

**Cover**  
*Ephedra*, from which ephedradine A is isolated. The macrocyclic polyamine ring in (-)-ephedradine A was synthesised using the Ns-strategy. Image by Thomas Schoepke (<http://www.plant-pictures.com>) (pp. 353–359).



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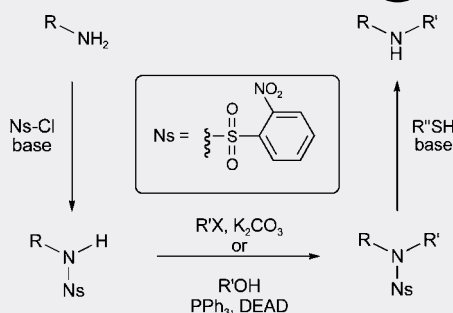
# contents

## FEATURE ARTICLE

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### Ns strategies: a highly versatile synthetic method for amines

Toshiyuki Kan and Tohru Fukuyama\*



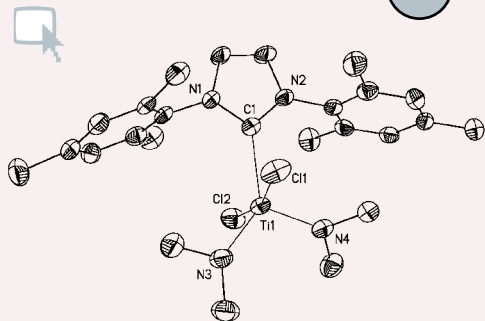
A highly efficient and versatile synthetic method for amines was established by using nitrobenzenesulfonamides (Ns-amides) as a protecting–activating group. Acyclic as well as macrocyclic polyamines can be efficiently synthesized by means of this methodology.

## COMMUNICATIONS

360

### Amine elimination synthesis of a titanium(IV) N-heterocyclic carbene complex with short intramolecular Cl...C<sub>carbene</sub> contacts

Piyush Shukla, Jennifer A. Johnson, Dragoslav Vidovic, Alan H. Cowley and Colin D. Abernethy

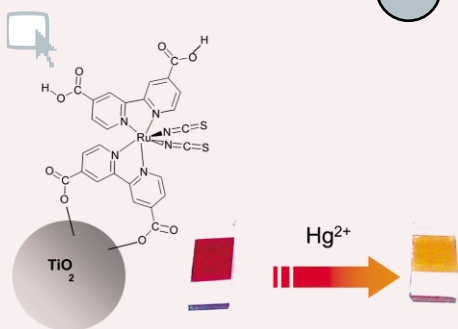


A new synthetic route to high-oxidation-state N-heterocyclic carbene complexes is described; the resulting titanium(IV) complex exhibits short intramolecular Cl...C<sub>carbene</sub> contacts.

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### Heterogeneous colorimetric sensor for mercuric salts

Emilio Palomares,\* Ramón Vilar and James R. Durrant



A heterogeneous colorimetric sensor based on a mesoporous nanocrystalline TiO<sub>2</sub> film sensitised with a ruthenium dye shows rapid response, high selectivity and a sub-micromolar sensitivity for Hg<sup>2+</sup>.

Chemical Communications  
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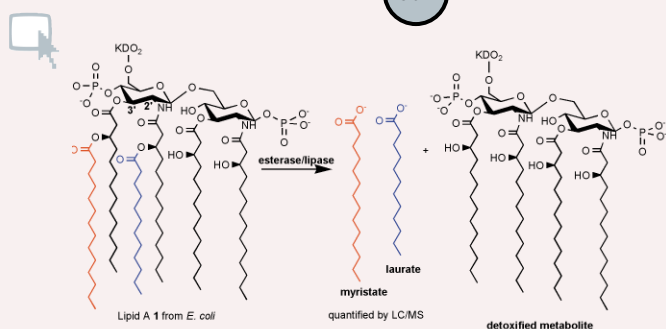
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### Probing lipase/esterase libraries for lipid A hydrolases—discovery of biocatalysts for the detoxification of bacterially-expressed recombinant protein

Jung-Mo Ahn, Paul Wentworth, Jr.\* and Kim D. Janda\*

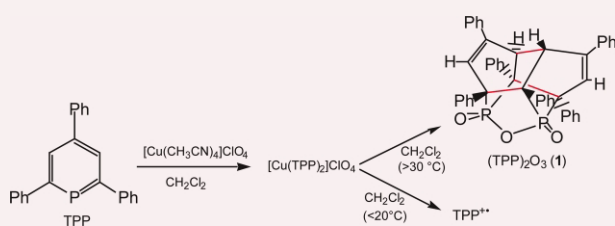
Members of a small library of esterase/lipase enzymes have been analyzed for an ability to inactivate lipid A **1**. One member of this library, ESL-004, was a potent inactivator of bacterial endotoxin activity, and efficiently detoxified an *E. coli* expressed scFv.

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### Novel cofacial oxidative coupling reaction of phosphinine in the presence of Cu(I) and ClO<sub>4</sub><sup>-</sup>

Takahiko Kojima,\* Yoshitaka Ishioka and Yoshihisa Matsuda\*

A phosphinine derivative underwent a novel cofacial oxidative coupling to form a C<sub>2</sub>-symmetric chiral cage compound containing extremely long C–C bonds of 1.650(5) and 1.611(5) Å.

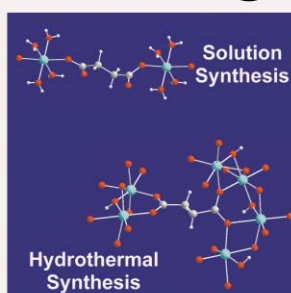


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### The role of temperature in the synthesis of hybrid inorganic–organic materials: the example of cobalt succinates

Paul M. Forster, Andrea R. Burbank, Carine Livage, Gérard Férey and Anthony K. Cheetham\*

Five unique structures of cobalt succinate may be prepared from one starting mixture simply by varying the synthesis temperature. The changes in bonding and composition for structures illustrate the important role of temperature in hybrid materials synthesis.

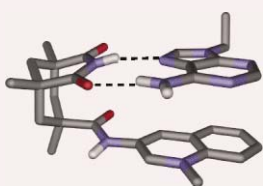


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### H-Bonded complexes of adenine with Rebek imide receptors are stabilised by cation–π interactions and destabilised by stacking with perfluoroaromatics

Raffaella Faraoni, Ronald K. Castellano, Volker Gramlich and François Diederich\*

The π–π stacking interaction preferences of adenine bound *via* Hoogsteen hydrogen-bonding to Rebek imide receptors were investigated by <sup>1</sup>H NMR binding titrations and X-ray structural analysis and the preference for stacking on a cationic heterocycle was quantified.

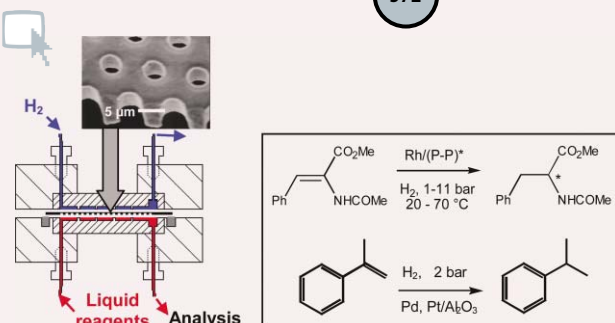


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### Gas–liquid and gas–liquid–solid catalysis in a mesh microreactor

Radwan Abdallah, Valérie Meille, John Shaw, David Wenn and Claude de Bellefon\*

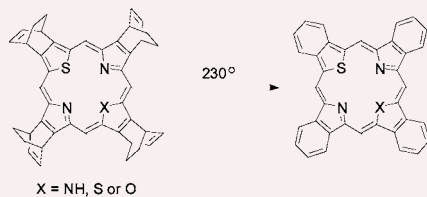
Residence time of more than minutes can now be achieved using a microstructured mesh contactor. Applications such as catalyst/chiral inductor screening and kinetic data determination are demonstrated for gas–liquid–(solid) hydrogenations using only 100 μl of liquid reagents.



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**First synthesis of a series of core-modified tetrabenzoporphyrins**

Yusuke Shimizu, Zhen Shen, Tetsuo Okujima, Hidemitsu Uno and Noboru Ono\*

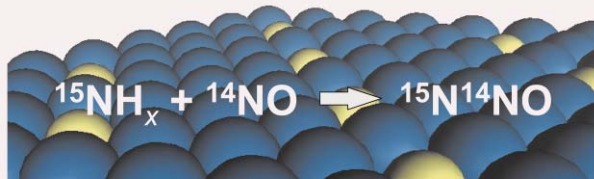


Successful synthesis of a series of highly conjugated porphyrin analogues, including thia-, dithia- and oxathia-tetrabenzoporphyrins, and their optical properties are reported.

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**Evidences of the origin of N<sub>2</sub>O in the high-temperature NH<sub>3</sub> oxidation over Pt–Rh gauze**

Javier Pérez-Ramírez\* and Evgueni V. Kondratenko

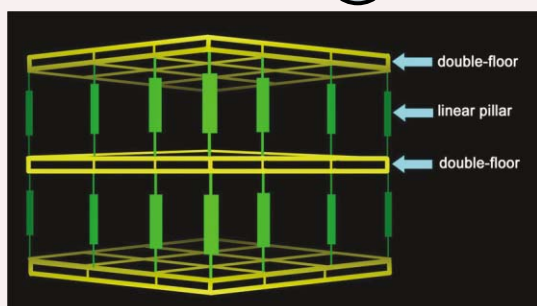


Transient pulse studies with isotopic molecules have revealed that the formation of N<sub>2</sub>O during the high-temperature ammonia oxidation over Pt–Rh gauze results from the secondary reaction between adsorbed ammonia species and nitric oxide.

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**Designed double layer assembly: a three-dimensional open framework with two types of cavities by connection of infinite two-dimensional bilayer**

Xinlong Wang, Chao Qin, Enbo Wang,\* Yangguang Li, Changwen Hu and Lin Xu

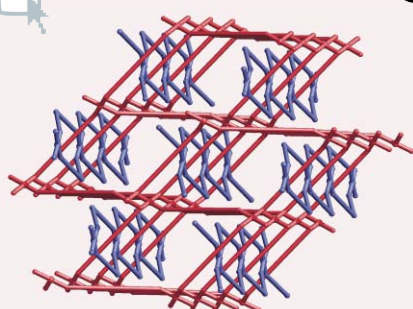


The first example of structurally characterized three-dimensional pillared-bilayer open framework is reported. It contains two different types of cavities inter a bilayer and between adjacent bilayers, respectively.

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**A new type of entanglement involving one-dimensional ribbons of rings catenated to a three-dimensional network in the nanoporous structure of [Co(bix)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>](SO<sub>4</sub>)·7H<sub>2</sub>O [bix = 1,4-bis(imidazol-1-ylmethyl)benzene]**

Lucia Carlucci, Gianfranco Ciani\* and Davide M. Proserpio

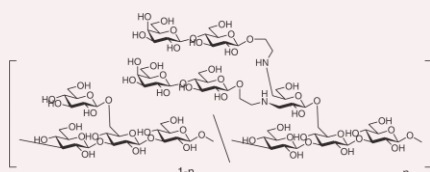


The new coordination network [Co(bix)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>](SO<sub>4</sub>)·7H<sub>2</sub>O [bix = 1,4-bis(imidazol-1-ylmethyl)benzene] contains, for the first time, 1D polymeric ribbons of rings inextricably interlaced to a 3D frame with the CdSO<sub>4</sub> topology, and shows an open-channel architecture with nanoporous properties.

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**Lactose-appended schizophyllan is a potential candidate as a hepatocyte-targeted antisense carrier**

Teruaki Hasegawa, Mariko Umeda, Takahiro Matsumoto, Munenori Numata, Masami Mizu, Kazuya Koumoto, Kazuo Sakurai and Seiji Shinkai\*

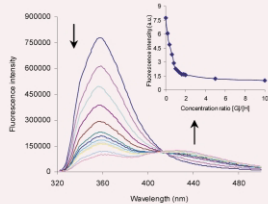
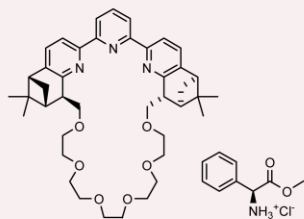


A schizophyllan (β-1,3-glucan) derivative carrying lactose-appendages prepared by reductive amination can form stable macromolecular complexes with polynucleotides, shows excellent affinity with a lactose-binding lectin, and effectively mediates gene transfection into hepatocytes.

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### A novel chiral terpyridine macrocycle as a fluorescent sensor for enantioselective recognition of amino acid derivatives

Wing-Leung Wong, Ka-Hung Huang, Pang-Fei Teng, Chi-Sing Lee and Hoi-Lun Kwong\*

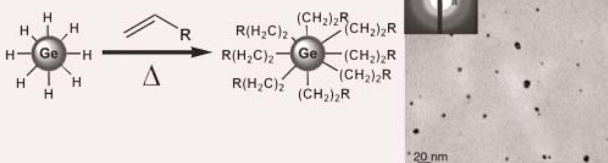


A novel chiral terpyridine macrocycle is shown to be a strong chelating agent for amino acid derivatives and a selective fluorescent sensor for α-phenylglycine methyl ester hydrochloride ( $K_{\text{obs}}(S)/K_{\text{obs}}(R) = 3.8$ ).

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### Preparation of alkyl-surface functionalized germanium quantum dots via thermally initiated hydrogermylation

Enrico Fok, Meiling Shih, Al Meldrum and Jonathan G. C. Veinot\*

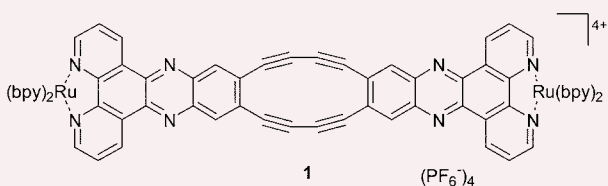


A new, thermally initiated hydrogermylation-based method for the synthesis and surface functionalization of air- and moisture-stable germanium quantum dots is reported.

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### A (bpy)<sub>2</sub>Ru-coordinated dehydro[12]annulene with exotopically fused diimine binding sites

Sascha Ott and Rüdiger Faust\*

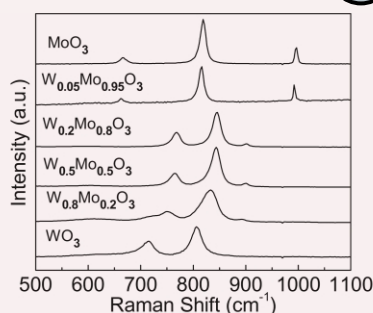


A dinuclear (bpy)<sub>2</sub>Ru<sup>II</sup> polypyridyl complex is described in which the bridging ligand consists of two dipyrrophenazines fused to a formally antiaromatic dehydro[12]annulene. The electronic properties of the complex are markedly influenced by the cyclic all-carbon core.

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### Parallel synthesis and characterization of photoelectrochemically and electrochromically active tungsten–molybdenum oxides

Sung-Hyeon Baek, Thomas F. Jaramillo, Dae Hong Jeong and Eric W. McFarland\*

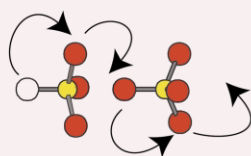
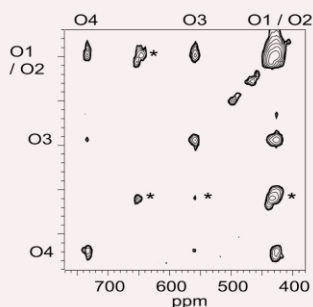


Single phase tungsten–molybdenum mixed oxide films (W<sub>1-x</sub>Mo<sub>x</sub>O<sub>3</sub>) were successfully synthesized by automated parallel electrodeposition, and distinct changes in structure, photoelectrochemical properties, and electrochromic behavior were observed as a function of composition.

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### The nature of oxygen exchange in ZrW<sub>2</sub>O<sub>8</sub> revealed by two-dimensional solid-state <sup>17</sup>O NMR

Matthew R. Hampson, Paul Hodgkinson,\* John S. O. Evans,\* Robin K. Harris, Ian J. King, Simon Allen and Franck Fayon

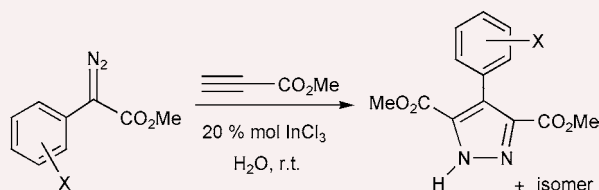


Variable temperature and 2D EXSY <sup>17</sup>O NMR have been used to determine the nature of exchange in ZrW<sub>2</sub>O<sub>8</sub>. It has been shown that all oxygen sites undergo mutual exchange, even in the ordered low temperature phase.

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**Novel 1,3-dipolar cycloaddition of diazocarbonyl compounds to alkynes catalyzed by  $\text{InCl}_3$  in water**

Nan Jiang and Chao-Jun Li\*

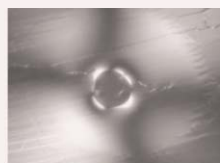


The intermolecular 1,3-dipolar cycloaddition of diazocarbonyl compounds with alkynes was developed by using an  $\text{InCl}_3$  catalyzed cycloaddition in water. A domino 1,3 dipolar cycloaddition–hydrogen (alkyl or aryl) migration was proposed for the reaction.

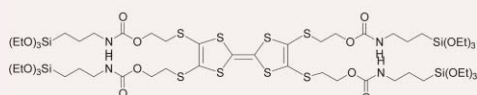
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**Self-organization of a tetrasubstituted tetrathiafulvalene (TTF) in a silica based hybrid organic–inorganic material**

Geneviève Cerveau, Robert J. P. Corriu,\* Frédéric Lerouge, Nathalie Bellec, Dominique Lorcy and Maurizio Nobili



$$\Delta n = 5.10^{-3}$$

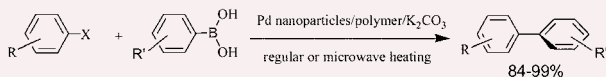


A hybrid organic inorganic nanostructured material containing a TTF core substituted by four arms exhibited a high level of both condensation at silicon (96%) and self-organization as evidenced by X-ray diffraction and an unprecedented birefringent behaviour.

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**Synthesis and catalytic activity of a poly(*N,N*-dialkylcarbodiimide)/palladium nanoparticle composite: a case in the Suzuki coupling reaction using microwave and conventional heating**

Yubiao Liu, Chalermchai Khemtong and Jun Hu\*

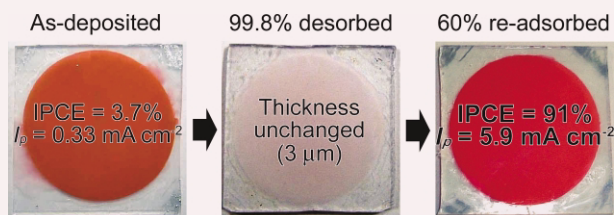


A poly(*N,N*-dialkylcarbodiimide)/palladium nanoparticle composite material was found to be a robust catalyst for repetitive use in the Suzuki coupling reactions under microwave or regular heating.

400

**Improved photoelectrochemical performance of electrodeposited ZnO/EosinY hybrid thin films by dye re-adsorption**

Tsukasa Yoshida,\* Mamiko Iwaya, Hiroaki Ando, Torsten Oekermann, Kazuteru Nonomura, Derck Schlettwein, Dieter Wöhrle and Hideki Minoura

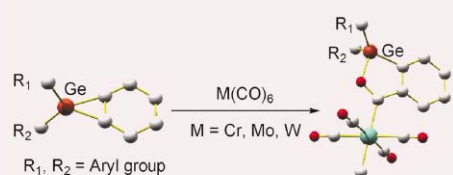


Dye desorption and re-adsorption post treatments on electrochemically self-assembled nanoporous ZnO/eosinY hybrid thin films lead to a large improvement of the dye-sensitized photoelectrochemical performance, achieving an IPCE up to 90%.

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**Thermal reactions of an overcrowded germacyclopropabenzene with group 6 metal hexacarbonyl complexes  $[\text{M}(\text{CO})_6]$  ( $\text{M} = \text{Cr}, \text{Mo}, \text{and W}$ ): a novel mode of CO insertion leading to the formation of cyclic germylcarbene metal complexes**

Tomoyuki Tajima, Takayo Sasaki, Takahiro Sasamori, Nobuhiro Takeda and Norihiro Tokitoh\*

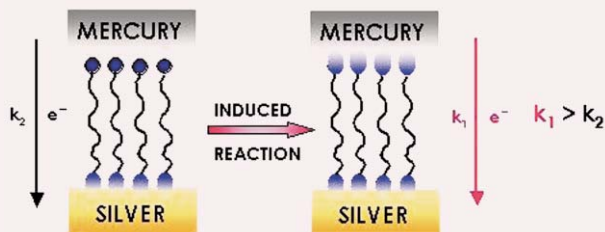


The thermal reactions of germacyclopropabenzene with hexacarbonyl complexes of group 6 metals resulted in the formation of novel Fischer-type carbene complexes, *via* the insertion reaction of a C=O group into the C–C bond.

404

**Electrochemical wiring of  $\alpha,\omega$ -alkanedithiol molecules into an electrical circuit**

Sławomir Sek, Renata Bilewicz and Krzysztof Slowinski\*

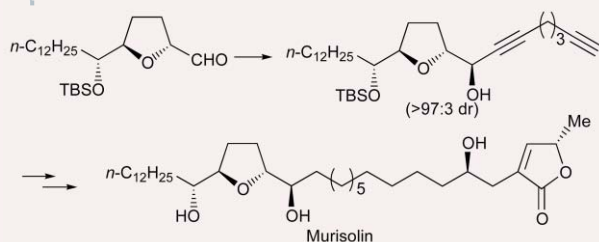


The intrinsic electrical conductivity of  $\alpha,\omega$ -alkanedithiol is at least 8–95 fold larger if both ends of the molecule are covalently bonded to metallic contacts.

406

**First total synthesis of murisolin**

Naoyoshi Maezaki, Hiroaki Tominaga, Naoto Kojima, Minori Yanai, Daisuke Urabe and Tetsuaki Tanaka\*

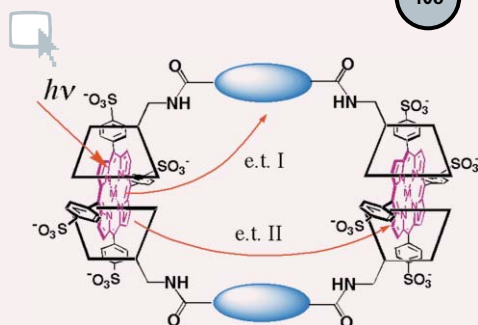


The first and concise total synthesis of murisolin was accomplished using asymmetric alkylation and Sonogashira coupling as the key steps.

408

**Construction of porphyrin–cyclodextrin self-assembly with molecular wedge**

Ken Sasaki, Hiroki Nakagawa, Xiaoyong Zhang, Shinichi Sakurai, Koji Kano and Yasuhisa Kuroda\*

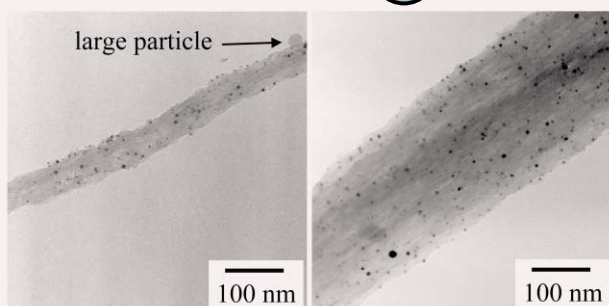


A new host porphyrin bearing four permethyl- $\beta$ -cyclodextrin moieties for multiporphyrin assembly forms a unique 2 : 2 assembly with the tetra-anion of tetrakis(*p*-sulfonylphenyl)porphyrin (TPPS) in aqueous solution.

410

**Facile fabrication of composites of platinum nanoparticles and amorphous carbon films by catalyzed carbonization of cellulose fibers**

Junhui He, Toyoki Kunitake\* and Aiko Nakao

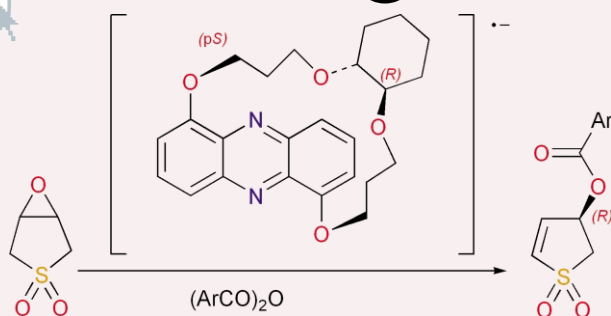


Composites of platinum nanoparticles and amorphous carbon films have been facilely fabricated by catalyzed carbonization of cellulose fibers.

412

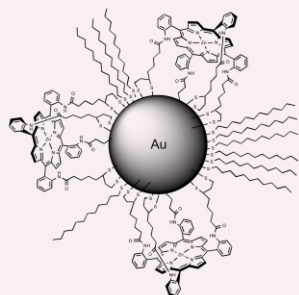
**Generation of strong, homochiral bases by electrochemical reduction of phenazine derivatives**

A. Mateo Alonso, Roberto Horcajada, Helen J. Groombridge, Reshma Mandalia, Majid Motevalli, James H. P. Utley\* and Peter B. Wyatt\*



Electrochemical reduction of enantiomerically pure amino- and alkoxy-phenazine derivatives forms strongly basic radical anions which give asymmetric induction in the conversion of 3,4-epoxytetrahydrothiophene-1,1-dioxide into an allylic ester.

414

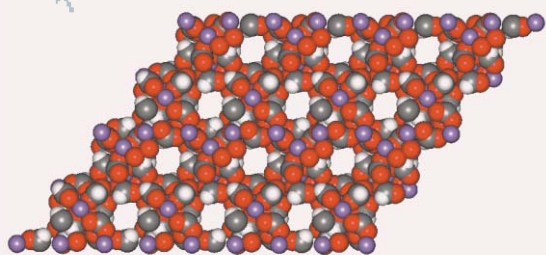


### Zinc metalloporphyrin-functionalised nanoparticle anion sensors

Paul D. Beer,\* David P. Cormode and Jason J. Davis\*

Disulfide-functionalised zinc metalloporphyrins self-assembled on gold nanoparticles exhibit remarkable, surface-enhanced, anion binding affinities as compared to the free metalloporphyrin.

416

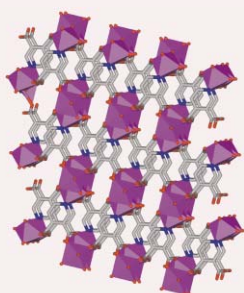


### Mn<sub>3</sub>(HCOO)<sub>6</sub>: a 3D porous magnet of diamond framework with nodes of Mn-centered MnMn<sub>4</sub> tetrahedron and guest-modulated ordering temperature

Zheming Wang,\* Bin Zhang, Hideki Fujiwara, Hayao Kobayashi\* and Mohamedally Kurmoo

Mn<sub>3</sub>(HCOO)<sub>6</sub>, a highly stable open framework, displays a wide spectrum of guest inclusion behaviour and 3D long-range magnetic ordering with guest-modulated critical temperature.

418

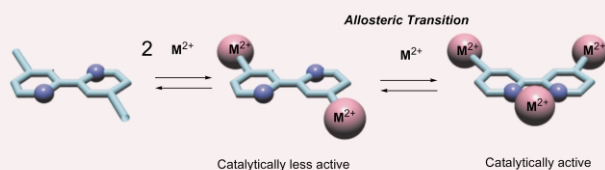


### Temperature-controlled hydrothermal synthesis of a 2D ferromagnetic coordination bilayered polymer and a novel 3D network with inorganic Co<sub>3</sub>(OH)<sub>2</sub> ferrimagnetic chains

Ming-Liang Tong,\* Susumu Kitagawa,\* Ho-Chol Chang and Masaaki Ohba

Transformation of a 2D bilayered ferromagnetic coordination polymer, generated by lower-temperature hydrothermal reactions of cobalt(II) salt with the 3,4-pyridinedicarboxylate, has been conducted into a 3D magnetic coordination network with Co<sub>3</sub>(OH)<sub>2</sub> ferrimagnetic chains by the control of reaction temperature.

420

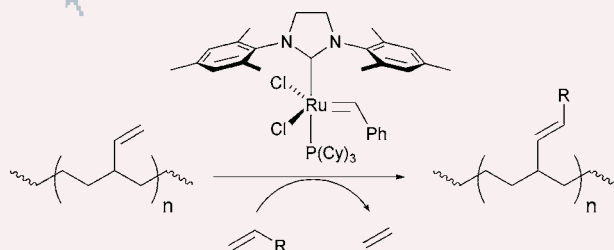


### Metal ion induced allosteric transition in the catalytic activity of an artificial phosphodiesterase

Shinji Takebayashi, Masato Ikeda, Masayuki Takeuchi\* and Seiji Shinkai\*

An artificial phosphodiesterase bearing two kinds of metal binding sites, a catalytic site and a regulatory site showed a unique allosteric transition in the catalytic activity against the metal concentration.

422



### Cross metathesis functionalization of polyolefins

Robert T. Mathers and Geoffrey W. Coates\*

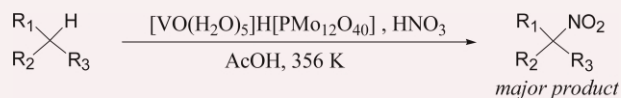
A cross metathesis strategy is reported for the post-polymerization functionalization of the pendant vinyl groups present in a range of polyolefin architectures.



424

**[VO(H<sub>2</sub>O)<sub>5</sub>]H[PMO<sub>12</sub>O<sub>40</sub>]-catalyzed nitration of alkanes with nitric acid**

Kazuya Yamaguchi, Satoshi Shinachi and Noritaka Mizuno\*

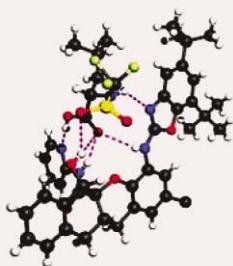


[VO(H<sub>2</sub>O)<sub>5</sub>]H[PMO<sub>12</sub>O<sub>40</sub>], which contains vanadyl counter cations and PMO<sub>12</sub>O<sub>40</sub><sup>3-</sup>, can act as a catalyst for the nitration of various alkanes using nitric acid as a nitrating agent.

426

**A *trans*-tetrahydrobenzoxanthene receptor for the resolution of racemic mixtures of sulfonylamino acids**

Ana I. Oliva, Luis Simón, Francisco M. Muñiz, Francisca Sanz and Joaquín R. Morán\*

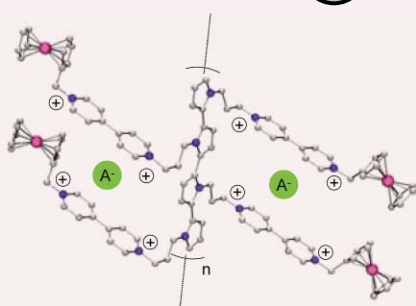


An enantioselective cleft-type receptor for sulfonylamino acids has been prepared and its use for the resolution of the amino acid racemic mixture is shown.

428

**Redox sensing of anions in pure aqueous environment by ferrocene-containing 4,4'-bipyridinium-based receptors and polymer films**

Olivier Reynes, Christophe Bucher, Jean-Claude Moutet,\* Guy Royal\* and Eric Saint-Aman

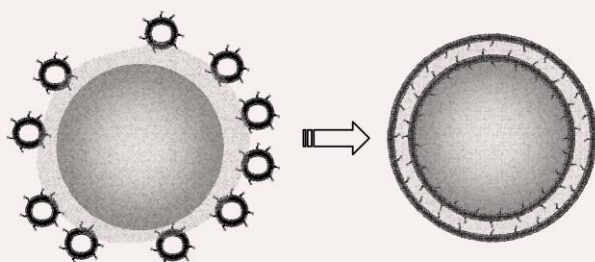


Selective voltammetric sensing of ATP<sup>2-</sup> anions in water is achieved using ferrocene-viologen based redox active receptors and related polymer film. The polymeric material generates a “macromolecular effect” responsible for a significant sensing improvement.

430

**Interaction of modified liposomes with *Bacillus* spores**

Sergey Kazakov, Marian Kaholek, Tao Ji, Charles L. Turnbough, Jr and Kalle Levon\*

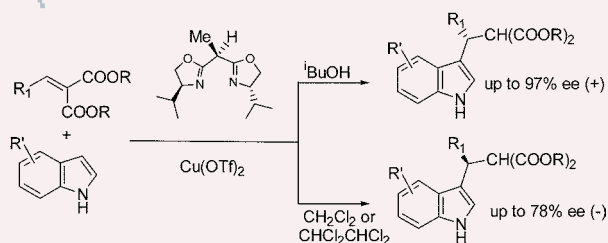


The interaction between liposomes modified with a particular peptide sequence and *Bacillus subtilis* spores was experimentally observed as (1) an increase in the average diameter of spore-related particles, and (2) the formation of dense and structured shells around the spores at higher concentrations of liposomes.

432

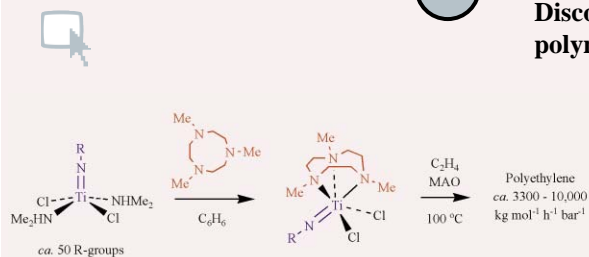
**Enantioselective Friedel–Crafts reaction of indoles with arylidene malonates catalyzed by <sup>i</sup>Pr-bisoxazoline–Cu(OTf)<sub>2</sub>**

Jian Zhou and Yong Tang\*



<sup>i</sup>Pr-bisoxazoline–Cu(OTf)<sub>2</sub> proves to be an efficient catalyst in the asymmetric Friedel–Crafts reaction of indole with arylidene malonates. In <sup>i</sup>BuOH, the *S*-enantiomer was obtained in up to 97% ee, while the opposite enantiomer was obtained in up to 78% ee in CH<sub>2</sub>Cl<sub>2</sub> or TTCE.

434

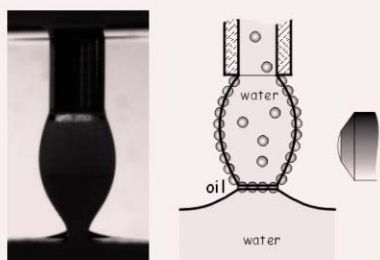


### Discovery and evaluation of highly active imidotitanium ethylene polymerisation catalysts using high throughput catalyst screening

Nico Adams, Henricus J. Arts, Paul D. Bolton, Dan Cowell, Stuart R. Dubberley, Nic. Friederichs, Craig M. Grant, Mirko Kranenburg, Andrew J. Sealey, Bing Wang, Paul J. Wilson, Andrew R. Cowley, Philip Mountford\* and Martin Schröder

A family of ca. 50 imidotitanium precatalysts  $[\text{Ti}(\text{NR})(\text{Me}_3[9]\text{aneN}_3)\text{Cl}_2]$  (R = alkyl or aryl;  $\text{Me}_3[9]\text{aneN}_3 = 1,4,7\text{-trimethyltriaza-cyclononane}$ ) were prepared in good yields using semi-automated procedures.

436

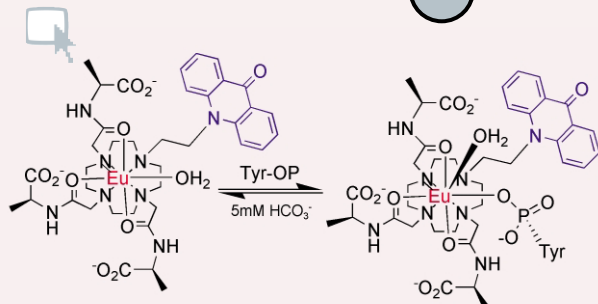


### Bridging interaction between a water drop stabilised by solid particles and a planar oil/water interface

Neil P. Ashby, Bernard P. Binks and Vesselin N. Paunov\*

The particle mediated interaction between a pendant water drop, covered by a latex particle monolayer, and a planar decane/water interface leads to bridging and allows the particle contact angle to be estimated from the shape of the liquid meniscus.

438



### Chemoselective signalling of selected phospho-anions using lanthanide luminescence

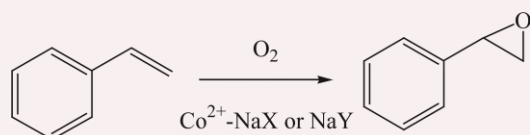
Paul Atkinson, Yann Bretonniere and David Parker

Selectivity in the binding of phosphorylated tyrosine residues to aqua-lanthanide complexes is signalled by shift and ratiometric intensity changes in  $^1\text{H}$  NMR and luminescence emission spectra

440

### $\text{Co}^{2+}$ -Exchanged faujasite zeolites as efficient heterogeneous catalysts for epoxidation of styrene with molecular oxygen

Qinghu Tang, Ye Wang,\* Jun Liang, Ping Wang, Qinghong Zhang and Huilin Wan



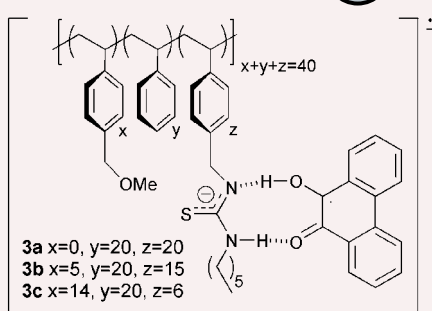
$\text{Co}^{2+}$ -Exchanged faujasite zeolites can catalyze the epoxidation of styrene with  $\text{O}_2$ , and the  $\text{Co}^{2+}$  ions located in supercages account for the activation of  $\text{O}_2$  for the epoxidation of styrene.

442

### Proton transfer versus redox modulation in thiourea-phenanthrenequinone molecular and polymeric complexes

Joseph B. Carroll, Mark Gray, Graeme Cooke and Vincent M. Rotello\*

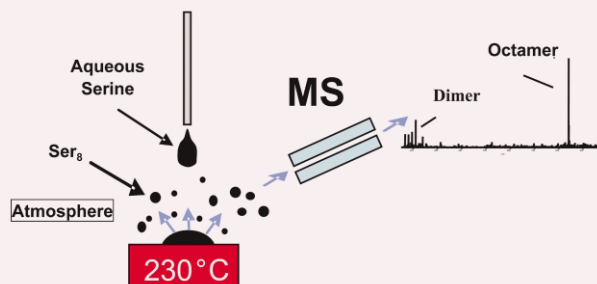
Phenanthrenequinone undergoes rapid proton transfer processes in the presence of thiourea-substituted random styrene copolymer, while interactions with a similar benzyl-thiourea monomer in different dielectric environments demonstrate strong redox modulation of the quinone without proton transfer.



444

**Thermal formation of serine octamer ions**

Zoltán Takáts and R. Graham Cooks\*

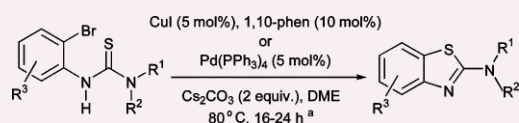


Serine octamers are produced by simply heating an aqueous solution of the amino acid. The results add to the evidence that this cluster might have played a role in prebiotic homochirogenesis.

446

**Copper- and palladium-catalyzed intramolecular C–S bond formation: a convenient synthesis of 2-aminobenzothiazoles**

Laurie L. Joyce, Ghotas Evindar and Robert A. Batey\*

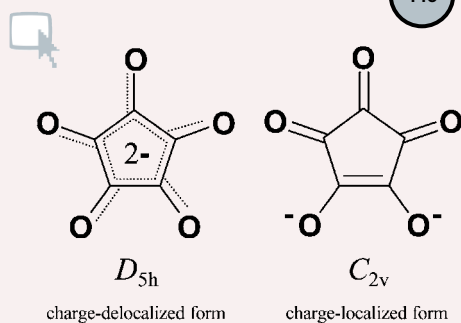


Cu- and Pd-catalyzed formation of 2-aminobenzothiazoles was achieved by intramolecular C–S bond formation between an aryl halide and a thiourea functionality.

448

**Stabilization of  $D_{5h}$  and  $C_{2v}$  valence tautomers of the croconate dianion**

Chi-Keung Lam, Mei-Fun Cheng, Chi-Lun Li, Jie-Peng Zhang, Xiao-Ming Chen, Wai-Kee Li and Thomas C. W. Mak\*

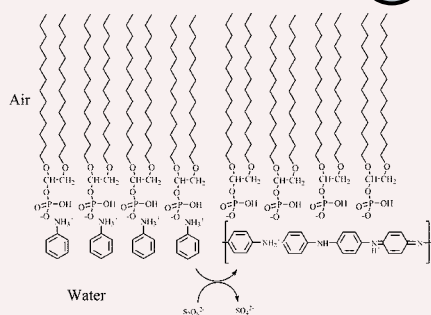


The non-benzenoid aromatic  $D_{5h}$  and enediolate  $C_{2v}$  form of  $C_5O_5^{2-}$  have been stabilized by hydrogen bonding with urea and 1,3-dimethylurea, respectively, in the host lattices of two novel crystalline inclusion compounds.

450

**Interfacial polymerisation of anilinium at Langmuir monolayers**

Jie Zhang, Daniel Mandler\* and Patrick R. Unwin\*



Anilinium is strongly adsorbed at monolayers of the phospholipid L- $\alpha$ -dimyristoylphosphatidic acid (DMPA) and hexadecanesulfonic acid (HDSA) at the air–water interface, and undergoes chemical polymerisation under conditions where bulk polymerisation does not occur.

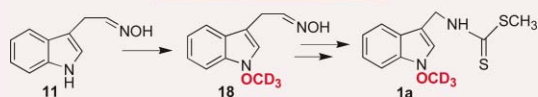
452

**The biosynthesis of crucifer phytoalexins: unprecedented incorporation of a 1-methoxyindolyl precursor**

M. Soledade C. Pedras\* and Sabine Montaut



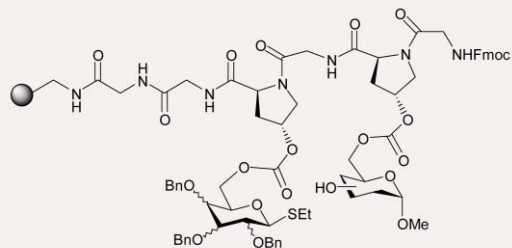
The first biosynthetic studies using rutabaga tubers revealed that 1-methoxy-3-indolylacetaldehyde oxime (**18**) is an early precursor of 1-methoxyindole containing phytoalexins.



454

### The parallel synthesis of a disaccharide library using a solid phase, peptide-templated strategy

Jessica Burt, Tony Dean and Stuart Warriner\*

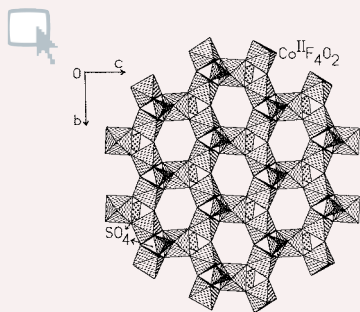


A novel strategy for the synthesis of oligosaccharides, involving the use of a solid phase peptide template, has been successfully applied to the construction of a twelve member disaccharide library.

456

### An organically templated Co(II) sulfate with the kagome lattice

J. N. Behera, Geo Paul, A. Choudhury and C. N. R. Rao\*

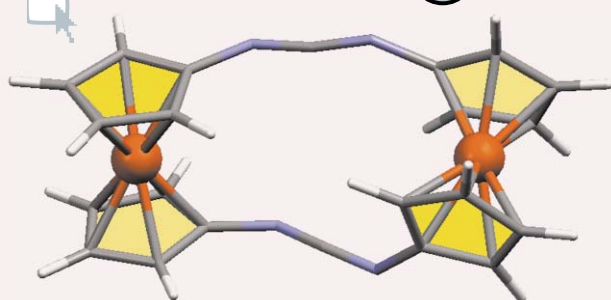


A Co(II) sulfate of the composition  $[H_2N(CH_2)_4NH_2][NH_4]_2[Co^{II}_3F_6(SO_4)_2]$  with a kagome lattice has been synthesized solvothermally. The compound exhibits antiferromagnetic interactions between the Co(II) sites and the presence of magnetic frustration.

458

### Synthesis and properties of a new class of nitrogen-rich multinuclear[m.n] ferrocenophanes

Alberto Tárraga,\* Francisco Otón, Arturo Espinosa, M. Desamparados Velasco, Pedro Molina\* and David J. Evans

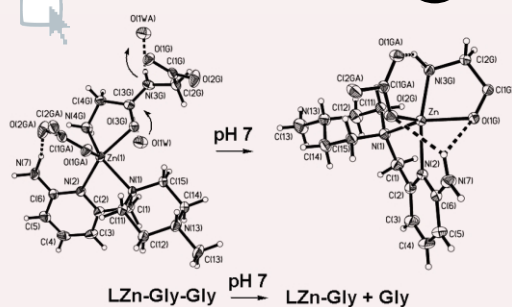


The electrochemical behaviour of the new nitrogen rich [m.n]ferrocenophanes clearly shows that the carbodiimide and guanidine functions act as good mediators for an active electronic coupling between the iron centers.

460

### Structures and reactivity of synthetic zinc(II) complexes resembling the active sites and reaction intermediates of aminopeptidases

Juan C. Mareque Rivas,\* Emiliano Salvagni and Simon Parsons

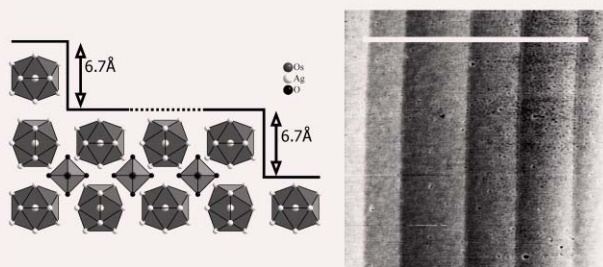


Synthetic zinc(II) complexes that resemble the active site and reaction intermediates proposed for aminopeptidases have been structurally characterized.

462

### Surface step structure of $Ag_{13}OsO_6$ , experimental evidence for $Ag_{13}$ cluster building blocks

Sascha Ahlert, Lars Diekhöner, Roman Sordan, Klaus Kern and Martin Jansen\*

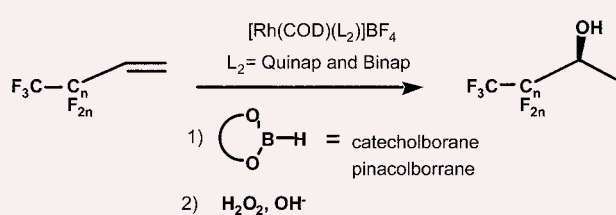


Three-dimensional atom lattice or independent  $Ag_{13}$ -icosahedral building blocks? Surface investigations with AFM on  $Ag_{13}OsO_6$  were used to answer this question.

464

**New insights on the asymmetric hydroboration of perfluoroalkenes**

Anna M. Segarra, Carmen Claver and Elena Fernandez\*

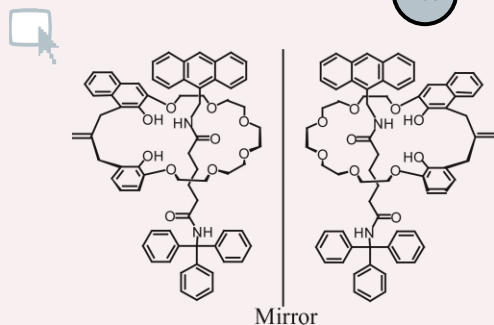


Asymmetrically enriched Markovnikov regioisomeric perfluoroalcohols are achieved through a catalytic hydroboration/oxidation sequence.

466

**A novel synthesis of chiral rotaxanes via covalent bond formation**

Naohiro Kameta, Kazuhisa Hiratani\* and Yoshinobu Nagawa

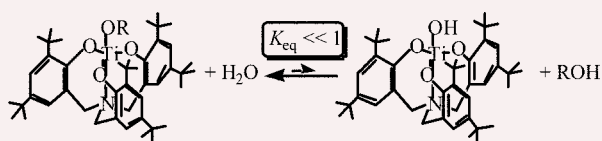


Chiral rotaxanes composed of the asymmetric crownophane incorporating two hydroxy groups as a rotor moiety and the asymmetric axis were effectively synthesized *via* covalent bond formation, *i.e.* tandem Claisen rearrangement, esterification, and aminolysis.

468

**Remarkable thermodynamic stability toward hydrolysis of tripodal titanium alkoxides**

Vesela Ugrinova, Gregory A. Ellis and Seth N. Brown\*

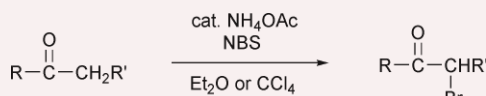


Reversing the usual expectations of hydrolytic instability of metal alkoxides, the isolable monomeric titanium(IV) hydroxide complex  $\text{LTi}(\text{OH})$  is *alcoholically* unstable, with  $K_{\text{eq}} = 0.012$  for hydrolysis of the methoxide in THF.

470

**A mild and efficient procedure for  $\alpha$ -bromination of ketones using *N*-bromosuccinimide catalysed by ammonium acetate**

Kiyoshi Tanemura,\* Tsuneo Suzuki, Yoko Nishida, Koko Satsumabayashi and Takaaki Horaguchi

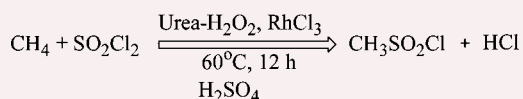


Cyclic ketones reacted with NBS catalysed by  $\text{NH}_4\text{OAc}$  in  $\text{Et}_2\text{O}$  at  $25^\circ\text{C}$  to give the corresponding  $\alpha$ -brominated ketones in good yields, while acyclic ketones were efficiently brominated in  $\text{CCl}_4$  at  $80^\circ\text{C}$ .

472

**Synthesis of methanesulfonyl chloride (MSC) from methane and sulfonyl chloride**

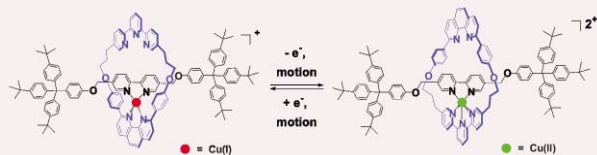
Sudip Mukhopadhyay, Mark Zerella, Alexis T. Bell,\* R. Vijay Srinivas and Gary S. Smith



Methane is transformed selectively to methanesulfonyl chloride (MSC) at low temperature by liquid-phase reaction of methane with  $\text{SO}_2\text{Cl}_2$  in the presence of a free radical initiator and a promoter using 100%  $\text{H}_2\text{SO}_4$  as the solvent.

### A copper-complexed rotaxane in motion: pirouetting of the ring on the millisecond timescale

Ingo Poleschak, Jean-Marc Kern and Jean-Pierre Sauvage



A novel rotaxane was prepared where the ring performs an electrochemically triggered rotation around the axle. In comparison to similar systems some structural changes speed up the pirouetting motion by several orders of magnitude into the millisecond range.

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