang-Sheng Liu and Rafaël Sablong

A new family of potassium β -diketiminates has been synthesised and crystallographically characterised, including **1–4**.

1922

β -Replacement reaction of serine-*O*-carbonate derivatives with thiols catalyzed by a pyridoxal model having an ionophore side-chain

Kazuyuki Miyashita, Hidenobu Murafuji, Hiroshi Iwaki, Eito Yoshioka and Takeshi Imanishi*

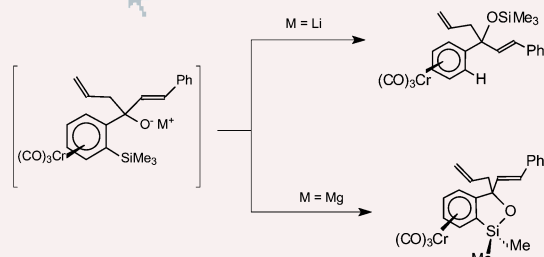


Serine-*O*-carbonate derivatives, including peptides having a serine-*O*-carbonate residue at the N-terminal position, are catalytically transformed into *S*-substituted cysteine derivatives.

1924

Cleavage of Si–Ar bond vs Si–Me bond: a remarkable counterion effect on reactivity

Suresh Kumar Tipparaju, Sunil K. Mandal, Surojit Sur, Vedavati G. Puranik and Amitabha Sarkar

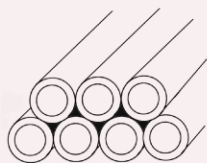
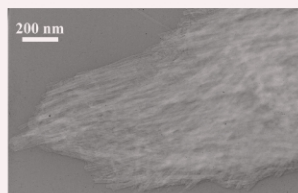


Formation of distinctly different products from the same alkoxide intermediate indicates a strong dependence of reaction pathways on counterions.

1926

Synthesis of a mesoporous composite material prepared by the self-assembly of mineral liquid crystals

Franck Camerel,* Jean-Christophe P. Gabriel and Patrick Batail

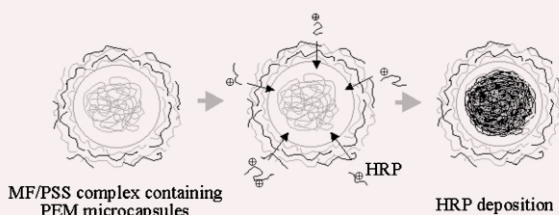


A novel route toward mesoporous composite materials with large pores based on the direct assembly and the immobilization of $[\text{Nb}_6\text{O}_{17}^{4-}]_n$ hollow tubular inorganic building blocks.

1928

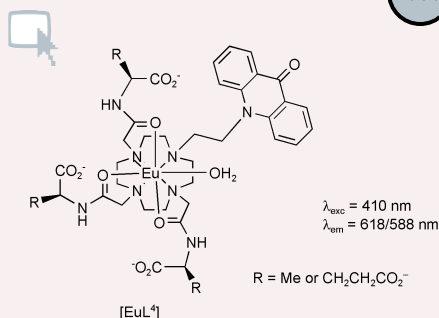
Spontaneous deposition of horseradish peroxidase into polyelectrolyte multilayer capsules to improve its activity and stability

Changyou Gao,* Xingyu Liu, Jiacong Shen and Helmuth Möhwald



Horseradish peroxidase (HRP) was encapsulated in the pre-formed polyelectrolyte multilayer (PEM) microcapsules by spontaneous deposition with remarkably improved stability and catalytic activity.

1930

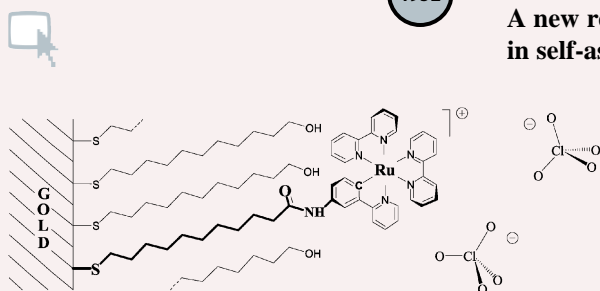


Ratiometric probes for hydrogencarbonate analysis in intracellular or extracellular environments using europium luminescence

Yann Bretonnière, Martin J. Cann, David Parker* and Rachel Slater

In a cell lysate medium, a 69% change in the 618/588 nm intensity ratio signals reversible hydrogencarbonate binding over the range 5 to 15 mM.

1932

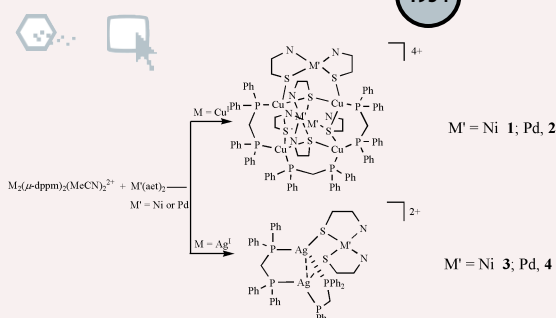


A new redox site as an alternative to ferrocene to study electron transfer in self-assembled monolayers

Cédric Hortholary, Freddy Minc, Christophe Coudret,* Jacques Bonvoisin* and Jean-Pierre Launay

Easily functionalized, highly soluble and undergoing very fast redox processes, the cyclometallated ruthenium complex $[\text{Ru}(\text{bpy})_2(\text{pp})]^+$, embedded into Self-Assembled Monolayers, is an attractive redox center to study heterogeneous electron transfer, as confirmed by impedance spectroscopy.

1934

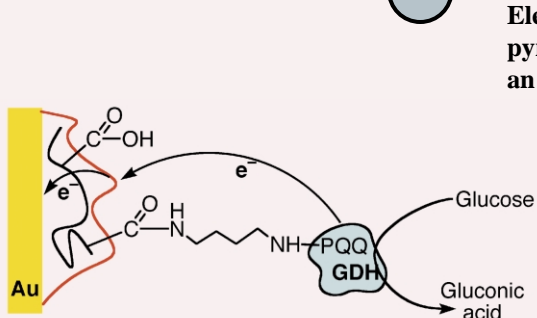


Self-assembly luminescent heteroheptanuclear complexes with metal diphosphine and metal thiolate as components

Hong-Wu Xu, Zhong-Ning Chen,* Shoji Ishizaka, Noboru Kitamura* and Ji-Gui Wu*

Self-assembly between $[\text{M}_2(\mu\text{-dppm})_2(\text{MeCN})_2]^{2+}$ ($M = \text{Cu}$ or Ag ; $\text{dppm} = \text{bis}(\text{diphenylphosphino})\text{methane}$) and $\text{M}'(\text{aet})_2$ ($M' = \text{Ni}$ or Pd , $\text{aet} = 2\text{-aminoethanethiolate}$) afforded photoluminescent heteroheptanuclear ($M = \text{Cu}$) and heterotrinnuclear complexes ($M = \text{Ag}$).

1936

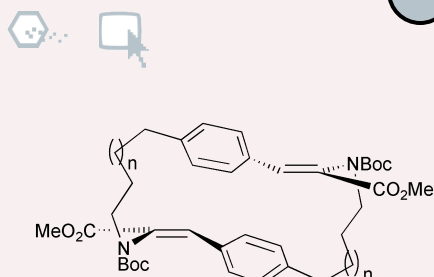


Electrical contacting of glucose dehydrogenase by the reconstitution of a pyrroloquinoline quinone-functionalized polyaniline film associated with an Au-electrode: an *in situ* electrochemical SPR study

Oleg A. Raitman, Fernando Patolsky, Eugenii Katz and Itamar Willner*

The reconstitution of apo-glucose dehydrogenase on a PQQ-functionalized polyaniline film associated with an electrode resulted in an electrically contacted enzyme. The bioelectrocatalytic functions of the enzyme-electrode are elucidated by cyclic voltammetry and *in situ* electrochemical surface plasmon resonance experiments.

1938



Synthesis and structural analysis of dehydrophenylalanine cyclophanes

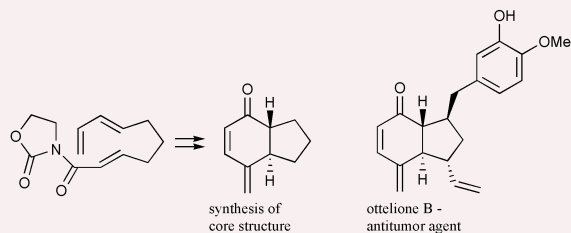
Susan E. Gibson (née Thomas),* Jerome O. Jones, S. Barret Kalindjian, Jamie D. Knight, Jonathan W. Steed and Matthew J. Tozer

The syntheses and structures of three cyclophanes containing two (*Z*)-dehydrophenylalanine residues are reported; the distance between the two amino acid residues is easily altered and changing this parameter has a significant effect on the solid state structures of the cyclophanes.

1940

Synthesis of the bicyclic dienone core of the antitumor agent ottelione B

Derrick L. J. Clive* and Stephen P. Fletcher

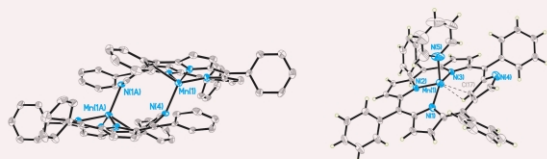


The synthesis of the unusual core of the powerful antitumor agent ottelione B is described; the compound shows little tendency to isomerize to the *cis*-fused isomer or to the aromatic tautomer.

1942

Dimeric and monomeric forms of manganese N-confused porphyrin

John D. Harvey and Christopher J. Ziegler*

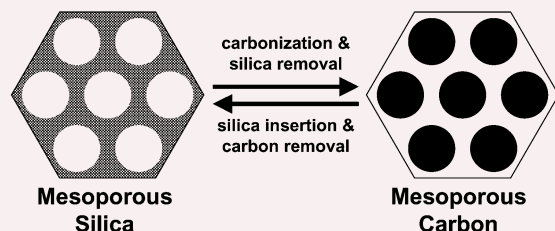


The synthesis and structural characterization of dimeric and monomeric manganese adducts of N-confused tetraphenylporphyrin (NCTPP) are presented; this dimeric form represents the first structural characterization of a new binding mode for this macrocycle, and both complexes exhibit agostic CH interactions as seen in other first row transition metal NCTPP compounds.

1944

Reversible replication between ordered mesoporous silica and mesoporous carbon

Min Kang, Seung Hwan Yi, Hyung Ik Lee, Jae Eui Yie and Ji Man Kim*

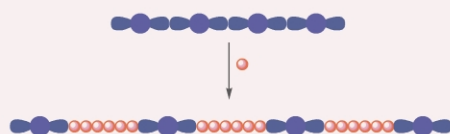


Highly ordered 2-D hexagonal mesoporous silica can be regenerated from a mesoporous carbon CMK-3 that is a negative replica of mesoporous silica SBA-15, indicating reversible replication between carbon and inorganic materials.

1946

Controlled monomer insertion into polymer main chain: synthesis of sequence ordered polystyrene containing thiourethane and trithiocarbonate units by the RAFT process

Suguru Motokucho, Atsushi Sudo, Fumio Sanda and Takeshi Endo

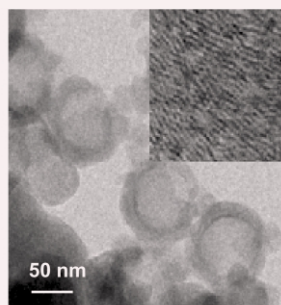


An easy process for synthesizing regularly nano-structured polymers was developed by controlled insertion polymerization into a polymeric precursor having a trithiocarbonate group in the main chain.

1948

Direct synthesis of uniform hollow carbon spheres by a self-assembly template approach

Gang Hu, Ding Ma, Mojie Cheng, Lin Liu and Xinhe Bao



Hollow carbon spheres (50–100 nm) have been synthesized by a self-assembly approach using hexachlorobenzene and Na. NaCl which generated during the reaction has been successfully exploited as a template for the direct synthesis of porous carbon materials.

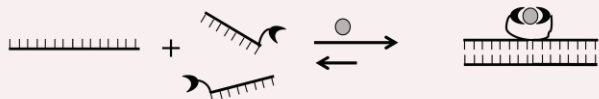
1950



Enhanced cooperative binding of oligonucleotides to form DNA duplexes mediated by metal ion chelation

Imogen Horsey, Yamuna Krishnan-Ghosh and Shankar Balasubramanian*

Metal chelating iminodiacetic acid moieties were appended to abutting ends of two 9-mer oligonucleotides that were designed to hybridize contiguously on an 18-mer target. The inclusion of 1 equivalent of Gd^{III} resulted in a 15 °C increase in T_m for the complex. Metal chelation has been shown to be effective in cooperatively increasing affinities of oligonucleotides to single stranded DNA targets.

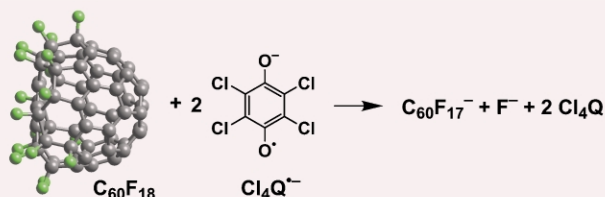


1952

Electron transfer reduction of a highly electron-deficient fullerene, $C_{60}F_{18}$

Kei Ohkubo, Roger Taylor,* Olga V. Boltalina, Seiji Ogo and Shunichi Fukuzumi*

Electron transfer reduction of $C_{60}F_{18}$ to the defluorinated anion, $C_{60}F_{17}^-$ occurs efficiently by the *p*-chloranil radical anion. The one-electron reduction potential of $C_{60}F_{18}$ is evaluated as 0.04 V (vs. SCE).



1954

Solution-phase electroluminescence

Joshua B. Edel, Andrew J. deMello* and John C. deMello*

We report emissive devices exhibiting electroluminescence in the solution phase. The principle operating mechanism—direct electronic carrier injection from the electrodes into the carrier bands of the polymer—resembles that of conventional solid-state organic light-emitting diodes.

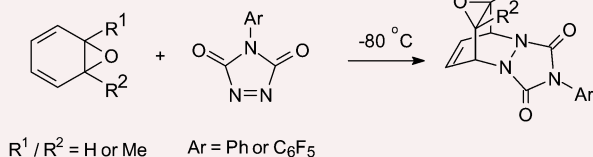


1956

Trapping of benzene oxide-oxepin and methyl-substituted derivatives with 4-phenyl- and 4-pentafluorophenyl-1,2,4-triazoline-3,5-dione

Alistair P. Henderson, Esra Mutlu, Amélie Leclercq, Christine Bleasdale, William Clegg, Richard A. Henderson and Bernard T. Golding*

4-Phenyl-1,2,4-triazoline-3,5-dione and its pentafluoro analogue are efficient reagents for trapping arene oxides, *e.g.* benzene oxide-oxepin, affording crystalline adducts that can be quantitatively analysed by HPLC and MS techniques.

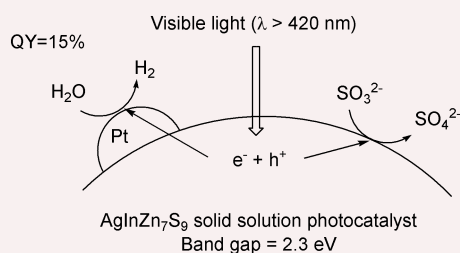


1958

$AgInZn_7S_9$ solid solution photocatalyst for H_2 evolution from aqueous solutions under visible light irradiation

Akihiko Kudo,* Issei Tsuji and Hideki Kato

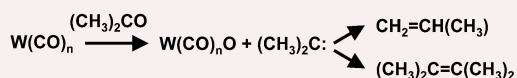
The $AgInZn_7S_9$ solid solution with a 2.3 eV band gap showed high photocatalytic activity for H_2 evolution from an aqueous solution under visible light irradiation.



1960

Oxygen abstraction by laser pyrolysis of $W(CO)_6$; a mild route to gas-phase carbene chemistry

Grant R. Allen and Douglas K. Russell*

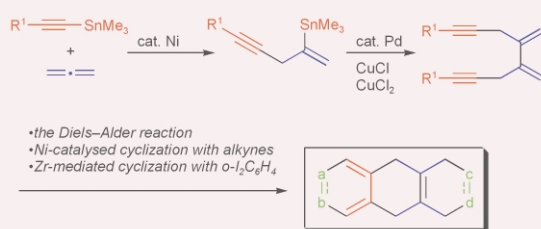


Gas phase carbenes may be generated by O-atom abstraction from organic carbonyls by $W(CO)_n$, produced by laser pyrolysis of $W(CO)_6$. Dimerisation products of carbenes such as $(CH_3)_2C:$ have been detected for the first time.

1962

Synthesis of polycyclic compounds utilizing the nickel-catalysed alkynylstannylation of 1,2-dienes

Eiji Shirakawa,* Yoshiaki Nakao, Teruhisa Tsuchimoto and Tamejiro Hiyama*



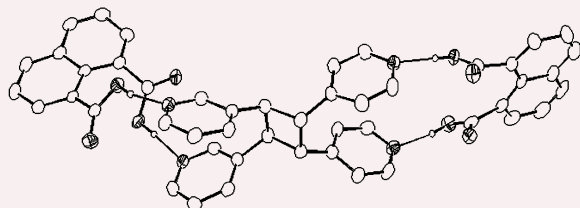
Polycyclic compounds having linearly-fused six-membered rings can be readily prepared by various modes of cyclization from dienediynes, which were synthesized through the nickel-catalysed alkynylstannylation of 1,2-dienes followed by the palladium-catalysed oxidative homocoupling of the resulting alkenylstannanes.

1964

Site-directed regiocontrolled synthesis of a ‘head-to-head’ photodimer via a single-crystal-to-single-crystal transformation involving a linear template

Dushyant B. Varshney, Giannis S. Papaefstathiou and Leonard R. MacGillivray*

A linear template is used to direct the synthesis of a ‘head-to-head’ photodimer in the solid state, which occurs *via* a single-crystal-to-single-crystal transformation.

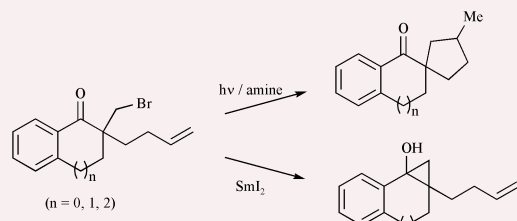


1966

Changeable reactivity of ketyl radicals derived from 2-bromomethyl-2-(3-butenyl)benzocyclic-1-alkanones depending on electron transfer conditions employed

Eietsu Hasegawa,* Shinya Takizawa, Kazuki Iwaya, Miyuki Kurokawa, Naoki Chiba and Keiko Yamamichi

Photoinduced electron transfer reaction of 2-bromomethyl-2-(3-butenyl)benzocyclic-1-alkanones with amines afforded 5-exo radical cyclization products while electron transfer reaction with samarium diiodide produced cyclopropanols.

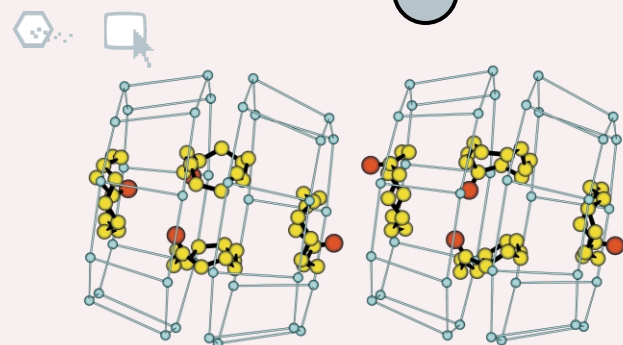


1968

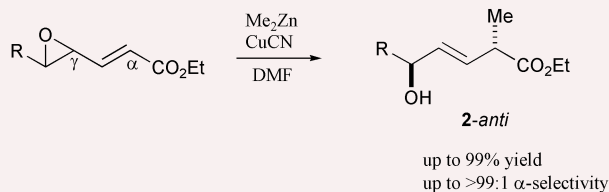
X-Ray structure of the δ -cyclodextrin complex with cycloundecanone

Kazuaki Harata,* Hiroaki Akasaka, Tomohiro Endo, Hiromasa Nagase and Haruhisa Ueda

The crystal structure of the δ -cyclodextrin complex with cycloundecanone shows a channel-type structure consisting of head-to-head dimer units that include four guest molecules.



1970

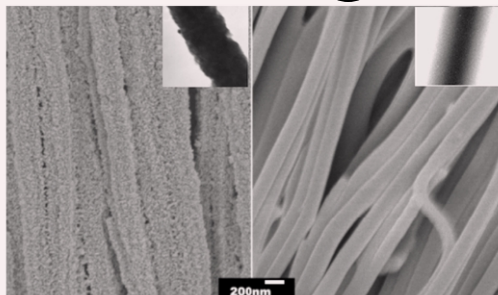


A regio- and stereoselective α -methylation of γ,δ -epoxy- α,β -unsaturated esters with a Me_2Zn - CuCN reagent

Atsushi Hirai, Atsushi Matsui, Kei Komatsu, Keiji Tanino and Masaaki Miyashita*

A highly regio- and stereoselective α -methylation reaction of γ,δ -epoxy- α,β -unsaturated esters was achieved by using a Me_2Zn - CuCN reagent.

1972

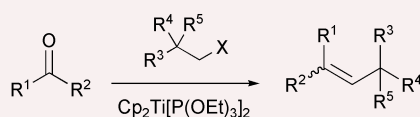


Binary hydrogel nanowires of invertible core/shell phases prepared in porous alumina membranes

Zhenzhong Yang* and Zhongwei Niu

Poly(*N,N*-dimethylacrylamide)/poly(acrylic ammonium) binary hydrogel nanowires with invertible core/shell phases were made by a radical polymerization in the nanosized cylinder pores of alumina membranes, where the pore surface wettability is controlled by chemical modification.

1974

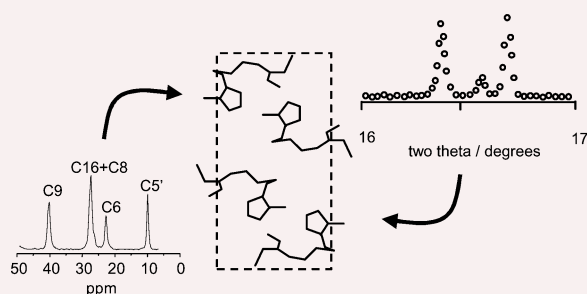


Carbonyl olefination utilizing an alkyl halide-titanocene(II) system

Takeshi Takeda,* Keiko Shimane, Kenji Ito, Naoko Saeki and Akira Tsubouchi

Ketones, aldehydes, esters and lactones are transformed into olefins when treated with the organotitanium species formed from alkyl halides and titanocene(II).

1976

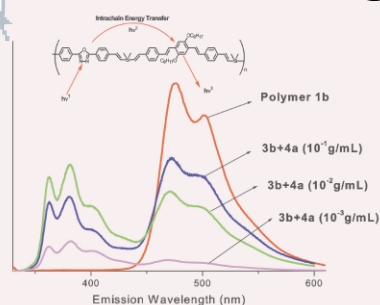


Conformational analysis by solid-state NMR and its application to restrained structure determination from powder diffraction data

David A. Middleton,* Xin. Peng, David Saunders, Kenneth Shankland, William I. F. David and Anders J. Markvardsen

Solid-state NMR is used to dramatically improve the efficiency and reliability of molecular crystal structure determination from X-ray powder diffraction data.

1978



Intrachain energy transfer in silylene-spaced alternating donor-acceptor divinylarene copolymers

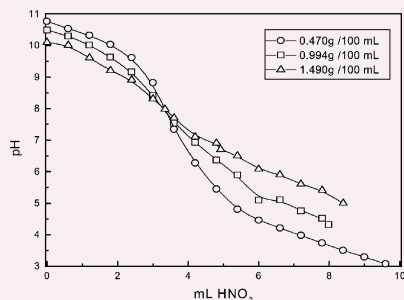
Yen-Ju Cheng, Tsyur-Yuan Hwu, Jui-Hung Hsu and Tien-Yau Luh*

Silylene-spaced donor-acceptor divinylarene copolymers are synthesized by hydrosilylation of bisalkynes **7** with bisvinylsilanes **3**; efficient intrachain energy transfer between donor-acceptor chromophores is observed.

1980

Potentiometric mass titrations: a quick scan for determining the point of zero charge

John Vakros, Christos Kordulis and Alexis Lycourghiotis*

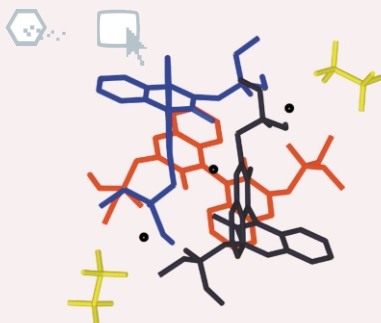


The points of zero charge of four oxidic catalytic carriers have been determined as the intersection points of four sets of three potentiometric titration curves. These curves have been plotted using three suspensions for each oxide having the same ionic strengths but containing different masses of the oxides.

1982

Self-assembly of a stereoselective trinuclear sodium/lithium triple helix

Magdalena Capó,* José M. Saá and Angel Alvarez

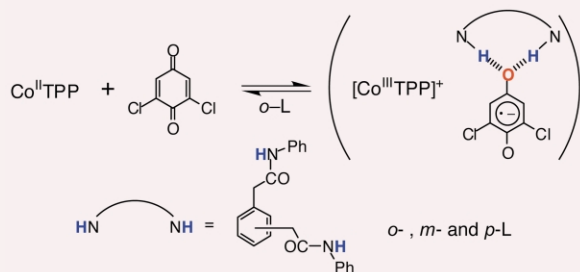


Synthesis and characterisation of the stereoselective triple-stranded helicate complexes M_3L_3 self-assembled quantitatively by means of MOTf ($M = Na, Li$) and a BINOL-derivative.

1984

Activation of electron transfer reduction of *p*-benzoquinone derivatives by intermolecular regioselective hydrogen bond formation

Shunichi Fukuzumi,* Hironori Kitaguchi, Tomoyoshi Suenobu and Seiji Ogo

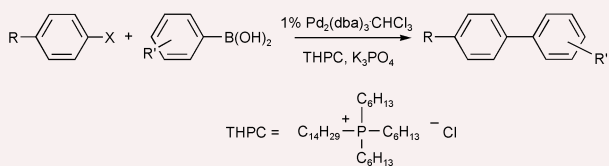


Electron transfer reduction of *p*-benzoquinones by cobalt tetraphenylporphyrin is enhanced significantly by the presence of *o*-bis(phenylcarbamoylmethyl)benzene (*o*-L) due to the regioselective hydrogen bond formation between the corresponding semiquinone radical anions and *o*-L.

1986

Suzuki cross-coupling reactions of aryl halides in phosphonium salt ionic liquid under mild conditions

James McNulty,* Alfredo Capretta, Jeff Wilson, Jeff Dyck, George Adjabeng and Al Robertson



The Suzuki cross-coupling of aryl boronic acids with aryl halides, including aryl chlorides, proceeds in the phosphonium salt ionic liquid tetradecyltriethylphosphonium chloride under mild conditions.

ADDITIONS AND CORRECTIONS

1988

Béatrice Quiclet-Sire, Benoît Sortais and Samir Z. Zard

A convergent approach to 2-substituted-5-methoxyindoles. Application to the synthesis of melatonin

CONFERENCE DIARY

XXV

Dates, venues and contact details of forthcoming events.

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Supplementary crystallographic data are available: see article for further information.



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

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 David, William I. F., 1976
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 Dolphin, David, 1816
 Du, Hongbin, 1836
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 Ehret, G., 1882
 Emsley, L., 1852
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 Endo, Tomohiro, 1968
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 Fan, Jie, 1824
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 Freitag, Morten, 1888
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 Gordon, Charles M., 1880
 Graiff, Claudia, 1848
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 Haddon, Robert C., 1836, 1872
 Hale, Karl J., 1832
 Hammershøi, Anders, 1874
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 Harris, Steven G., 1860
 Harvey, John D., 1942
 Hasegawa, Eietsu, 1966
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 He, Junhui, 1910
 Hemeon, Ivan, 1884
 Henderson, Alistair P., 1956
 Henderson, Richard A., 1956
 Hevia, Eva, 1814
 Hill, Josephine M., 1900
 Hillhouse, Gregory L., 1840
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 Hitchcock, Peter B., 1920
 Hiyama, Tamejiro, 1870, 1962
 Horsey, Imogen, 1950
 Hortholary, Cédric, 1932
 Hosseini, Mir Wais, 1898
 Hsu, Jui-Hung, 1978
 Hu, Gang, 1948
 Hu, Jiaxin, 1806, 1808, 1810
 Huck, Wilhelm T. S., 1838
 Hunks, William J., 1834
 Hwu, Tsy-Yuan, 1978
 Ichinose, Izumi, 1910
 Ikeda, Tomiki, 1870
 Imanishi, Takeshi, 1922
 Imperiali, Barbara, 1912
 Ishizaka, Shoji, 1934
 Itkis, Mikhail E., 1872
 Ito, Kenji, 1974
 Iwaki, Hiroshi, 1922
 Iwaya, Kazuki, 1966
 Jaskólski, Mariusz, 1830
 Jennings, Michael C., 1834
 Jeon, Woo Sung, 1828
 Jiang, Bin, 1858
 Jones, Darren M., 1838
 Jones, Jerome O., 1938
 Jouaiti, Abdelaziz, 1898
 Kalindjian, S. Barret, 1938
 Kang, Min, 1944
 Kanie, Kiyoshi, 1870
 Kannan, Ramamurthi, 1854
 Kato, Hideki, 1958
 Kato, Takashi, 1870
 Katz, Eugenii, 1936
 Kauzlarich, Susan M., 1822
 Kawai, Yasushi, 1918
 Keller, N., 1882
 Killoran, John, 1862
 Kim, Hee-Joon, 1828
 Kim, Hyun Sung, 1846
 Kim, Ji Man, 1944
 Kim, Kimoon, 1828
 Kitaguchi, Hironori, 1984
 Kitamura, Noboru, 1934
 Knight, Jamie D., 1938
 Kodama, Masaya, 1844
 Koga, Yasuhiro, 1844
 Komatsu, Kei, 1970
 Kordulis, Christos, 1980
 Krishnan-Ghosh, Yamuna, 1950
 Krossing, Ingo, 1836
 Kudo, Akihiko, 1958
 Kulakov, Leonid A., 1914
 Kunitake, Toyoki, 1910
 Kurokawa, Miyuki, 1966
 Kyritsakas, Nathalie, 1898
 Laitinen, Risto, 1812
 Lappert, Michael F., 1920
 Larkin, Michael J., 1914
 Launay, Jean-Pierre, 1932
 Laval, Gilles, 1874
 Lazarides, Linos, 1832
 Leclercq, Amélie, 1956
 Ledoux, M. J., 1882
 Lee, Chongmok, 1828
 Lee, Hyung Ik, 1944
 Lee, Jin Seok, 1846
 Lee, Yun-Jo, 1846
 Li, Guigen, 1856
 Li, Ya-Dong, 1826
 Lin, Tzu-Chau, 1854
 Liu, Diang-Sheng, 1920
 Liu, Lin, 1948
 Liu, Xiaoying, 1824
 Liu, Xingyu, 1928
 Ljubez, Vera, 1914
 Luh, Tien-Yau, 1978
 Lycourghiotis, Alexis, 1980
 Ma, Ding, 1948
 Maaninen, Tiina, 1812
 MacGillivray, Leonard R., 1964
 McLean, Andrew J., 1880
 McNulty, James, 1986
 Maeda, Hiromitsu, 1795
 Majoral, Jean-Pierre, 1864
 Mamiya, Jun-ichi, 1870
 Mancheño, María J., 1842
 Mandal, Sunil K., 1924
 Mansikkamäki, Heidi, 1902
 Markvardsen, Anders J., 1976
 Matsui, Atsushi, 1970
 Matsukura, Ryosuke, 1844
 Meldgaard, Michael, 1888
 Mezo, Adam R., 1912
 Middleton, David A., 1976
 Miguel, Daniel, 1814
 Mikata, Yuji, 1918
 Minc, Freddy, 1932
 Mindiola, Daniel J., 1840
 Miyashita, Kazuyuki, 1922
 Miyashita, Masaaki, 1970
 Möhwald, Helmuth, 1928
 Morfes, Galanda, 1848
 Moriguchi, Isamu, 1844
 Morilla, M. Esther, 1848
 Motokucho, Suguru, 1946
 Muldoon, Mark J., 1880
 Munslow, Ian J., 1868
 Murafuji, Hidenobu, 1922
 Mutlu, Esra, 1956
 Nagahora, Noriyoshi, 1918
 Nagase, Hiromasa, 1968
 Nakao, Aiko, 1910
 Nakao, Yoshiaki, 1962
 Nicasio, M. Carmen, 1848
 Nieger, Martin, 1820
 Nielsen, Poul, 1888
 Nieto, J. M. López, 1906
 Nissinen, Maija, 1902
 Nitz, Mark, 1912
 Niu, Zhongwei, 1972
 Norsten, Tyler B., 1890
 Oakley, Richard T., 1872
 Ogawa, Satoshi, 1918
 Ogo, Seiji, 1952, 1984
 Ohkubo, Kei, 1952
 O'Reilly, Rachel K., 1850
 Osborne, Vicky L., 1838
 O'Shea, Donal F., 1862
 Osuka, Atsushi, 1795
 Padmawar, Prashant A., 1854
 Papaefstathiou, Giannis S., 1964
 Park, Yong Soo, 1846
 Parker, David, 1930
 Parsons, Simon, 1860
 Passmore, Jack, 1836
 Patolsky, Fernando, 1936
 Patrick, Brian O., 1816
 Paul, Geo, 1904
 Pei, Wei, 1856
 Peng, Xin., 1976
 Perez, Emile, 1864
 Pérez, Julio, 1814

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 Pérez-Torrallba, M., 1852
 Petersen, Michael, 1888
 Pettigrew, Katherine A., 1822
 Pham-Huu, C., 1882
 Prasad, Paras N., 1854
 Puddephatt, Richard J., 1834
 Puranik, Vedavati G., 1924
 Quiclet-Sire, Béatrice, 1988
 Raitman, Oleg A., 1936
 Rao, C. N. R., 1904
 Ratai, Eva, 1822
 Rawson, Jeremy M., 1836
 Reed, Robert W., 1872
 Reed, Warren, 1850
 Rico-Lattes, Isabelle, 1864
 Riera, Víctor, 1814
 Rissanen, Kari, 1902
 Robertson, Al, 1986
 Robertson, Craig M., 1872
 Rotello, Vincent M., 1890, 1892
 Russell, Douglas K., 1960
 Saá, José M., 1982
 Sablong, Rafaël, 1920
 Saeki, Naoko, 1974
 Sánchez-Delgado, Roberto, 1848
 Sanda, Fumio, 1946
 Sanz, D., 1852
 Sargeson, Alan M., 1874
 Sarkar, Amitabha, 1924
 Sasaki, Shigeru, 1876
 Sato, Ryu, 1918
 Saunders, David, 1976
 Schmitz, Katja, 1820
 Schriver, Melbourne J., 1836
 Schuurmans, Norbert, 1894
 Scott, Peter, 1868
 Shankland, Kenneth, 1976
 Sharma, Narain D., 1914
 Shen, Jiacong, 1928
 Shepherd, Steven D., 1914
 Shimane, Keiko, 1974
 Shimizu, George K. H., 1900
 Shirakawa, Eiji, 1962
 Shreeve, Jean'ne M., 1818
 Sierra, Miguel A., 1842
 Singer, Robert D., 1884
 Singh, Rajendra P., 1818
 Slater, Rachel, 1930
 Sortais, Benoît, 1988
 Steed, Jonathan W., 1938
 Stroh, Christophe, 1916
 Sudo, Atsushi, 1946
 Suenobu, Tomoyoshi, 1984
 Sur, Surojit, 1924
 Szarvas, Laslo, 1820
 Takeda, Takeshi, 1974
 Takizawa, Shinya, 1966
 Tan, Loon-Seng, 1854
 Tanabe, Yoshihiro, 1876
 Tanino, Keiji, 1970
 Taylor, Roger, 1952
 Teat, Simon J., 1896
 Teraoka, Yasutake, 1844
 Thaimattam, Ram, 1830
 Thomasen, Helena, 1888
 Tian, Bozhi, 1824
 Tipparaju, Suresh Kumar, 1924
 Tiripicchio, Antonio, 1848
 Torres, M. Rosario, 1842
 Tozer, Matthew J., 1938
 Tsubouchi, Akira, 1974
 Tsuchimoto, Teruhisa, 1962
 Tsuji, Issei, 1958
 Tu, Bo, 1824
 Turrin, Cédric-Olivier, 1864
 Ueda, Haruhisa, 1968
 Vaia, Richard, 1854
 Vakros, John, 1980
 Van Esch, Jan, 1894
 Varshney, Dushyant B., 1964
 Vázquez, M. I., 1906
 Vishweshwar, Peddy, 1830
 Vonci, Michele, 1860
 Wass, Duncan F., 1850
 Wei, Han-Xun, 1856
 Wengel, Jesper, 1888
 Westmoreland, Ian, 1868
 White, Andrew J. P., 1850
 Whittaker, A. Gavin, 1896
 Williams, David J., 1850
 Willner, Itamar, 1936
 Wilson, Jeff, 1986
 Winpenny, Richard E. P., 1860, 1896
 Wu, Dehai, 1858
 Wu, Ji-Gui, 1934
 Würthner, Frank, 1878
 Xiao, Ziwei, 1816
 Xie, Songhai, 1824
 Xu, Cailu, 1858
 Xu, Hong-Wu, 1934
 Yamamichi, Keiko, 1966
 Yang, Guo-Qiang, 1826
 Yang, Haifeng, 1824
 Yang, Zhenzhong, 1972
 Yi, Seung Hwan, 1944
 Yie, Jae Eui, 1944
 Yoon, Kyung Byung, 1846
 Yoshifuji, Masaaki, 1876
 Yoshimura, Satoko, 1918
 Yoshioka, Eito, 1922
 Yu, Chengzhong, 1824
 Zanaletti, Riccardo, 1908
 Zard, Samir Z., 1988
 Zhao, Dongyuan, 1824
 Zheng, Qingdong, 1854
 Zhu, Hongwei, 1858
 Ziegler, Christopher J., 1942
 Ziessel, Raymond, 1916

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Chairman: Professor Robin N Perutz *University of York, UK*

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