

**Cover (far left)**

Porphyrin-templated synthesis of molecularly imprinted dendrimers (MIDs) (pp. 1–4).

**Inside cover (left)**

The molecular model of part of a carbon nanotube functionalised with helical peptides, which is shown to penetrate into the cell (pp. 5–14).

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

## contents

## FOCUS ARTICLE

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**Materials that naturally assemble themselves**

Stephen Mann



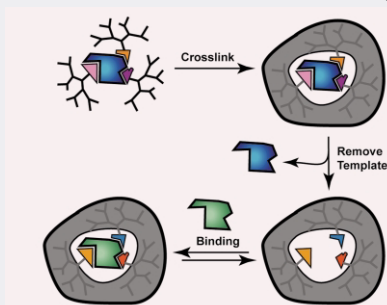
The author describes his work in probing the ground rules for biomineralisation and applying them to the self-assembly of practical materials with complex hierarchical structures.

## FEATURE ARTICLE

5

**Synthetic hosts *via* molecular imprinting—are universal synthetic antibodies realistically possible?**

Steven C. Zimmerman\* and N. Gabriel Lemcoff



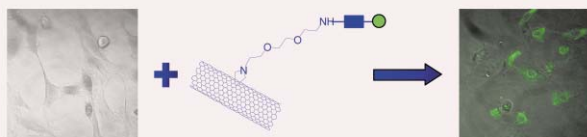
A very appealing approach to synthetic hosts involves imprinting a molecular template within an organic framework. This framework may be a polymer, oligomer, or an assembly of other subunits. Recent advances, current limitations, and future directions are outlined.

## COMMUNICATIONS

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**Translocation of bioactive peptides across cell membranes by carbon nanotubes**

Davide Pantarotto, Jean-Paul Briand, Maurizio Prato\* and Alberto Bianco\*

Functionalised carbon nanotubes are able to cross the cell membrane as detected by using epifluorescence and confocal microscopy. Flow cytometry analysis showed also that carbon nanotubes are non toxic for the cell up to 10  $\mu\text{M}$  concentration.

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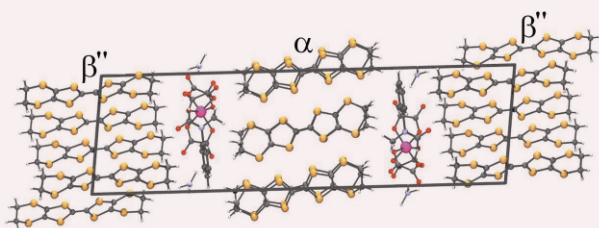
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### Superstructures of donor packing arrangements in a series of molecular charge transfer salts

Hiroki Akutsu, Akane Akutsu-Sato, Scott S. Turner,\* Peter Day,\* Enric Canadell, Steven Firth, Robin J. H. Clark, Jun-ichi Yamada and Shin'ichi Nakatsuji

A series of three semiconducting BEDT-TTF charge transfer salts with tris(oxalato)metallate anions have unit cells that uniquely contain layers of donors packed in *both* the  $\alpha$  and  $\beta''$  packing motifs.

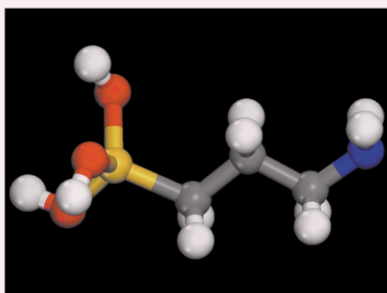


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### The initial stages of aminosilanol polymerisation

Samuel A. French,\* Alexey A. Sokol, C. Richard A. Catlow, Andreas Kornherr and Gerhard Zifferer

For polysiloxanes to be used as a protective coating it is important that proton transfer, a trigger to polymerisation, is a facile process. Here we investigate the initial stages of polycondensation and compare different silanol tail groups and the effect of solvent (isopropanol).

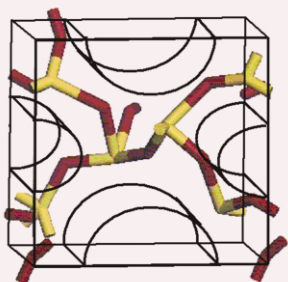


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### The prediction of inorganic crystal framework structures using excluded regions within a genetic algorithm approach

Scott M. Woodley,\* C. Richard A. Catlow, Peter D. Battle and Julian D. Gale

After defining the pore architecture within the unit cell, a genetic algorithm is used to generate plausible microporous frameworks that will relax to give the target structure.



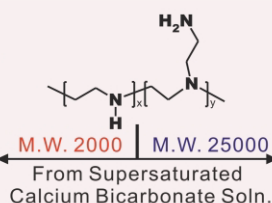
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### Controlled growth of calcium carbonate by poly(ethyleneimine) at the air/water interface

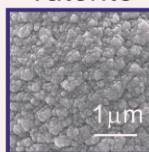
Hyoung Kun Park, Inhyung Lee and Kwan Kim\*

Two metastable calcium carbonate polymorphs, hemispherical vaterite and needle-like aragonite, are selectively formed at the air/water interface by the mediation of poly(ethyleneimine) (with molecular weights of 25000 and 2000, respectively) dissolved in supersaturated calcium bicarbonate solution.

Aragonite



Vaterite

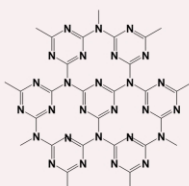
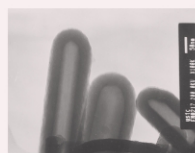
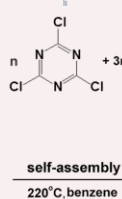


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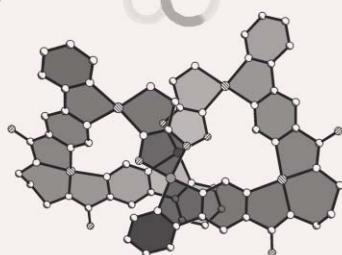
### Synthesis of carbon nitride nanotubes with the $C_3N_4$ stoichiometry via a benzene-thermal process at low temperatures

Qixun Guo, Yi Xie,\* Xinjun Wang, Shuyuan Zhang, Tao Hou and Shichang Lv

We first report the direct synthesis of high-quality carbon nitride nanotubes (CNNTs) with the  $C_3N_4$  stoichiometry *via* a simple benzene-thermal process involving the reaction of  $C_3N_3Cl_3$  with  $NaN_3$  in a Teflon-lined autoclave at 220 °C.



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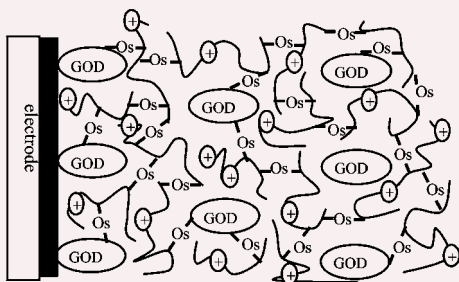


### Self-assembly of a molecular figure-of-eight strip

Kai P. Strotmeyer, Igor O. Fritsky, Hans Pritzkow and Roland Krämer\*

A hexanuclear copper(II) complex with a figure-of-eight strip topology is formed by metal-directed self-assembly of tritopic ligand L, bis-bidentate glycine hydroxamic acid and Cu(II) ions in a 2:2:6 ratio.

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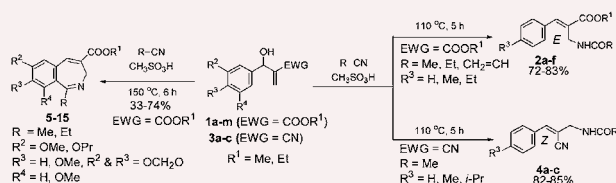


### Layer-by-layer electrodeposition of redox polymers and enzymes on screen-printed carbon electrodes for the preparation of reagentless biosensors

Qiang Gao and Xiurong Yang\*

Layer-by-layer electrodeposition of enzyme/redox polymer bilayers on screen-printed carbon electrodes by coordinative crosslinking with Os centers.

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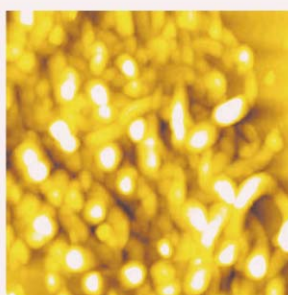


### A novel, tandem construction of C–N and C–C bonds: facile and one-pot transformation of the Baylis–Hillman adducts into 2-benzazepines

Deevi Basavaiah\* and Tummanapalli Satyanarayana

A novel reaction involving tandem construction of C–N and C–C bonds via the simultaneous Ritter and Houben–Hoesch reactions on Baylis–Hillman adducts leading to a convenient, one-pot synthesis of 2-benzazepine derivatives is described. A facile stereoselective transformation of the Baylis–Hillman adducts into (*E*)- and (*Z*)-allyl amide is also presented.

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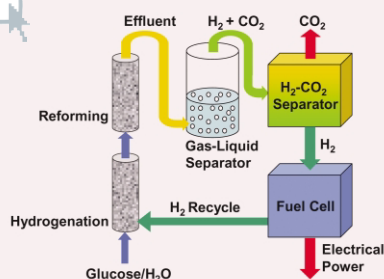


### Preparation of hybrid thin film modified carbon nanotubes on glassy carbon electrode and its electrocatalysis for oxygen reduction

Jiaying Qu, Yan Shen, Xiaohu Qu and Shaojun Dong\*

A new hybrid film electrode exhibiting remarkable electrocatalytic activity for oxygen reduction and high stability with promising applications in fuel cells.

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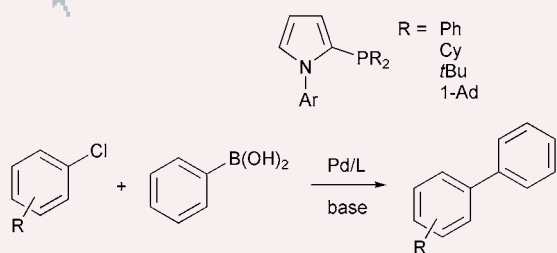


### Renewable hydrogen by aqueous-phase reforming of glucose

Rupali R. Davda and James A. Dumesic\*

Hydrogen can be produced from aqueous solutions containing 10 wt% glucose with high selectivities through the combined use of a hydrogenation reactor for conversion of glucose to sorbitol, followed by a reforming reactor for conversion of sorbitol to H<sub>2</sub> and CO<sub>2</sub> and then a gas–liquid separator for the removal of high-pressure H<sub>2</sub>-rich reformat gas, ready for use in a fuel cell.

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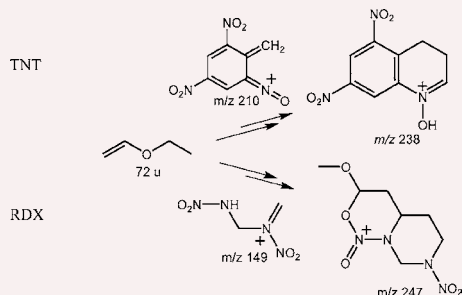


### Practical synthesis of new and highly efficient ligands for the Suzuki reaction of aryl chlorides

Alexander Zapf, Ralf Jackstell, Franck Rataboul, Thomas Riermeier, Axel Monsees, Christa Fuhrmann, Nadim Shaikh, Uwe Dingerdissen and Matthias Beller\*

The synthesis of a novel class of phosphine ligands (PAP ligands) and their use in palladium-catalyzed Suzuki reactions of aryl chlorides is described.

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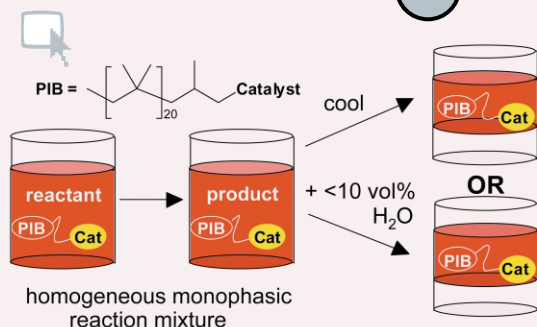


### Gas-phase reactions for selective detection of the explosives TNT and RDX

Eduardo C. Meurer, Hao Chen, Leah Riter, Ismael Cotte-Rodriguez, Marcos N. Eberlin\* and R. Graham Cooks\*

Highly selective gas-phase reactions with ethyl vinyl ether (EVE) of major electron ionization (EI) and chemical ionization (CI) fragment ions of the explosives TNT ( $m/z$  210) and RDX ( $m/z$  149) have been uncovered.

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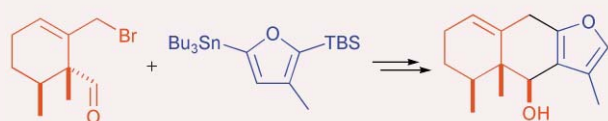


### Terminally functionalized polyisobutylene oligomers as soluble supports in catalysis

David E. Bergbreiter\* and Jun Li

Soluble, terminally functionalized polyisobutylene oligomers that can serve as ligands and catalyst supports in reactions that are monophasic during a reaction and biphasic during a workup are described.

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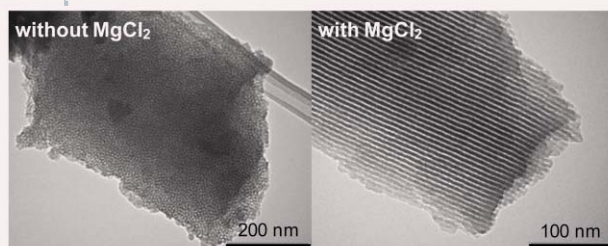


### A new route to furanoeremophilane sesquiterpenoids. Synthesis of (±)-6β-hydroxyeuryopsin

M. Sundaram Shanmugham and James D. White\*

A new route to furanoeremophilane sesquiterpenoids is exemplified by the synthesis of (±)-6β-hydroxyeuryopsin, in which a 2-furylstannane is coupled to a cyclohexylmethyl bromide and intramolecular formylation is used to close the tricyclic skeleton.

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### Synthesis and characterization of large-pore vinyl-functionalized mesoporous silica SBA-15

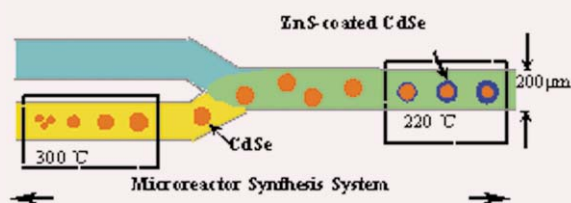
Yanqin Wang, Bodo Zibrowius, Chia-min Yang, Bernd Spliethoff and Ferdi Schüth\*

Ordered mesoporous silicas SBA-15 with high loadings of pendant vinyl groups have been synthesized *via* co-condensation of tetraethoxysilane and triethoxyvinylsilane with a triblock copolymer.

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### Continuous synthesis of CdSe–ZnS composite nanoparticles in a microfluidic reactor

Hongzhi Wang, Xianying Li, Masato Uehara, Yoshiko Yamaguchi, Hiroyuki Nakamura,\* Masaya Miyazaki, Hazime Shimizu and Hideaki Maeda\*

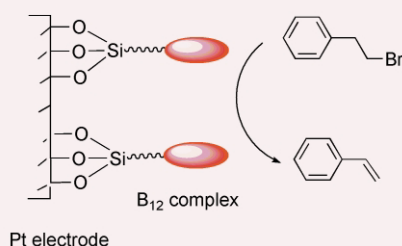


ZnS-coated CdSe composite particles have been continuously synthesized in a microfluidic reactor. By using this system, CdSe particles and a ZnS coating can be produced in sequence, and the particle size and layer thickness can be directly adjusted by the residence time.

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### Preparation and electrochemical behaviour of hydrophobic vitamin B<sub>12</sub> covalently immobilized onto platinum electrode

Hisashi Shimakoshi, Mami Tokunaga, Keita Kuroiwa, Nobuo Kimizuka and Yoshio Hisaeda\*

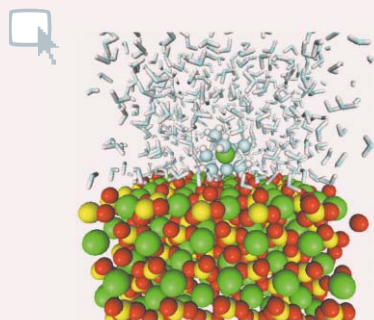


Hydrophobic vitamin B<sub>12</sub> was covalently immobilized onto a platinum electrode surface, and the modified electrode exhibits high activity for dehalogenation of organic halides under irradiation with visible light.

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### Free energy of adsorption of water and calcium on the {10 $\bar{1}$ 4} calcite surface

Sebastien Kerisit and Stephen C. Parker\*

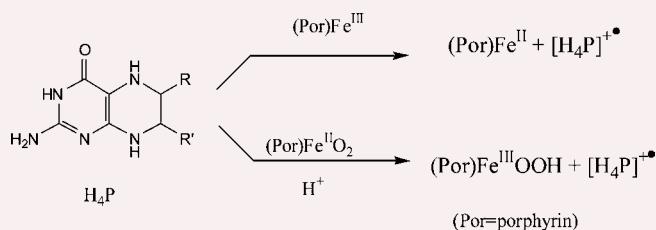


The free energy of adsorption of water and calcium on the most stable calcite surface has been calculated from molecular dynamics simulations.

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### Very general formation of tetrahydropterin cation radicals during reaction of iron porphyrins with tetrahydropterins: model for the corresponding NO-synthase reaction

Delphine Mathieu, Yves-Michel Frapart, Jean François Bartoli, Jean-Luc Boucher, Pierrette Battioni and Daniel Mansuy\*

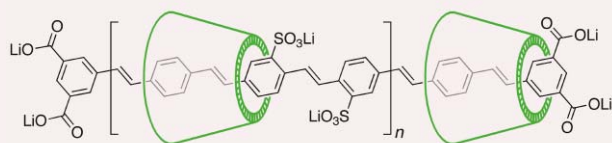


Electron transfer from tetrahydropterins to iron porphyrins, with intermediate formation of tetrahydropterin cation radicals, is a very general reaction occurring between various tetrahydropterins and Fe<sup>III</sup> or Fe<sup>II</sup>O<sub>2</sub> porphyrins, as shown in a first NO-synthase chemical model.

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### Synthesis of poly(*para*-phenylenevinylene) rotaxanes by aqueous Suzuki coupling

Jun Terao, Andrew Tang, Jasper J. Michels, Alexander Krivokapic and Harry L. Anderson\*

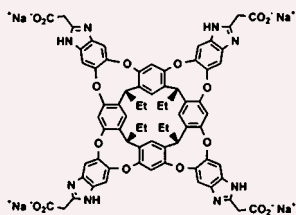


PPV-based polyrotaxanes have been prepared by coupling vinyl boronic acids to aryl iodides in the presence of cyclodextrins. The crystal structure of a [2]rotaxane of this type has been determined.

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**Interactions between a surfactant and cavitand in water blur distinctions between host and guest**

Laurent Trembleau and Julius Rebek Jr\*

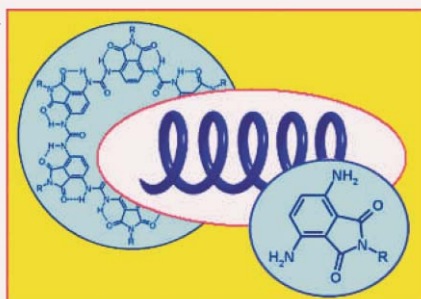


A cavitand host for a surfactant at low concentrations becomes the guest when the critical micelle concentration is reached.

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**Facile synthesis of a chiral polymeric helix; folding by intramolecular hydrogen bonding**

Judith J. van Gorp, Jef A. J. M. Vekemans and E. W. Meijer\*

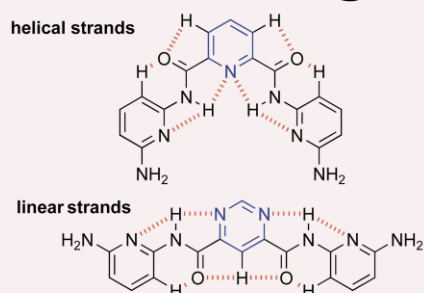


In a single condensation step, a poly-ureidophthalimide is synthesized, which folds into a chiral, helical architecture according to circular dichroism spectroscopy.

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**Structural codons: linearity/helicity interconversion by pyridine/pyrimidine exchange in molecular strands**

Ibon Odriozola, Nathalie Kyritsakas and Jean-Marie Lehn\*

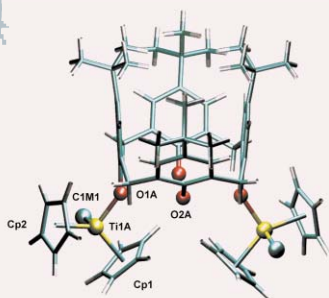


Pyridine and pyrimidine groups connected through amide functions can be combined into specific sequences that self-organize into either helical or linear structures enforced by the formation of intramolecular hydrogen bonds.

64

**Selective 1,3-complexation of *p*-<sup>t</sup>Bu-calix[4]arene by [TiCp<sub>2</sub>Me<sub>2</sub>]**

Antonella J. Petrella, Nicholas K. Roberts, Donald C. Craig, Colin L. Raston and Robert N. Lamb

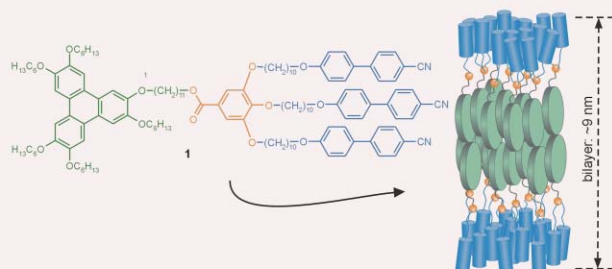


Reaction of *p*-<sup>t</sup>Bu-calix[4]arene with dimethyl titanocene results in high yield selective 1,3-dimetallation of the calixarene in the cone conformation by selective cleavage of one methyl group.

66

**Disc-shaped triphenylenes in a smectic organisation**

Paul H. J. Kouwer, Jahan Pourzand and Georg H. Mehl\*

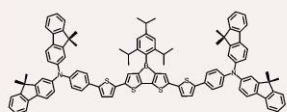


Suitable molecular topology forces disc-shaped mesogens to order into a smectic mesophase. This gives rise to 9 nm sized self-organised structures.

68

**The role of borole in a fully conjugated electron-rich system**

Sanghoon Kim, Kee-hyung Song, Sang Ook Kang\* and Jaejung Ko\*

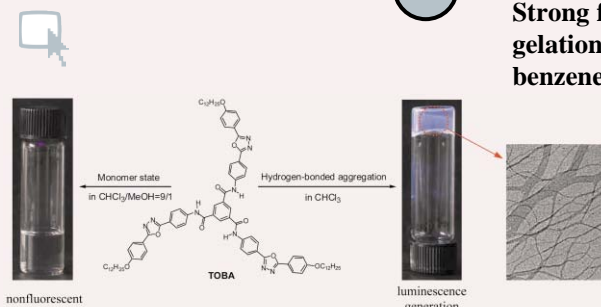


A novel borole with a conjugated electron-rich  $\pi$ -electron system has been designed and its properties studied. The perturbation of the  $\pi$ -electron system influences the photophysical properties and Lewis acidity.

70

**Strong fluorescence emission induced by supramolecular assembly and gelation: luminescent organogel from nonemissive oxadiazole-based benzene-1,3,5-tricarboxamide gelator**

Seung Yeul Ryu, Sehoon Kim, Jangwon Seo, Young-Woon Kim, Oh-Hoon Kwon, Du-Jeon Jang and Soo Young Park\*

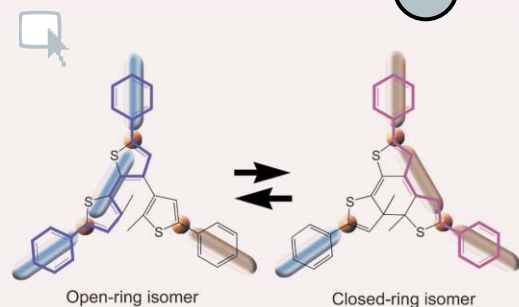


Supramolecular aggregation of a novel nonfluorescent gelator yields highly luminescent organogels in aprotic organic solvents through intermolecular hydrogen bonding, which is a key motif for both self-assembly and photophysical process control.

72

**Photochromism of triangle terthiophene derivatives as molecular re-router**

Tsuyoshi Kawai,\* Taisuke Iseda and Masahiro Irie

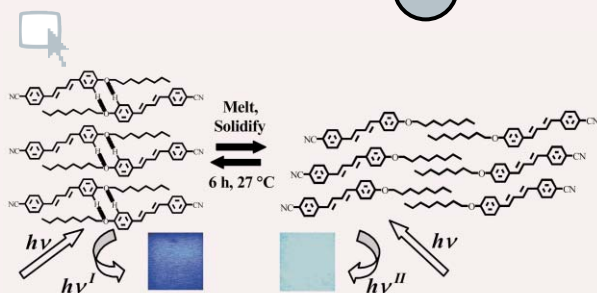


2,2'-3,3''-Terthiophene derivatives undergo photochemically reversible cyclization and cycloreversion reactions. The absorption peak wavelength changed systematically with substitution of the phenyl rings at 5-, 5'- and 5''-positions of the thiophene rings, which indicates re-routing of the  $\pi$ -conjugation system.

74

**Thermally reversible fluorescent polymorphs of alkoxy-cyano-substituted diphenylbutadienes: role of crystal packing in solid state fluorescence**

Riju Davis, Nigam P. Rath and Suresh Das\*

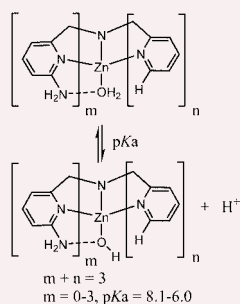


Polymorphism of octyloxy-cyano-substituted diphenylbutadiene possessing crystalline states with distinct fluorescence shows that their solid state fluorescence behaviour is controlled by the monomer–J-aggregate ratio.

76

**Relative importance of hydrogen bonding and coordinating groups in modulating the zinc–water acidity**

Juan C. Mareque-Rivas,\* Ravi Prabakaran and Rafael Torres Martín de Rosales



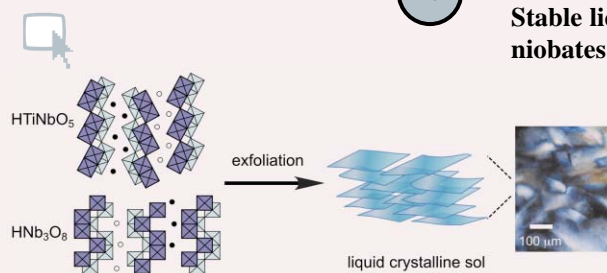
The incorporation of second-sphere  $\text{-NH}_2$  groups around a zinc(II)-bound water molecule can enhance its acidity to a greater extent than for instance lowering the number of the coordinating groups.



78

### Stable liquid crystalline phases of colloiddally dispersed exfoliated layered niobates

Teruyuki Nakato,\* Nobuyoshi Miyamoto and Akiko Harada

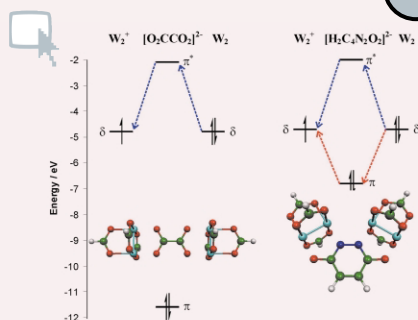


Colloiddally dispersed niobium oxide nanosheets obtained by exfoliation of layered niobates  $\text{HNb}_3\text{O}_8$  and  $\text{HTiNbO}_5$  form stable liquid crystalline phases, and the liquid crystallinity is dependent on the niobate species exfoliated.

80

### 3,6-Dioxypyridazine bridged tungsten–tungsten quadruple bonds. Comparisons of electron delocalisation with oxalate bridged compounds

Malcolm H. Chisholm,\* Robin J. H. Clark,\* Christopher M. Hadad\* and Nathan J. Patmore

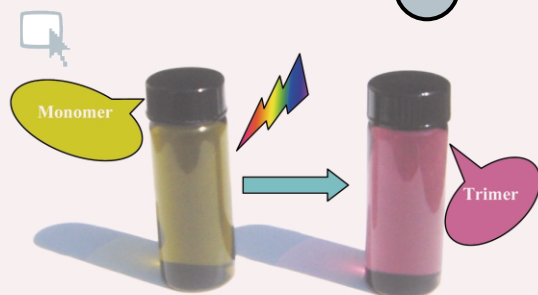


The preparation and characterisation of the tungsten–tungsten quadruply bonded, 3,6-dioxypyridazine bridged complex  $[(\text{BuCO}_2)_3\text{W}]_2(\mu\text{-H}_2\text{C}_4\text{N}_2\text{O}_2)$  and its single electron oxidised radical cation are reported and, when compared with related bridged dimolybdenum complexes, reveal a different mechanism of electronic coupling from that seen in related oxalate bridged systems.

84

### Novel ambient light induced trimerization of a simple copper(II) monomeric Schiff base complex

Manas K. Saha, Ivan Bernal\* and Frank R. Fronczek

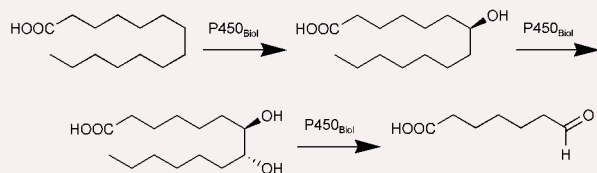


Room temperature, light promoted trimerization of a monomeric complex  $[\text{Cu}(\text{HL})(\text{L})](\text{NO}_3)\cdot\text{H}_2\text{O}$  ( $\text{HL} = N,N$ -dimethyl- $N'$ -propyl salicylideneimine) dissolved in  $\text{CH}_2\text{Cl}_2$ , was observed with the concomitant generation of new ligand moiety ( $\text{ClCH}_2\text{L}$ ).

86

### Carbon–carbon bond cleavage by cytochrome P450<sub>Biol</sub> (CYP107H1)

Max J. Cryle and James J. De Voss\*



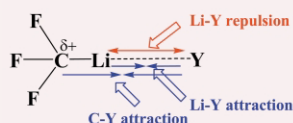
The multifunctional P450<sub>Biol</sub> cleaves an in-chain C–C bond of fatty acids *via* consecutive formation of alcohol and *threo*-diol intermediates. The likely absolute stereochemistry of this process is reported.

88

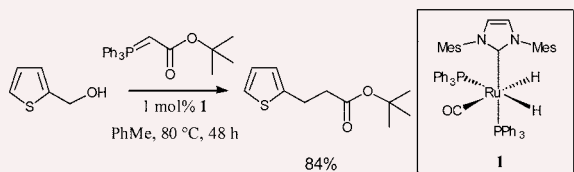
### Blue-shifted lithium bonds

Yong Feng, Lei Liu,\* Jin-Ti Wang, Xiao-Song Li and Qing-Xiang Guo\*

A number of lithium bonding systems ( $\text{X-Li}\cdots\text{Y}$ ) have been found in which the X–Li bond is shortened due to the lithium bond formation.



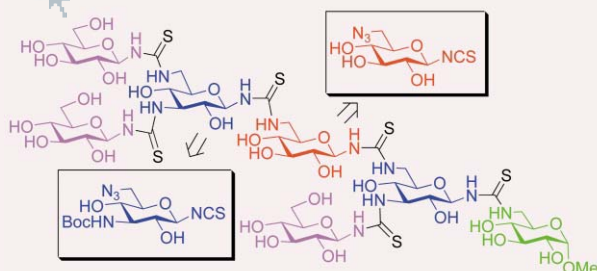
90

**Borrowing hydrogen: a catalytic route to C–C bond formation from alcohols**

Michael G. Edwards, Rodolphe F. R. Jazzar, Belinda M. Paine, Duncan J. Shermer, Michael K. Whittlesey,\* Jonathan M. J. Williams\* and Dean D. Edney

Ruthenium catalysts are described that will effect C–C bond formation through the indirect Wittig reaction of alcohols under mild conditions. The highest activity is found with an N-heterocyclic carbene based complex, which catalyses the reaction of a range of alcohols with phosphorane ester ylides at 80 °C in 24–48 h.

92

**A general entry to linear, dendritic and branched thiourea-linked glycooligomers as new motifs for phosphate ester recognition in water**

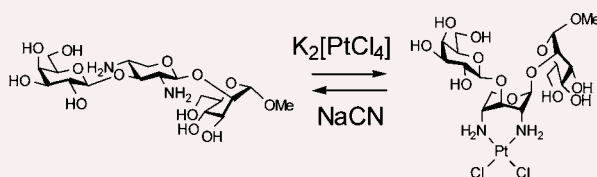
José L. Jiménez Blanco, Purificación Bootello, Carmen Ortiz Mellet,\* Ricardo Gutiérrez Gallego and José M. García Fernández\*

Using sugar azido(carbamate) isothiocyanates as key templates provides a simple approach to a novel class of thiourea-linked full-carbohydrate architectures.

94

**Switching extended 1,3-diequatorial and bent 1,3-diaxial states of a disubstituted hinge sugar by ligand exchange reactions on Pt(II)**

Takuhiko Izumi, Hironobu Hashimoto and Hideya Yuasa\*

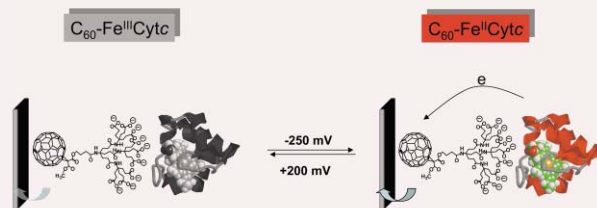


A novel carbohydrate-based turn motif is obtained by chelation of the diamino groups of a hinged trisaccharide to Pt(II), in which both end sugars are presented in 1,3-diaxial orientation. The original extended trisaccharide can be recovered by a ligand exchange reaction with NaCN or thiourea.

96

**Electrostatically arranged cytochrome *c*-fullerene photoelectrodes**

Israel Zilbermann, Andrew Lin, Maria Hatzimarinaki, Andreas Hirsch\* and Dirk M. Guldi\*

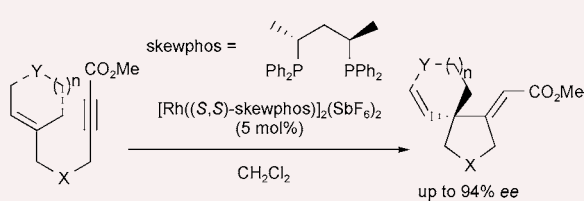


We have developed a molecular-level switch—a C<sub>60</sub>/cytochrome *c* modified ITO electrode—that reversibly transmits and processes solar energy. Electrochemical switching of the iron center (*i.e.*, from Fe(III) to Fe(II)) leads to a 10-fold amplification of the photocurrent.

98

**Highly enantioselective spiro cyclization of 1,6-enynes catalyzed by cationic skewphos rhodium(I) complex**

Koichi Mikami,\* Yukinori Yusa, Manabu Hatano, Kazuki Wakabayashi and Kohsuke Aikawa



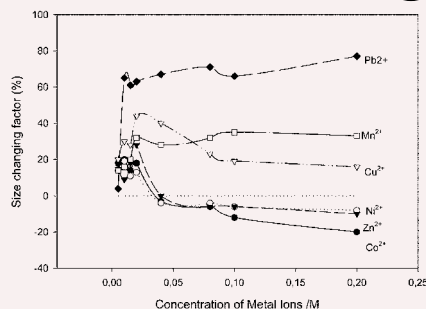
A highly enantioselective cationic rhodium(I) complex having a skewphos ligand is shown to be an efficient catalyst for asymmetric carbocyclization of 1,6-enynes with tri-substituted olefins to control quaternary stereogenic centers of spiro-rings.

100

### Large macroscopic size changes in chemomechanical polymers with binding sites for metal ions

Hans-Jörg Schneider\* and Tianjun Liu

The implementation of binding sites for transition metal ions in flexible hydrogels allows for the first time to translate molecular recognition events into metal-induced, fully reversible macroscopic movements.

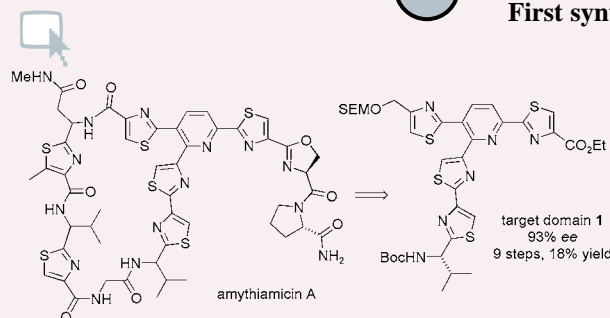


102

### First synthesis of an amythiamicin pyridine cluster

Mark C. Bagley,\* James W. Dale, Robert L. Jenkins and Justin Bower

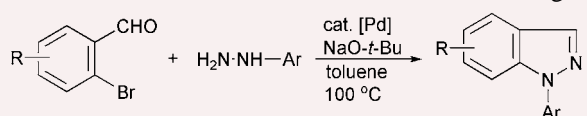
A tetrathiazolopyridine building block that represents the protected central heterocyclic domain of the amythiamicin family of thiopeptide antibiotics has been prepared in 93% *ee* by a modified Bohlmann–Rahtz reaction.



104

### Facile palladium-catalysed synthesis of 1-aryl-1H-indazoles from 2-bromobenzaldehydes and arylhydrazines

Chan Sik Cho,\* Dong Kwon Lim, Nam Ho Heo, Tae-Jeong Kim and Sang Chul Shim\*



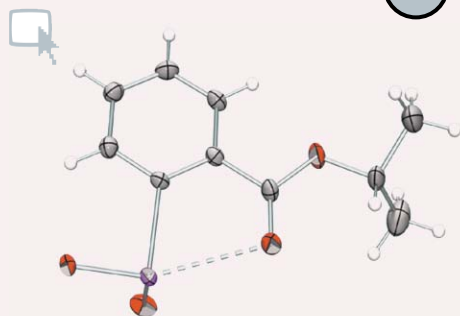
1-Aryl-1H-indazoles are conveniently synthesised from 2-bromobenzaldehydes and arylhydrazines in the presence of a palladium catalyst and NaO-*t*-Bu.

106

### Preparation and structure of 2-iodoxybenzoate esters: soluble and stable periodinane oxidizing reagents

Viktor V. Zhdkankin,\* Dmitry N. Litvinov, Alexey Y. Koposov, Thanh Luu, Michael J. Ferguson, Robert McDonald and Rik R. Tykwinski\*

Esters of 2-iodoxybenzoic acid (IBX-esters) are potentially valuable oxidizing reagents belonging to a new class of pentavalent iodine compounds with a pseudo benziodoxole structure.

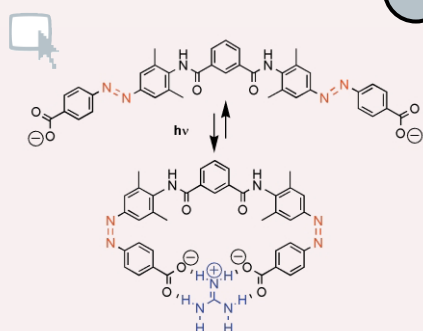


108

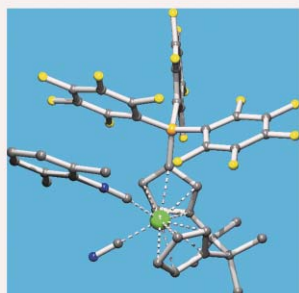
### Photomodulated molecular recognition of the guanidinium cation

Christopher A. Hunter,\* Mahmut Togrul and Salvador Tomas

Azobenzene moieties were incorporated into a synthetic receptor allowing its affinity for the guanidinium cation to be modulated ten-fold by photoirradiation and/or heating.



110

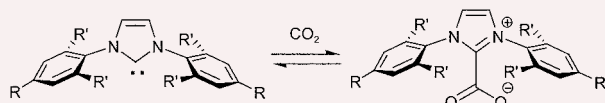


### Isolation and structural characterization of the first thermally robust and air stable Cr(4+) bent-metalocene complex

Piet-Jan Sinnema, Justin Nairn, Ralph Zehnder, Pamela J. Shapiro,\* Brendan Twamley and Alex Blumenfeld

The first thermally robust and air stable bent-sandwich chromocene complex with chromium in the +4 oxidation state has been isolated and fully characterized.

112

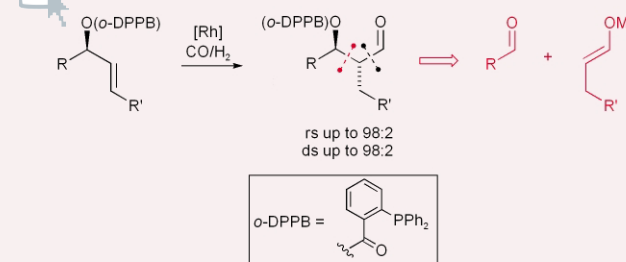


### Reversible carboxylation of N-heterocyclic carbenes

Hung A. Duong, Thomas N. Tekavec, Atta M. Arif and Janis Louie\*

A series of imidazolium carboxylates were prepared from the corresponding N-heterocyclic carbenes or imidazolylidene salts. Spectroscopic analysis, thermogravimetric analysis, and crossover experiments revealed carboxylation was reversible with *N*-aryl substituted adducts.

114

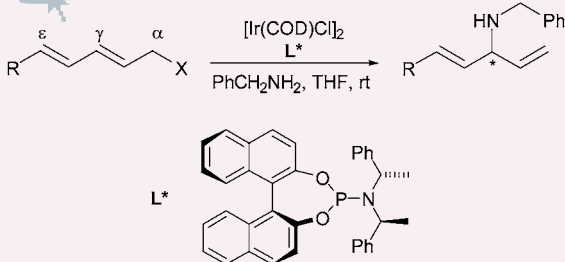


### Directed regio- and stereoselective hydroformylation of mono- and 1,3-disubstituted allylic alcohols: a catalytic approach to the *anti*-aldol-retron

Bernhard Breit,\* Peter Demel and Antje Gebert

Directed regio- and stereoselective hydroformylation of allylic alcohol *o*-DPPB esters with internal and terminal double bonds provides access to the *anti*-aldol retron in good regio- and diastereoselectivity.

116

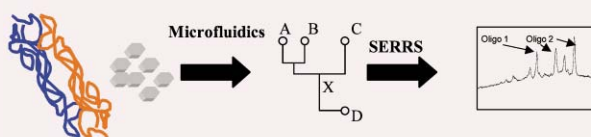


### Regio- and enantioselective iridium-catalysed allylic aminations and alkylations of dienyl esters

Gunter Lipowsky and Günter Helmchen\*

Iridium-catalysed allylic aminations and alkylations of dienyl substrates, using phosphorus amidites as ligands, provided ee values of up to 97% for aminations and of up to 90% for alkylations. Enantioselective aminations of dienyl esters have not been previously reported.

118

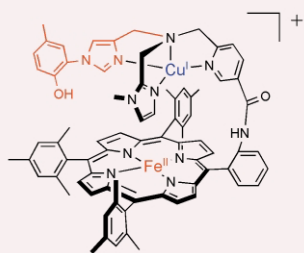


### The first SERRS multiplexing from labelled oligonucleotides in a microfluidics lab-on-a-chip

Frances T. Docherty, Paul B. Monaghan, Ruth Keir, Duncan Graham, W. Ewen Smith\* and J. M. Cooper

For the first time, three labelled oligonucleotides have been simultaneously detected in a microfluidics device by SERRS. *E. coli* sequences and a portable spectrometer are used in the first step towards rapid multiplexed clinical analysis.

120



### Formation and spectroscopic characterization of the dioxygen adduct of a heme–Cu complex possessing a cross-linked tyrosine–histidine mimic: modeling the active site of cytochrome *c* oxidase

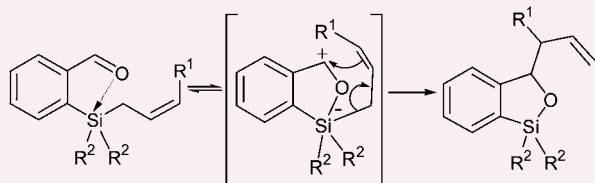
Jin-Gang Liu, Yoshinori Naruta,\* Fumito Tani, Takefumi Chishiro and Yoshimitsu Tachi

A binucleating porphyrin with covalently appended copper chelates having a cross-linked imidazole–phenol group as the active site model of CcO has been prepared and the formation of the corresponding dioxygen adduct with its iron(II)–copper(I) complex was spectroscopically characterized.

122

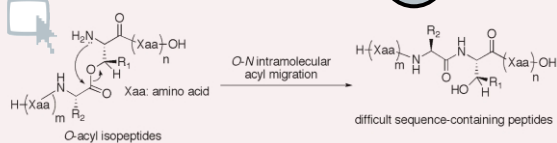
### A new synthesis of 1,3-dihydrobenzo[1,2]oxasiloles by a novel rearrangement of a pentavalent silicon intermediate

George Bashiardes,\* Vanessa Chaussebourg, Géraldine Laverdan and Jacques Pornet



A new synthesis of 1,3-dihydrobenzo[1,2]oxasiloles is described from *ortho*-allylsilyl benzaldehydes, wherein an unprecedented intramolecular allylic transposition takes place, probably involving a pentavalent silicon intermediate.

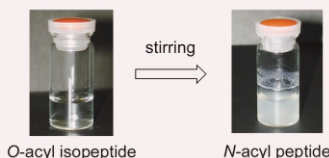
124



### Novel and efficient synthesis of difficult sequence-containing peptides through *O*–*N* intramolecular acyl migration reaction of *O*-acyl isopeptides

Youhei Sohma, Masato Sasaki, Yoshio Hayashi,\* Tooru Kimura and Yoshiaki Kiso\*

A novel and efficient method for the synthesis of difficult sequence-containing peptides has been developed based on the synthesis of *O*-acyl isopeptides followed by an *O*–*N* intramolecular acyl migration reaction, resulting in a remarkable improvement of the yields.



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