

**Cover**  
A schematic representation of the nanocasting concept, against a background TEM image of the silica replica of a bicontinuous sponge-like phase.

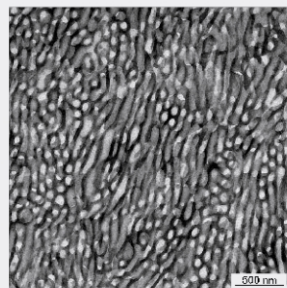
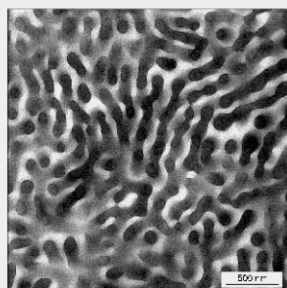


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[www.rsc.org/chembiol](http://www.rsc.org/chembiol)

# contents

## FEATURE ARTICLE

2593



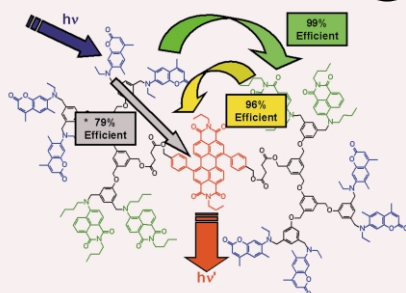
### Porous materials *via* nanocasting procedures: innovative materials and learning about soft-matter organization

Sebastian Polarz and Markus Antonietti

Nanocasting, the 3D-transformation of self-assembled organic nanostructures into hollow inorganic replicas under preservation of fine structural details has recently turned out to be a versatile tool, both for the synthesis of porous media with new pore topology as well as for the characterization of the assembled structures themselves.

## COMMUNICATIONS

2605



### Cascade energy transfer in a conformationally mobile multichromophoric dendrimer

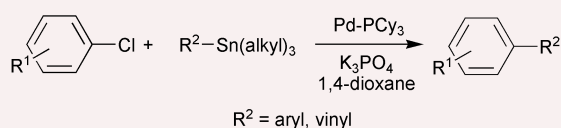
Jason M. Serin, Darryl W. Brousmiche and Jean M. J. Fréchet\*

A novel dendritic system that favors cascade unidirectional FRET has been synthesized. This dendrimer illustrates the ability of a large light-harvesting antenna to concentrate absorbed light-energy both spectrally and spatially.

2608

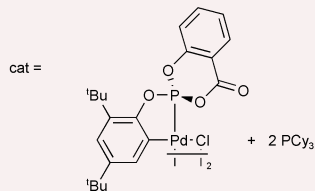
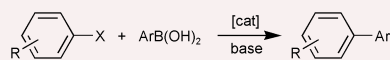
### Simple tricyclohexylphosphine–palladium complexes as efficient catalysts for the Stille coupling of deactivated aryl chlorides

Robin B. Bedford,\* Catherine S. J. Cazin and Samantha L. Hazelwood (née Welch)



The Stille coupling of a range of aryl chlorides is achieved by the use of simple palladium complexes with the inexpensive, easily handled ligand tricyclohexylphosphine.

2610

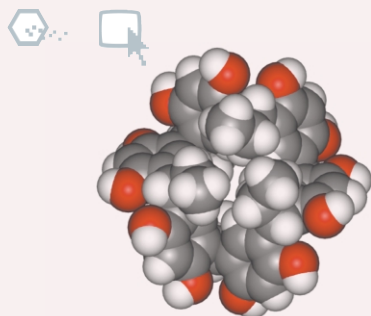


### Extremely high activity catalysts for the Suzuki coupling of aryl chlorides: the importance of catalyst longevity

Robin B. Bedford,\* Samantha L. Hazelwood (née Welch) and Michael E. Limmert

A ligand derived from salicylic acid gives greatly enhanced catalyst longevity and thus very high activity in the Suzuki coupling of aryl chlorides catalysed by Pd-PCy<sub>3</sub> systems.

2612

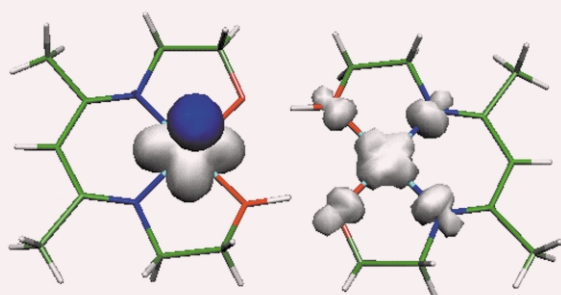


### Resorcin[6]arene as a building block for tubular crystalline state architectures

Byron W. Purse, Alexander Shivanyuk and Julius Rebek Jr.\*

Acid catalyzed condensation of resorcinol with propionaldehyde gives a resorcin[6]arene with *r-trans-cis-trans-cis-trans* configuration of the pendant ethyl groups. This compound was shown to form novel types of tubular crystal structures.

2614

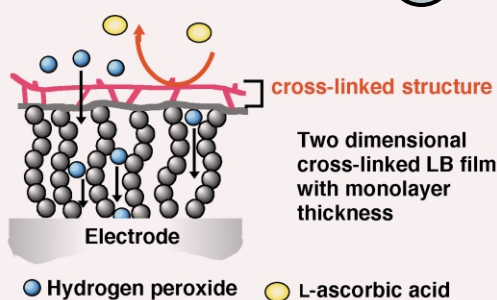


### Early-late transition metal ferromagnetic coupling mediated by hydrogen bonding

Cédric Desplanches, Eliseo Ruiz and Santiago Alvarez\*

Hydrogen bonding between early and late transition metal complexes is proposed as a strategy to obtain ferromagnetic interactions based on a theoretical study using density functional calculations.

2616

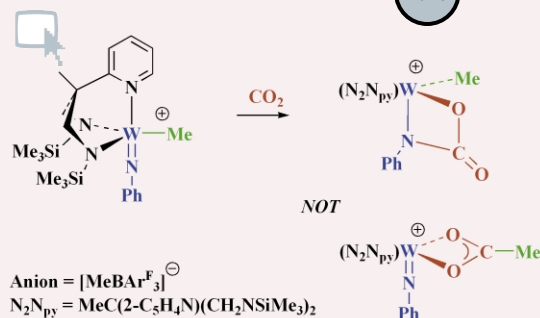


### Permselective monolayer membrane based on two-dimensional cross-linked polysiloxane LB films for hydrogen peroxide detecting glucose sensors

Dai Kato, Mio Masaike, Takahito Majima, Yoshiki Hirata, Fumio Mizutani, Masayo Sakata, Chuichi Hirayama and Masashi Kunitake\*

Novel two-dimensional cross-linked polysiloxane LB films have been applied as H<sub>2</sub>O<sub>2</sub>-permselective glucose sensors and found to be remarkably effective at eliminating interfering responses, even though the films were only a monolayer thick.

2618



### Synthesis and reactivity of the imidotungsten methyl cation [W(N<sub>2</sub>Npy)(NPh)Me]<sup>+</sup>: CO<sub>2</sub> adds to the W=NPh bond and does not insert into the W-Me bond

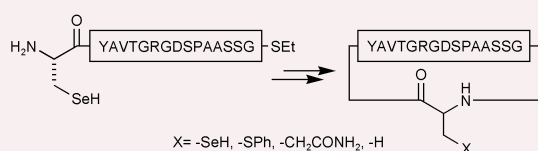
Benjamin D. Ward, Eric Clot, Stuart R. Dubberley, Lutz H. Gade and Philip Mountford\*

Reactions of [W(N<sub>2</sub>Npy)(NPh)Me]<sup>+</sup> with CO<sub>2</sub> and PhNCO give unexpected products.

2620

**Selenocysteine-mediated backbone cyclization of unprotected peptides followed by alkylation, oxidative elimination or reduction of the selenol**

Richard Quaderer and Donald Hilvert\*

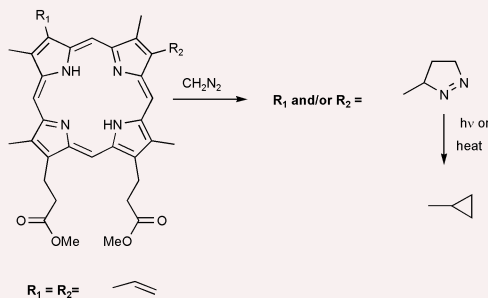


An unprotected 16 residue peptide containing a C-terminal thioester and an N-terminal selenocysteine residue efficiently cyclizes in the presence of thiophenol; subsequent reduction, elimination or alkylation of the selenol yields modified cyclic peptides with alanine, dehydroalanine or a non-natural amino acid at the site of ligation.

2622

**Nitrogen extrusion from pyrazoline-substituted porphyrins and chlorins using long wavelength visible light**

Angela Desjardins, Jeffery Flemming, Ethan D. Sternberg and David Dolphin\*

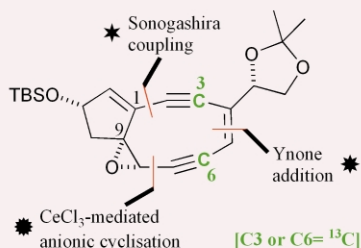


Protoporphyrin dimethyl ester reacts with diazomethane to give pyrazolines which upon heating or irradiation with long wavelengths extrude dinitrogen to give the corresponding cyclopropyl derivatives.

2624

**Synthesis of <sup>13</sup>C-labelled, bicyclic mimetics of natural enediynes**

Parthasarathi Das, Takashi Mita, Martin J. Lear and Masahiro Hirama\*

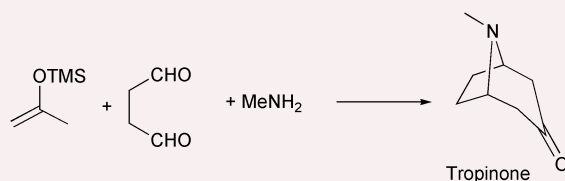


Using a new reliable and practical synthetic approach (see illustration), the fully-functionalized bicyclic core of natural nine-membered chromophores has been <sup>13</sup>C-labelled for the first time.

2626

**One-pot synthesis of tropinone by tandem (domino) ene-type reactions of acetone silyl enol ethers**

Koichi Mikami\* and Hirofumi Ohmura

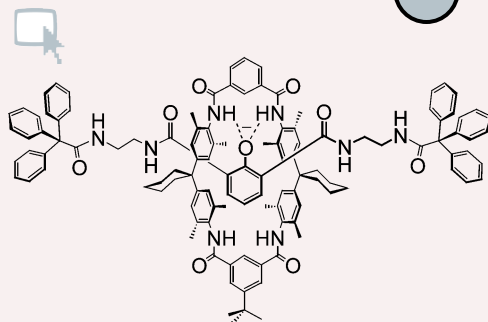


A synthetic approach for tropane alkaloids is shown on the basis of tandem (domino) ene-type reactions of acetone silyl enol ethers with iminium ions.

2628

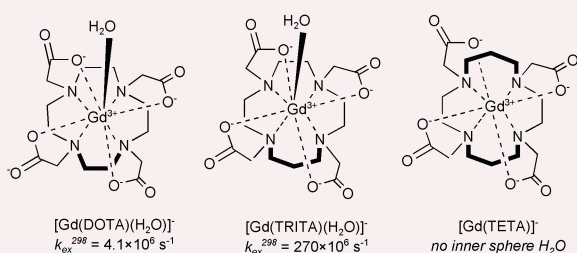
**Novel template effect for the preparation of [2]rotaxanes with functionalised centre pieces**

Pradyut Ghosh, Oliver Mermagen and Christoph A. Schalley\*



A new template effect has been designed for the preparation of rotaxanes with functionalised axle centre pieces. The phenolic OH group is efficiently protected against chemical modification by the wheel.

2630

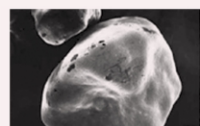


### Accelerating water exchange for Gd<sup>III</sup> chelates by steric compression around the water binding site

Robert Ruloff, Éva Tóth, Rosario Scopelliti, Raphaël Tripier, Henri Handel and André E. Merbach\*

As the result of a rational design, steric compression was increased around the water binding site in [Gd(TRITA)(H<sub>2</sub>O)]<sup>+</sup>. This leads to a high water exchange rate which is optimal to attain maximum proton relaxivities.

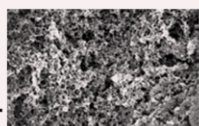
2632



low surface area (SA) starch granule



expansion and chemical modification of starch



high SA-starch supported catalyst

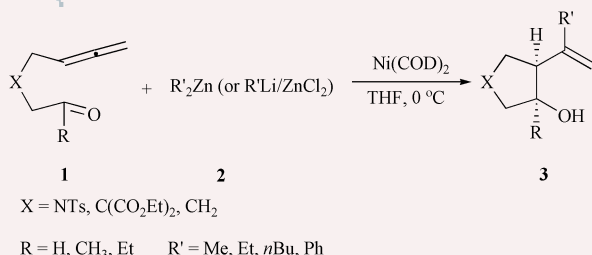


### New materials based on renewable resources: chemically modified expanded corn starches as catalysts for liquid phase organic reactions

Shinichi Doi, James H. Clark,\* Duncan J. Macquarrie and Krzysztof Milkowski

Catalytically active chemically modified expanded corn starches have been developed with site loadings and activities comparable or superior to traditional materials.

2634

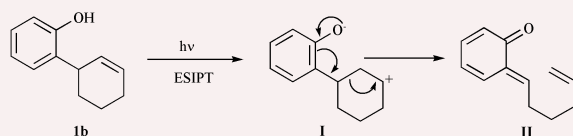


### *cis*-Stereoselective nickel-catalyzed cyclization/alkylation and arylation reactions of allenyl-aldehydes and -ketones with organozinc reagents

Suk-Ku Kang\* and Seok-Keun Yoon

Highly stereoselective alkylative and arylytic cyclization reactions of allenyl-aldehydes and -ketones with organozinc reagents occur efficiently in the presence of catalytic Ni(COD)<sub>2</sub> to afford *cis*-fused homoallylic cyclopentanol.

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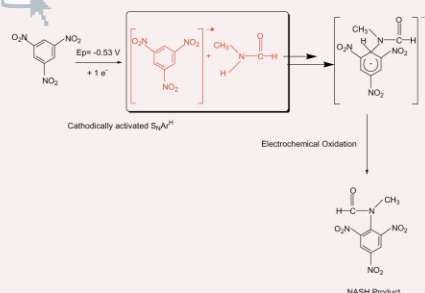


### Novel generation of an *o*-quinone methide from 2-(2'-cyclohexenyl)phenol by excited state intramolecular proton transfer and subsequent C–C fragmentation

Julio Delgado, Amparo Espinós, M. Consuelo Jiménez and Miguel A. Miranda\*

Formation of an *o*-quinone methide *via* C–C fragmentation of a zwitterion formed by intramolecular excited state proton transfer from an *o*-allylphenol derivative is reported for the first time.

2638

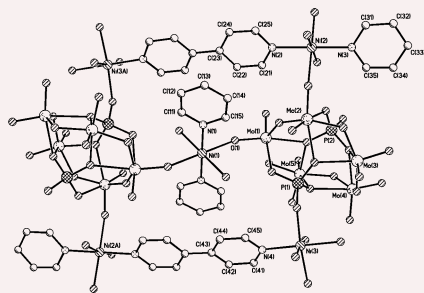


### Cathodically activated nucleophilic aromatic substitution of hydrogen: a novel electrochemical mechanism

Illuminada Gallardo,\* Gonzalo Guirado and Jordi Marquet

Cathodically activated nucleophilic aromatic substitution of hydrogen (S<sub>N</sub>Ar<sup>H</sup>) is reported; furthermore the first example of an S<sub>RN</sub>2 mechanism, which have been searched for more than 20 years, is also reported.

2640

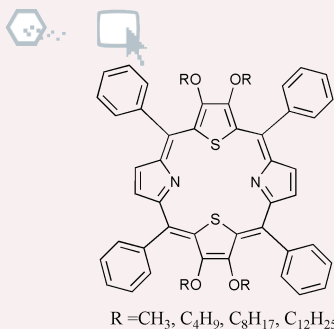


### A novel compound with an interpenetrating 2D network structure constructed by $[\text{Mo}_5\text{P}_2\text{O}_{23}]$ and Ni-4,4'-bipyridine components: its synthesis, characterization and magnetic behaviour

Jin Chen, Shaofang Lu,\* Rongmin Yu, Zhongning Chen, Zixiang Huang and Canzhong Lu

A novel compound  $(\text{Hbpy})_2\{[(\text{H}_2\text{O})_3\text{Ni}(\text{bpy})_{0.5}\text{Ni}(\text{bpy})(\text{H}_2\text{O})_4]_2[\text{Mo}_5\text{P}_2\text{O}_{23}]-[\text{Ni}((\text{bpy})_{0.5})_2(\text{H}_2\text{O})_2][\text{Mo}_5\text{P}_2\text{O}_{23}]\} \cdot 8\text{H}_2\text{O}$  with a unique 2D network structure has been synthesized. The five Ni(II) ions in the five-Ni(II) segment are in non-interacting single-ion triplet states with a high-spin Ni(II) configuration.

2642

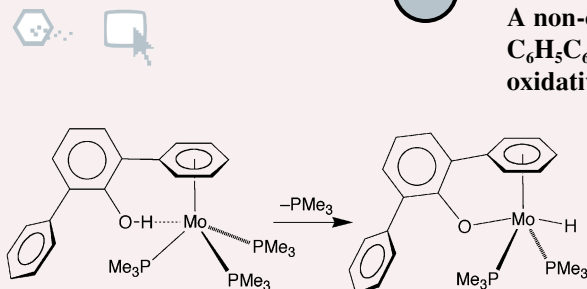


### Synthesis and crystal structure of 2,3,12,13-tetraalkoxy-21,23-dithiaporphyrins

Neeraj Agarwal, Sarada P. Mishra, Anil Kumar, C.-H. Hung and M. Ravikanth\*

The first novel synthesis of four 2,3,12,13-tetraalkoxy-21,23-dithiaporphyrins is reported.

2644

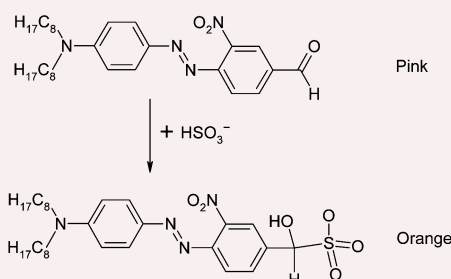


### A non-classical hydrogen bond in the molybdenum arene complex $[\eta^6\text{-C}_6\text{H}_5\text{C}_6\text{H}_3(\text{Ph})\text{OH}]\text{Mo}(\text{PMe}_3)_3$ : evidence that hydrogen bonding facilitates oxidative addition of the O-H bond

Tony Hascall, Mu-Hyun Baik, Brian M. Bridgewater, Jun Ho Shin, David G. Churchill, Richard A. Friesner\* and Gerard Parkin\*

The  $\eta^6$ -arene complex  $[\eta^6\text{-C}_6\text{H}_5\text{C}_6\text{H}_3(\text{Ph})\text{OH}]\text{Mo}(\text{PMe}_3)_3$  exhibits a non-classical  $\text{Mo}\cdots\text{H}-\text{OAr}$  hydrogen bond that facilitates oxidative addition of the O-H bond to give  $[\eta^6,\eta^1\text{-C}_6\text{H}_5\text{C}_6\text{H}_3(\text{Ph})\text{O}]\text{Mo}(\text{PMe}_3)_2\text{H}$ .

2646

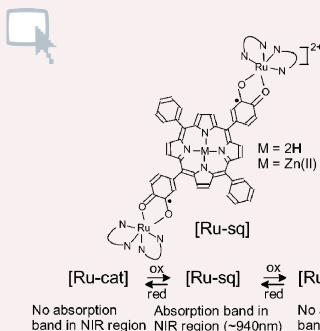


### A chromoreactand for the selective detection of $\text{HSO}_3^-$ based on the reversible bisulfite addition reaction in polymer membranes

Gerhard J. Mohr

A new chromoreactand for the reversible optical detection of bisulfite anion is presented with a sensitivity in the range from 0.1 to 10 mM while no absorbance changes are observed for anions such as sulfate, chloride, phosphate or hydroxide.

2648



### Redox switchable NIR dye derived from ruthenium-dioxolene-porphyrin systems

Atindra D. Shukla, Bishwajit Ganguly, Paresh C. Dave, Anunay Samanta\* and Amitava Das\*

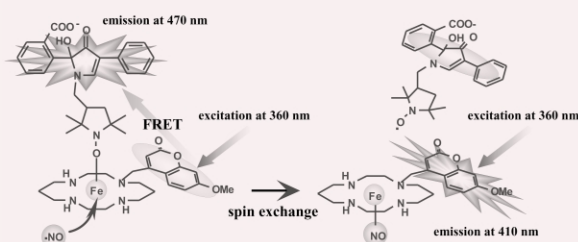
Newly synthesized  $\text{Ru}(\text{bpy})_2(\text{sq})$ -derivatives show fast switching between on/off states for an intense near-IR band.

2650

**Ratiometric direct detection of nitric oxide based on a novel signal-switching mechanism**

Nobuaki Soh,\* Toshihiko Imato, Kenji Kawamura, Mizuo Maeda and Yoshiki Katayama

A novel fluorescent probe, which could be the first example of a ratiometric molecular probe for direct monitoring of NO production, has been developed using a 'spin-exchange' mechanism.

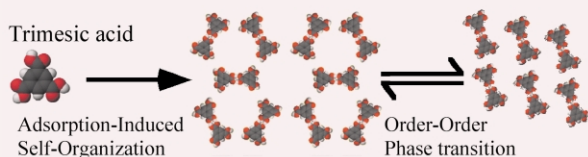


2652

**A two-dimensional molecular network structure of trimesic acid prepared by adsorption-induced self-organization**

Yudai Ishikawa, Akihiro Ohira, Masayo Sakata, Chuichi Hirayama and Masashi Kunitake\*

The supramolecular structures of trimesic acid on Au(111) were constructed by precise potential-controlled adsorption based on adsorption-induced self-organization and visualized by *in situ* STM with submolecular resolution.

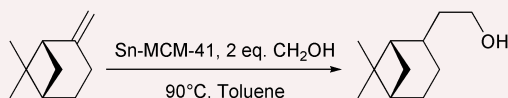


2654

**Synthesis of nopol over MCM-41 catalysts**

Aída Luz Villa de P., Edwin Alarcón and Consuelo Montes de Correa

A simplified CVD method was used to create efficient Sn(IV) sites in MCM-41 for the Prins condensation of  $\beta$ -pinene and paraformaldehyde. The highly selective and recyclable catalyst does not need a chlorinated solvent to obtain nopol.

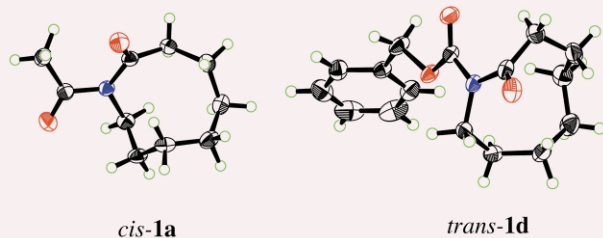


2656

***N*-Substituent effect on the *cis*-*trans* geometry of nine-membered lactams**

Shinji Yamada\* and Akie Homma

An unusual *cis* to *trans* ring geometrical change was observed in nine-membered lactams by replacing an *N*-acyl substituent with *N*-benzyloxycarbonyl.

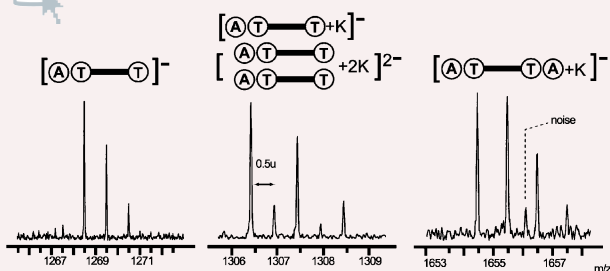


2658

**Detection of complementary hydrogen bond complexes in water by electrospray ionization-Fourier-transform ion cyclotron resonance mass spectrometry**

Rika Iwaura, Mayumi Ohnishi-Kameyama, Mitsuru Yoshida and Toshimi Shimizu\*

Complementary base paired complex formation of a thymidine-appended bolaamphiphile with adenosine derivatives was able to be detected with high resolution and high sensitivity in aqueous solutions by ESI-FTICR MS.



2660

**Simultaneous occupation of SI and SI' cation sites in dehydrated zeolite LSX**

Tanya Gibbs and Dewi W. Lewis\*

Simultaneous occupation of adjacent SI (or SIa) and SI' sites is calculated to be favourable in dehydrated zeolite K-LSX, although such a configuration is unlikely in other dehydrated LSX zeolites or at higher Si/Al.

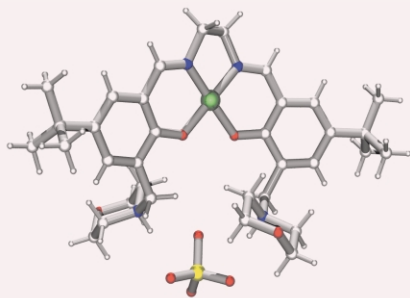


2662

**Cooperative sulfate binding by metal salt extractants containing 3-dialkylaminomethylsalicylaldimine units**

Stuart G. Galbraith, Paul G. Plieger and Peter A. Tasker\*

The pH-dependence of simultaneous metal- and sulfate-loading of simple salen derivatives demonstrates the feasibility of their application as extractants for recovery of base metals from the leaching of sulfidic ores. The efficacy of the ligands depends on the templating of the sulfate binding site by the attendant metal ion.

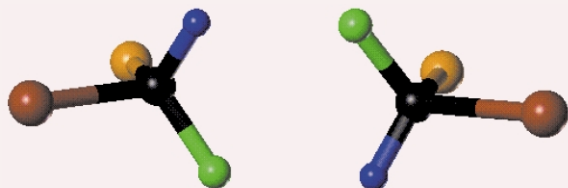


2664

**Two-point contact chiral distinction—a theoretical appraisal**

T. P. Radhakrishnan,\* Sid Topiol,\* P. Ulrich Biedermann, Sarit Garten and Israel Agranat\*

*Ab initio* calculations reveal chiral distinction in two-point contact CHFCIBr dimers, with chiral distinction energy of 1.5 kJ mol<sup>-1</sup> between the *SR* and *SS* dimers fully optimized at the MP2/6-311++G\*\* level.

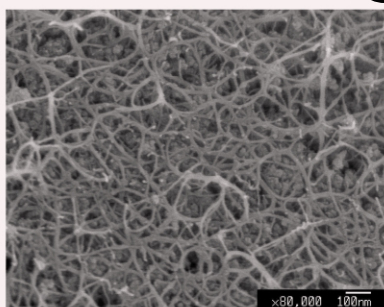


2666

**Synthesis of high purity single-walled carbon nanotubes in high yield**

Junfeng Geng, Charanjeet Singh, Douglas S. Shephard, Milo S. P. Shaffer, Brian F. G. Johnson\* and Alan H. Windle

A simple method for the synthesis of high purity single-walled carbon nanotubes has been developed by using nickel formate as an ideal precursor for the formation of nearly monodispersed nickel nanoparticles as catalysts in the CVD growth process.

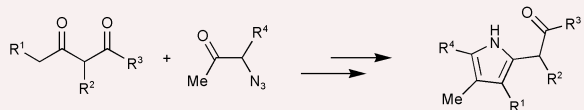


2668

**Efficient and regioselective synthesis of functionalized pyrroles by cyclocondensation of 1,3-dicarbonyl dianions with α-azidoketones**

Peter Langer\* and Ilia Freifeld

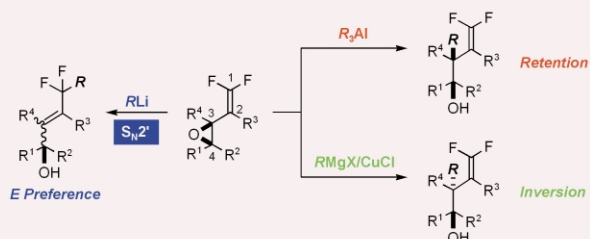
The cyclocondensation of 1,3-dicarbonyl dianions with α-azidoketones regioselectively afforded 2-alkylenepyrrolidines which were transformed into functionalized pyrroles by treatment with acid.



2670

**Preparation and regioselective reactions of novel *gem*-difluorinated vinyloxiranes with some organometallic reagents**

Takashi Yamazaki,\* Hisanori Ueki and Tomoya Kitazume

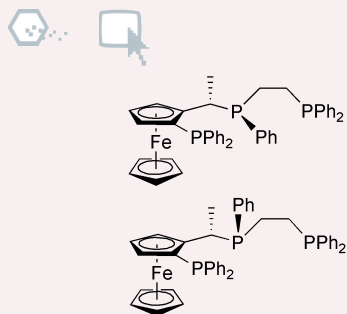


Hitherto unknown difluorinated vinyloxiranes were conveniently prepared *via* difluoro-Wittig reactions with  $\alpha,\beta$ -epoxycarbonyl compounds and were found to possess diverse reactivity and selectivity depending on the nucleophiles employed.

2672

**The first tridentate phosphine ligand combining planar, phosphorus and carbon chirality**

Pierluigi Barbaro,\* Claudio Bianchini, Giuliano Giambastiani\* and Antonio Togni

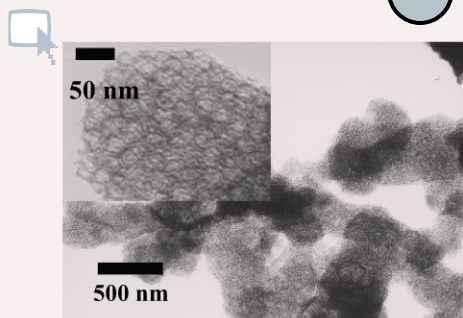


Two new diastereomerically pure tridentate phosphine ligands combining ferrocenyl, phosphorus and carbon chirality have been conveniently synthesized and structurally characterized by X-ray analyses.

2674

**Low-cost and facile synthesis of mesocellular carbon foams**

Jinwoo Lee, Kwonnam Sohn and Taeghwan Hyeon\*

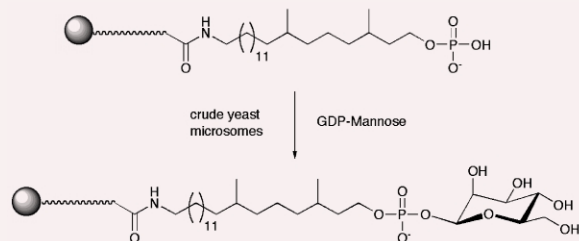


Mesocellular carbon foam composed of nanometer sized primary particles was synthesized using hydrothermally synthesized MSU-F silica as a template and poly(furfuryl alcohol) as a carbon source.

2676

**Enzymatic synthesis of  $\beta$ -mannosyl phosphates on solid support**

Ines Sprung, Alexandra Ziegler and Sabine L. Flitsch\*

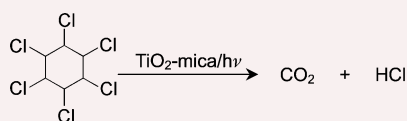


Dol-P-Man synthase catalysed the  $\beta$ -mannosylation of novel  $\omega$ -functionalised polyisoprenoid phosphates on solid support.

2678

**Photocatalytic degradation of hexachlorocyclohexane (HCH) by TiO<sub>2</sub>-pillared fluorine mica**

Hitoshi Murayama, Ken-ichi Shimizu,\* Norihiro Tsukada, Aiko Shimada, Tatsuya Kodama and Yoshie Kitayama



TiO<sub>2</sub>-pillared fluorine mica exhibited two orders of magnitude higher activity than TiO<sub>2</sub> and TiO<sub>2</sub>-pillared montmorillonite for the photocatalytic degradation of  $\gamma$ -HCH.



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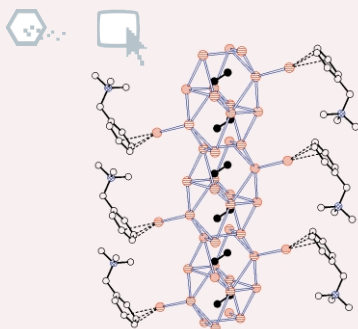


### Use of gel-casting to prepare HPLC monolithic silica columns with uniform mesopores and tunable macrochannels

Chengdu Liang, Sheng Dai\* and Georges Guiochon\*

This communication describes a general technique for the preparation of a monolithic HPLC column with bimodal pore structure. Monolithic HPLC columns with various mesopore morphologies and adjustable macropore diameters are readily synthesized by gel-casting of colloid silica precursors.

2682



### A novel organometallic columnar complex containing endohedral silver(I)-ethynediyl binding and exterior silver(I)-aromatic interaction

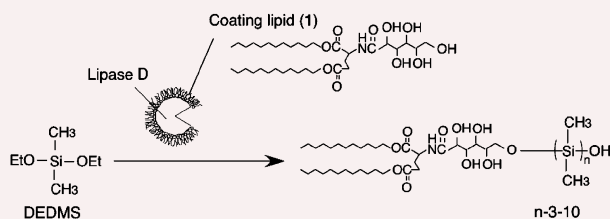
Quan-Ming Wang and Thomas C. W. Mak\*

Unprecedented  $\eta^3 \pi$ -donor behavior of the benzyltrimethylammonium ion is observed in the polymeric silver(I) complex  $[(\text{PhCH}_2\text{NMe}_3)\text{Ag}_7(\text{C}_2)(\text{CF}_3\text{CO}_2)_6]_n$  that comprises a columnar backbone constructed from the fusion of  $\text{Ag}_8$  square antiprisms each enclosing an acetylide dianion.

2684

### Enzymatic silicone oligomerization catalyzed by a lipid-coated lipase

Hidekazu Nishino, Toshiaki Mori and Yoshio Okahata



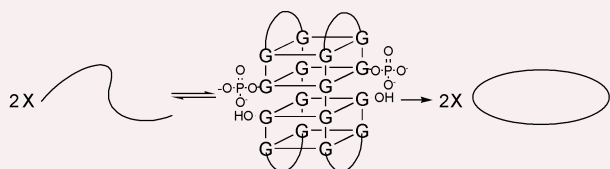
A lipid-coated lipase D can polymerize diethoxydimethylsiloxane (DEDMS) in isooctane with 2% of water, where the oligomerization occurs at the OH group of the coating lipid (1) in the enzyme cavity.

2686



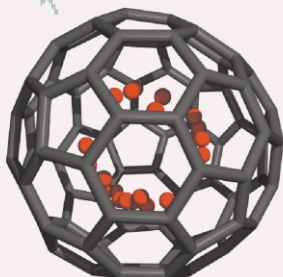
### G-quadruplex as a new class of structural entities for directing the formation of circular oligodeoxyribonucleotides

Jian Chen, Dongsheng Liu, Alex H. F. Lee, Jianying Qi, Albert S. C. Chan\* and Tianhu Li\*



It was demonstrated that G-quadruplex is capable of acting as a template for directing the sequence-specific formation of certain circular oligodeoxyribonucleotides with high efficiency.

2688



### Crystallographic characterization of Isomer 2 of $\text{Er}_2@C_{82}$ and comparison with Isomer 1 of $\text{Er}_2@C_{82}$

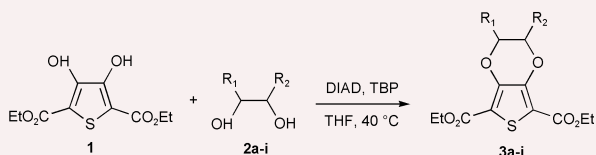
Marilyn M. Olmstead,\* Hon Man Lee, Steve Stevenson, Harry C. Dorn and Alan L. Balch\*

The fullerene cage in Isomer 2 of  $\text{Er}_2@C_{82}$  is the  $C_{3v}$  isomer (82:8) in which the erbium atoms are distributed over 23 sites with occupancies ranging from 0.25 to 0.03 as determined by the X-ray crystal structure of  $(\text{Er}_2@C_{82}) \cdot \{\text{Ni}^{\text{II}}(\text{OEP})\} \cdot 2(\text{benzene})$ .

2690

**Efficient synthesis of 3,4-ethylenedioxythiophenes (EDOT) by Mitsunobu reaction**

Dolores Caras-Quintero and Peter Bäuerle\*

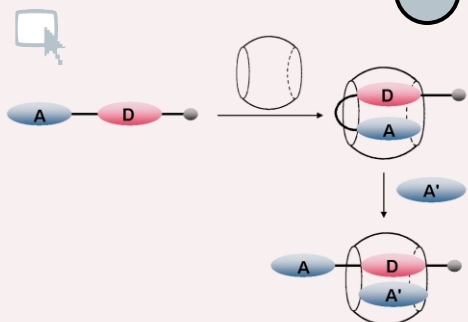


Novel derivatives of 3,4-ethylenedioxythiophenes (EDOT), including the first chiral ones, have been efficiently synthesized using the Mitsunobu reaction.

2692

**Unprecedented host-induced intramolecular charge-transfer complex formation**

Jae Wook Lee, Kyungpil Kim, SooWhan Choi, Young Ho Ko, Shigeru Sakamoto, Kentaro Yamaguchi and Kimoon Kim\*

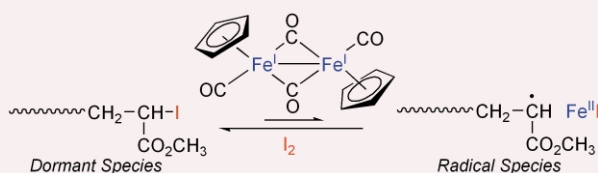


For the first time, host-induced intramolecular charge-transfer complex formation in a guest containing both an electron donor and an electron acceptor is demonstrated in the cucurbit[8]uril cavity and the interaction of 1 : 1 complex with competing electron donor and acceptor molecules investigated.

2694

**A highly active Fe(I) catalyst for radical polymerisation and taming the polymerisation with iodine**

Masami Kamigaito, Isamu Onishi, Shinichi Kimura, Yuzo Kotani and Mitsuo Sawamoto\*

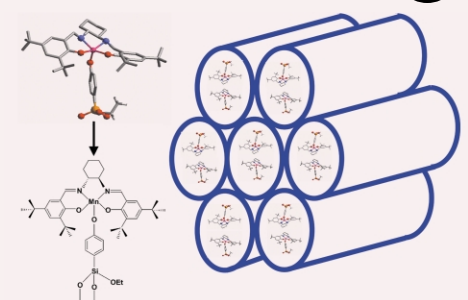


A fast and controlled radical polymerisation of acrylates and acrylamides can be achieved with a combination of a highly active metal catalyst,  $\text{Fe}_2\text{Cp}_2(\text{CO})_4$ , and a mild radical scavenger, iodine, in the presence of an iodide initiator.

2696

**Enantioselective epoxidation of olefins catalyzed by Mn(salen)/MCM-41 synthesized with a new anchoring method**

Song Xiang, Yiliang Zhang, Qin Xin and Can Li\*

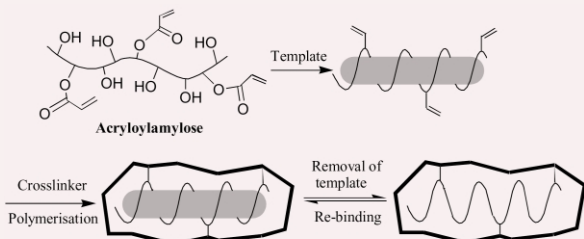


New immobilization of the chiral Mn(salen) complex on the surface of MCM-41 leads to a markedly higher ee than for the free complex.

2698

**Molecular imprinting of bisphenol A and alkylphenols using amylose as a host matrix**

Yasumasa Kanekiyo, Ryuichi Naganawa and Hiroaki Tao\*



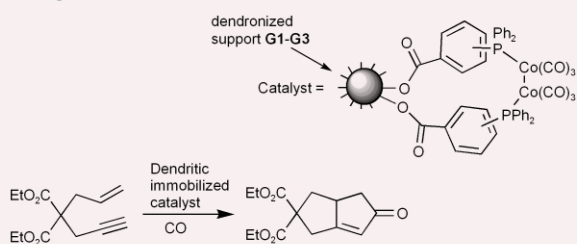
A novel molecularly imprinted polymer was created by a radical co-polymerisation of an acryloyl amylose-template inclusion complex and a crosslinker.

2700

### Dendritic effect in polymer-supported catalysis of the intramolecular Pauson–Khand reaction

Adi Dahan and Moshe Portnoy\*

Supported dendritic catalysts for the Pauson–Khand reaction were prepared using dendronized polystyrene support; a significant positive dendritic effect was observed in the intramolecular reaction.

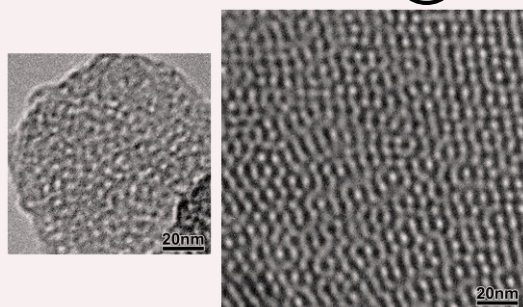


2702

### Synthesis of hexagonal and cubic super-microporous niobium phosphates with anion exchange capacity and catalytic properties

Nawal Kishor Mal and Masahiro Fujiwara\*

Super-microporous hexagonal niobium phosphate synthesized using neutral surfactant ( $S^{I^0}$  mechanism) and cubic structure with cationic surfactant ( $S^+X^-I^+$ ); the hexagonal niobium phosphate possesses an anion exchange capacity of  $6.3 \text{ mmol g}^{-1}$ .

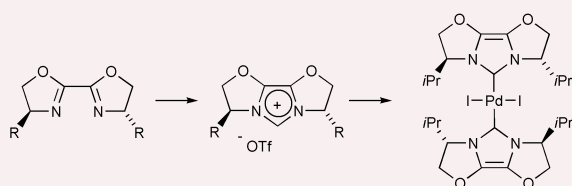


2704

### Oxazolines as chiral building blocks for imidazolium salts and N-heterocyclic carbene ligands

Frank Glorius,\* Gereon Altenhoff, Richard Goddard and Christian Lehmann

Enantiomerically pure imidazolium triflates can be readily prepared from bioxazolines and oxazolineimines; deprotonation of the *i*Pr-bioxazoline derived imidazolium triflate gives a chiral N-heterocyclic carbene that can act as a ligand in a catalytically active palladium complex.

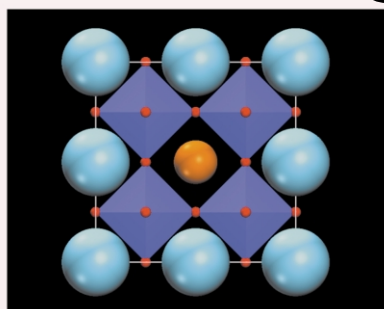


2706

### Solubility of cerium in $\text{LaCoO}_3$ —influence on catalytic activity

S. A. French,\* C. R. A. Catlow, R. J. Oldman, S. C. Rogers and S. A. Axon

The calculations describe in detail the theoretical study of the mechanisms for incorporating dopants in non-stoichiometric perovskite lattices. Comparison with a stoichiometric lattice shows a large increase in dopant solubility, which in turn leads to an increase in the catalytic activity of lanthanum cobaltate.

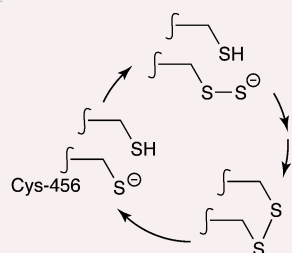


2708

### A paradigm for biological sulfur transfers *via* persulfide groups: a persulfide–disulfide–thiol cycle in 4-thiouridine biosynthesis

Chapman M. Wright, Peter M. Palenchar and Eugene G. Mueller\*

The enzyme ThiI turns over only once in the absence of reductants, and Cys-456 receives sulfur from the sulfurtransferase IscS, confirming a persulfide–disulfide–thiol cycle in 4-thiouridine biosynthesis and providing a paradigm for other sulfur transfer systems.



2710



### Dialkyl aluminium amides: new reagents for the conversion of C=O into C=NR functionalities

John C. Gordon,\* Piyush Shukla, Alan H. Cowley, Jamie N. Jones, D. Webster Keogh and Brian L. Scott

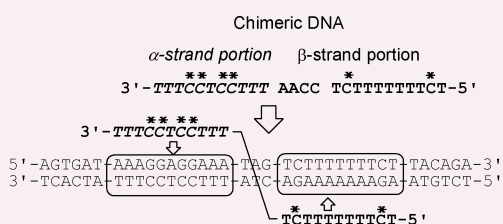


A new synthetic approach for the preparation of  $\alpha$ -diimines and  $\beta$ -aminoenones is described. In particular, this methodology provides a convenient alternative route to these classes of ligands bearing highly electronegative substituents.

2712

### Alternate stranded triplex formation of chimeric DNA composed of tandem $\alpha$ - and $\beta$ -anomeric strands

Kazuo Shinozuka,\* Noritake Matsumoto, Hideo Suzuki, Tomohisa Moriguchi and Hiroaki Sawai

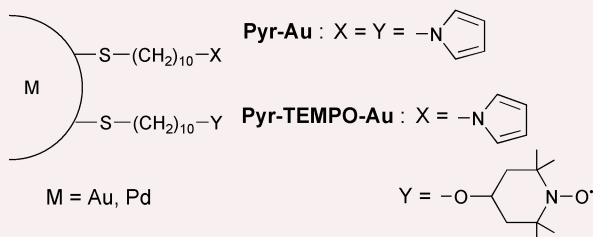


A chimeric oligoDNA composed of tandem  $\alpha$ - and  $\beta$ -anomeric oligonucleotide strands forms stable alternate stranded triplex upon binding with double helical DNA.

2714

### Preparation and electrochemical polymerization of new multifunctional pyrroliothiolate-stabilized gold and palladium nanoparticles

Kisato Hata and Hisashi Fujihara\*



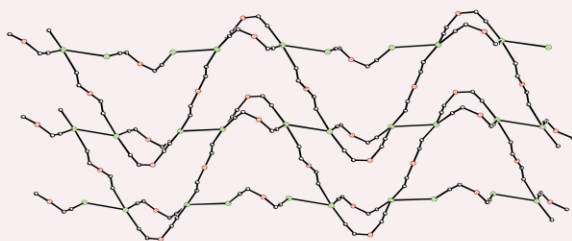
New pyrrolylalkanethiolate-stabilized gold and palladium nanoparticles have been prepared: electrochemical polymerization of their metal nanoparticles and their TEMPO-derivatized metal nanoparticles gave the remarkably stable poly(pyrrole metal nanoparticle) films on metal electrodes.

2716



### A novel 2-D interlinking zigzag-chain d-f mixed-metal coordination polymer generated from an organometallic ligand

Yang-Yi Yang and Wing-Tak Wong\*



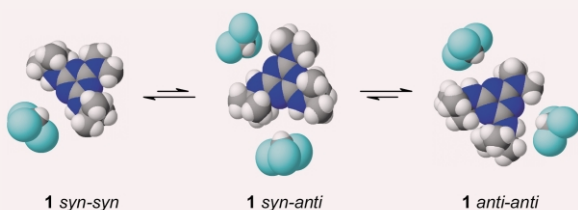
A flexible organometallic ligand, 1,1'-ferrocenedicarboxylic acid, was incorporated in the self-assembly of a d-f mixed-metal coordination polymer featuring a 2-D interlinking zigzag-chain network and bearing two types of bridging conformations.

2718



### Steric hindrance to the solvation of melamines and consequences for non-covalent synthesis

Ion Ghiviriga\* and Daniela C. Oniciu



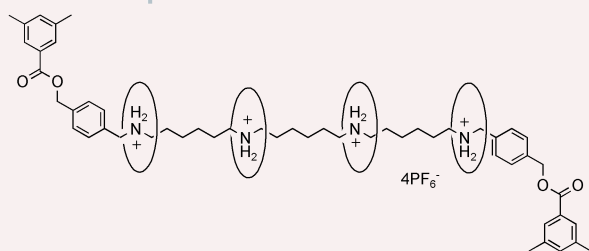
Steric hindrance to solvation affects the stability and dynamics of supramolecular assemblies containing melamines. Solvents which bind the triazine nitrogen disfavor structures like **1** *syn-anti* in which the melamine exposes to the solvent faces, such as *t*Bu-H, for whom binding to the ring nitrogen is hindered but not blocked. These solvents also display the fastest rates for assembling/disassembling processes.

2720

**Highly efficient synthesis of [3]- and [5]-rotaxanes consisting of crown ether and a *sec*-ammonium salt**

Nobuhiro Watanabe, Takaya Yagi, Nobuhiro Kihara and Toshikazu Takata\*

[3]- and [5]-rotaxanes consisting of a crown ether and ammonium salts were synthesized in high yields by a tributylphosphine-catalyzed end-capping method which provides a simple and practical means of obtaining higher-order rotaxanes.

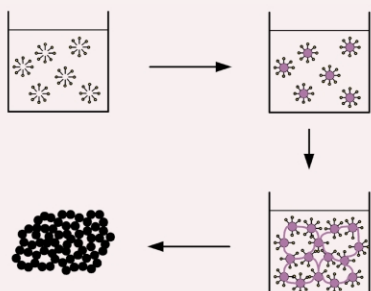


2722

**Novel synthesis of porous carbons with tunable pore size by surfactant-templated sol-gel process and carbonisation**

Kyu Tae Lee and Seung M. Oh\*

Surfactant-templated sol-gel polymerisation was explored to synthesize resorcinol-formaldehyde (RF) gels without supercritical drying step, which were further carbonised to obtain porous carbons of a tunable pore size.

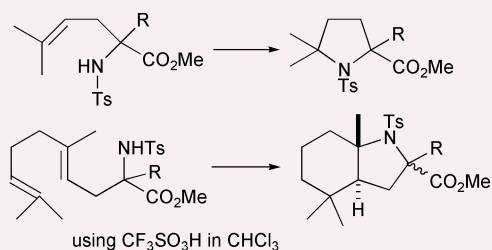


2724

**Sulfonamides as novel terminators of cationic cyclisations**

Charlotte M. Haskins and David W. Knight\*

Triflic acid is an excellent catalyst for inducing the overall 5-*endo*-trig cyclisation of homoallylic sulfonamides leading to pyrrolidines. The method is also applicable to the formation of polycyclic derivatives by cationic cyclisation cascades in which the sulfonamide nitrogen acts as a terminator.

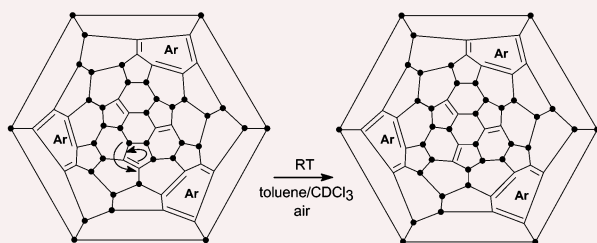


2726

**Fluorine takes a hike: remarkable room-temperature rearrangement of the  $C_1$  isomer of  $C_{60}F_{36}$  into the  $C_3$  isomer *via* a 1,3-fluorine shift**

Anthony G. Avent and Roger Taylor\*

In toluene/ $\text{CDCl}_3$  at room temperature, the  $C_1$  isomer of  $C_{60}F_{36}$  rearranges during four days into the  $C_3$  isomer, *via* a unique 1,3-shift of fluorine; this rare example of addend migration across a fullerene cage surface is accelerated by air.

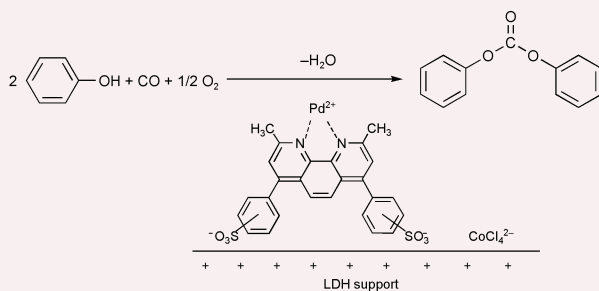


2728

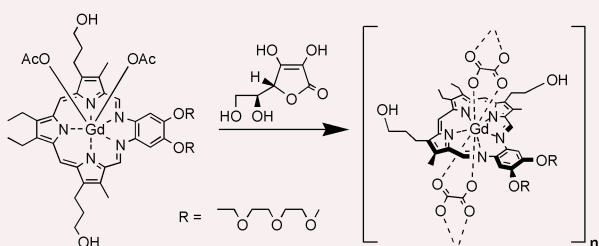
**A new heterogeneous catalyst for the oxidative carbonylation of phenol to diphenyl carbonate**

Koen J. L. Linsen, Jo Libens and Pierre A. Jacobs\*

Using LDH as support, anionic species of both the Pd catalyst and the Co co-catalyst are successfully heterogenised and evaluated in the oxidative carbonylation of phenol to diphenyl carbonate.



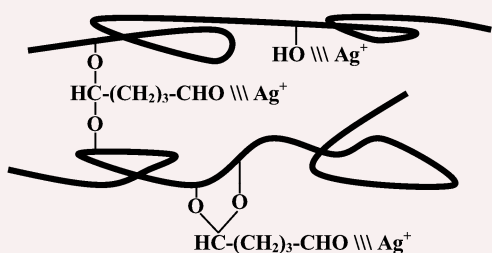
2730

**Motexafin gadolinium reacts with ascorbate to produce reactive oxygen species**

Darren Magda,\* Nikolay Gerasimchuk, Philip Lecane, Richard A. Miller, John E. Biaglow and Jonathan L. Sessler

Reactive oxygen species and a novel coordination polymer with oxalate are produced from the reaction of the experimental radiation enhancing drug, motexafin gadolinium (MGd) and the reducing metabolite, ascorbate. These findings provide a basis for understanding the biological action of this agent.

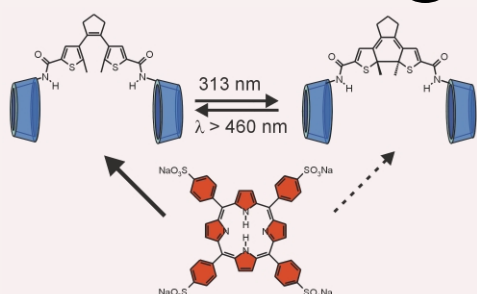
2732

**Coordination structure of various ligands in crosslinked PVA to silver ions for facilitated olefin transport**

Jong Hak Kim, Byoung Ryul Min, Ki Bong Lee, Jongok Won and Yong Soo Kang\*

The most effective ligand among  $\text{-OH}$ ,  $\text{-O-}$  and  $\text{-CHO}$  for facilitated olefin transport by silver ions in room temperature crosslinked poly(vinyl alcohol) membrane has been evaluated.

2734

**A dithienylethene-tethered  $\beta$ -cyclodextrin dimer as a photoswitchable host**

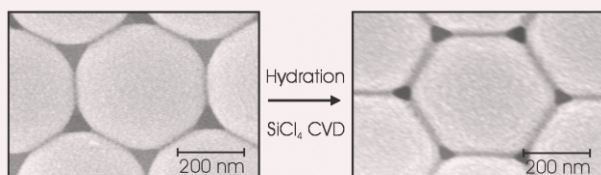
Alart Mulder, Amela Jukovic, Linda N. Lucas, Jan van Esch, Ben L. Feringa,\* Jurriaan Huskens and David N. Reinhoudt\*

A dithienylethene-tethered  $\beta$ -cyclodextrin dimer shows reversible switching of the binding strength with TSPP upon irradiation with light.

2736

**Mechanical stability enhancement by pore size and connectivity control in colloidal crystals by layer-by-layer growth of oxide**

Hernán Míguez, Nicolas Tétreault, Benjamin Hatton, San Ming Yang, Doug Perovic and Geoffrey A. Ozin\*

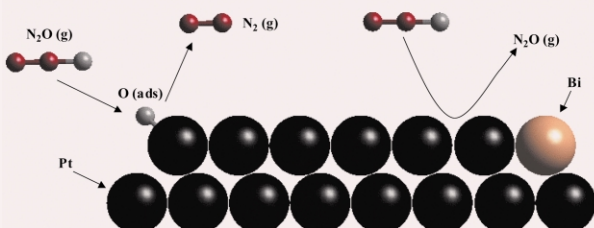


Control of the pore size and connectivity of micro-sphere colloidal crystal lattices has been achieved by a layer-by-layer growth of silica using atmospheric pressure room temperature chemical vapour deposition of silica, a method which largely increases the mechanical stability of the lattice without disrupting its long range order.

2738

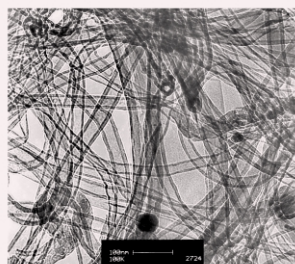
**Low-temperature catalytic decomposition of  $\text{N}_2\text{O}$  on platinum and bismuth-modified platinum: identification of active sites**

R. Burch,\* G. A. Attard, S. T. Daniells, D. J. Jenkins, J. P. Breen and P. Hu



A definitive identification of the active sites for a specific catalytic reaction on real catalysts has been achieved for the decomposition of nitrous oxide on Pt catalyst.

2740



### Detonation chemistry of a CHNO explosive: catalytic assembling of carbon nanotubes at low pressure and temperature state

Yi Lu, Zhenping Zhu,\* Weize Wu and Zhenyu Liu

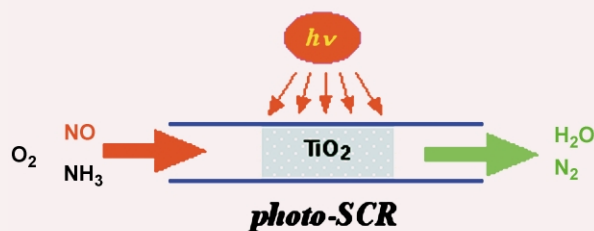
The detonation of a CHNO explosive was used for the first time to synthesize carbon nanotubes effectively at low pressure and temperature by introducing a cobalt catalyst and/or paraffin into the detonation system.

2742

### Photoassisted NO reduction with NH<sub>3</sub> over TiO<sub>2</sub> photocatalyst

Tsunehiro Tanaka,\* Kentaro Teramura, Kyoko Arakaki and Takuzo Funabiki

Photoassisted selective catalytic reduction of NO with ammonia (photo-SCR) at low-temperature over irradiated TiO<sub>2</sub> in a flow reactor was confirmed to proceed efficiently.



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