**Cover (far left)**

Oxygen atom transfer (OAT) reaction of perchlorate catalyzed by a rhenium oxazoline complex.

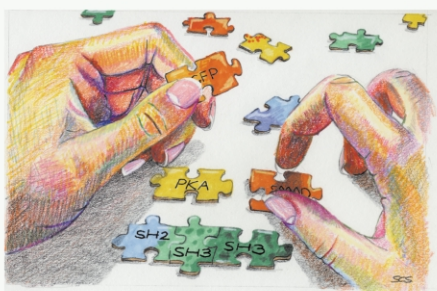
**Inside cover (left)**

A donor-acceptor modified DNA hairpin model being used to study charge hopping kinetics in DNA.

# contents

## FOCUS ARTICLE

2087



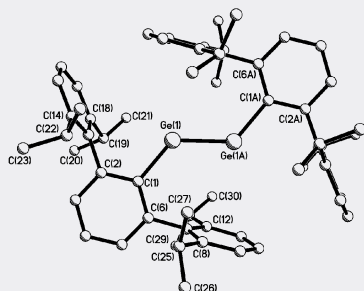
### “The splice is right”: how protein splicing is opening new doors in protein science

Edmund C. Schwartz, Tom W. Muir\* and Amy B. Tyszkiewicz

In the decade since the discovery of protein splicing, this natural process has been exploited to develop novel techniques that have expanded the scope of protein science. These techniques are being adapted for *in-vivo* use, facilitating the study of proteins in their natural environment.

## FEATURE ARTICLE

2091



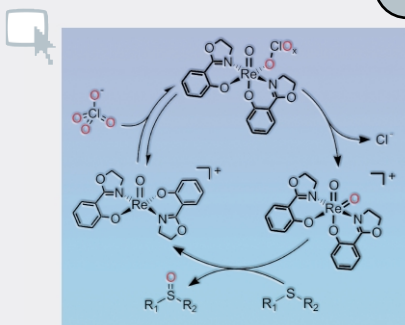
### Silicon, germanium, tin and lead analogues of acetylenes

Philip P. Power

Current work on the synthesis, characterization and bonding in the heavier group 14 element (Si–Pb) analogues of alkynes is described and discussed.

## FEATURE ARTICLE

2102



### Swift oxo transfer reactions of perchlorate and other substrates catalyzed by rhenium oxazoline and thiazoline complexes

Mahdi M. Abu-Omar

Oxorhenium(v) oxazoline and thiazoline complexes catalyze the reduction of perchlorate by pure atom transfer. The reaction kinetics and chemical mechanisms of oxo transfer to and from these catalysts as well as their comparative reactivity have been delineated.

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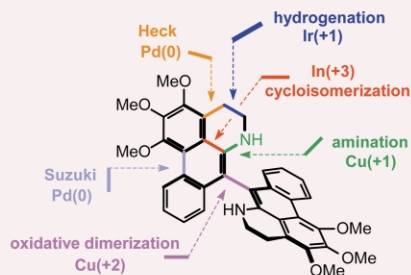
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2112

### Concise total synthesis of the aporphine alkaloid 7,7'-bisdehydro-*O*-methylisopiline by an $\text{InCl}_3$ mediated cycloisomerization reaction

Alois Fürstner\* and Victor Mamane

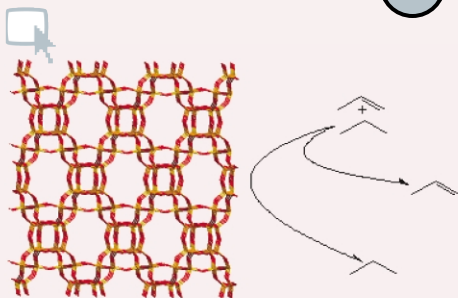


A novel  $\text{InCl}_3$  mediated cycloisomerization reaction leading to 10-halophenanthrene derivatives constitutes the key step of the first total syntheses of *O*-methyldehydroisopiline **10** and 7,7'-bisdehydro-*O*-methylisopiline **11**, two prototype members of the aporphine family of alkaloids.

2114

### ITQ-12: a new microporous silica polymorph potentially useful for light hydrocarbon separations

Philip A. Barrett, Teresa Boix, Marta Puche, David H. Olson, Edgar Jordan, Hubert Koller and Miguel A. Cambor\*

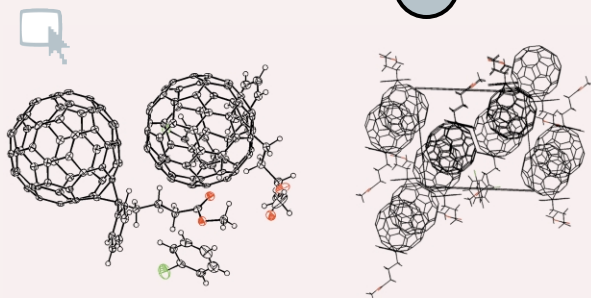


By the cooperative structure-direction effects of fluoride and organic ions we synthesized a silica polymorph with a new zeolite topology and a high potential for separation of propene and propane.

2116

### Influence of the solvent on the crystal structure of PCBM and the efficiency of MDMO-PPV:PCBM 'plastic' solar cells

Minze T. Rispens, Auke Meetsma, Roman Rittberger, Christoph J. Brabec, N. Serdar Sariciftci and Jan C. Hummelen\*

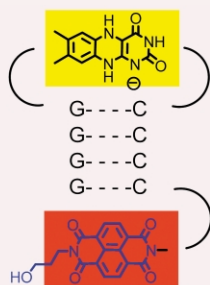


Two crystal structures of methanofullerene PCBM, obtained from chlorobenzene (see picture) and *ortho*-dichlorobenzene, are presented. A proposed link with solvent dependence on the efficiency of MDMO-PPV:PCBM solar cells is described.

2120

### Development of donor–acceptor modified DNA hairpins for the investigation of charge hopping kinetics in DNA

Nicole Rahe, Cornelia Rinn and Thomas Carell\*

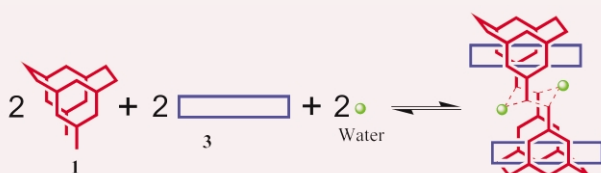


The development of novel DNA-based donor–acceptor model compounds for the measurement of the electron transfer kinetics in DNA by either fluorescence lifetime or using time resolved absorption are described.

2122

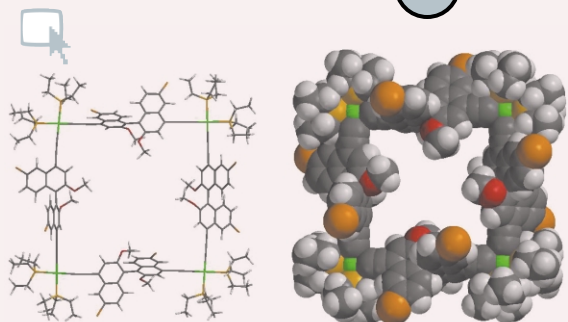
### Water assisted formation of a pseudorotaxane and its dimer based on a supramolecular cryptand

Feihe Huang, Lev N. Zakharov, Arnold L. Rheingold, Jason W. Jones and Harry W. Gibson\*



For the first time it was shown that water can act as a “molecular clip” to form a supramolecular cryptand structure which improves complexation with a diammonium salt, leading to a pseudorotaxane, which forms a dimer in the solid state as shown by X-ray analysis.

2124

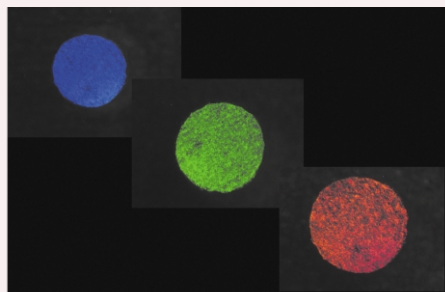


### Directed assembly of chiral organometallic squares that exhibit dual luminescence

Suk Joong Lee, Charles R. Luman, Felix N. Castellano and Wenbin Lin\*

Chiral molecular squares based on the Pt–alkynyl linkage were synthesized *via* stepwise directed assembly, and characterized by  $^1\text{H}$ ,  $^{13}\text{C}\{^1\text{H}\}$ , and  $^{31}\text{P}\{^1\text{H}\}$  NMR, MS, IR, UV-Vis, and circular dichroism (CD) spectroscopies, and microanalysis. They exhibit interesting dual luminescence at room temperature, and are thus potentially exploitable as chiral sensory materials.

2126

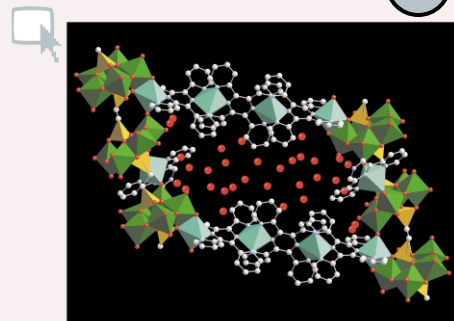


### Simple and precision design of porous gel as a visible indicator for ionic species and concentration

Hisashi Saito, Yukikazu Takeoka\* and Masayoshi Watanabe\*

The rapid-responsive porous gel which reveals color changes depending on a potassium ion concentration was prepared using a templating technique.

2128

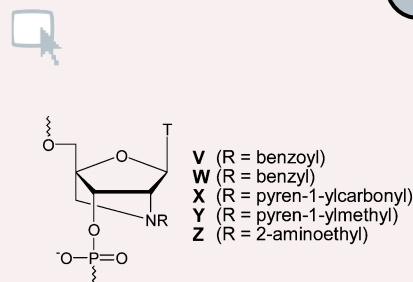


### A building block approach to the synthesis of organic–inorganic oxide materials: the hydrothermal synthesis and network structure of $[\{\text{Ni}_4(\text{tpypy}\text{z})_3\}\{\text{Mo}_5\text{O}_{15}(\text{O}_3\text{PCH}_2\text{CH}_2\text{PO}_3)_2\}]_2 \cdot 23\text{H}_2\text{O}$ (tpypy = tetra-2-pyridylpyrazine)

Eric Burkholder, Vladimir Golub, Charles J. O'Connor and Jon Zubietta\*

Hydrothermal synthesis allows the isolation of a two-dimensional organic–inorganic hybrid material, constructed in a building block approach from chains of linked  $[\text{Mo}_5\text{O}_{15}(\text{O}_3\text{P}(\text{CH}_2)_4\text{PO}_3)]^{4-}$  clusters and  $[\text{Ni}_4(\text{tpypy}\text{z})_3]^{8+}$  linear aggregates.

2130

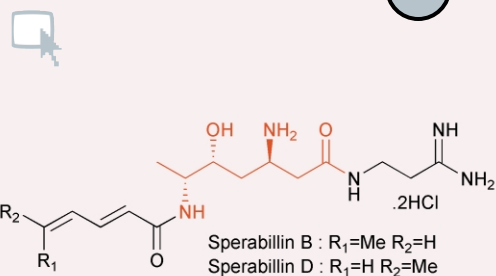


### Functionalized LNA (locked nucleic acid): high-affinity hybridization of oligonucleotides containing N-acylated and N-alkylated 2'-amino-LNA monomers

Mads D. Sørensen, Michael Petersen and Jesper Wengel\*

The 2' nitrogen atom of 2'-amino-LNA monomers is shown, by molecular dynamics simulation and thermal denaturation studies, to be very suitable for functionalization of high-affinity oligonucleotides.

2132



### Total asymmetric synthesis of sperabillins B and D

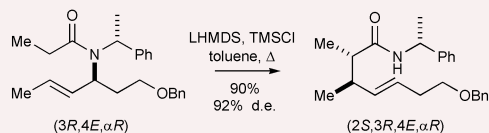
Stephen G. Davies,\* Richard J. Kelly and Anne J. Price Mortimer

A concise route to the core fragment of sperabillins B and D, methyl (3*R*,5*R*,6*R*)-3,6-diamino-5-hydroxyheptanoate, has been developed with a subsequent novel protection strategy allowing the total asymmetric synthesis of sperabillins B and D.

2134

**Double diastereoselective [3,3]-sigmatropic aza-Claisen rearrangements**

Stephen G. Davies,\* A. Christopher Garner, Rebecca L. Nicholson, James Osborne, Edward D. Savory and Andrew D. Smith

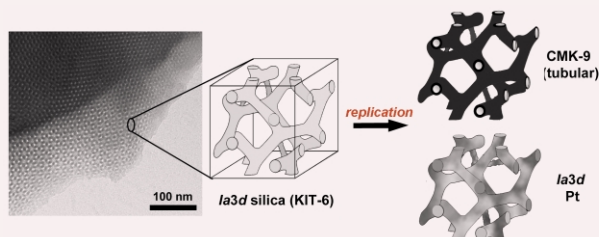


Asymmetric [3,3]-sigmatropic aza-Claisen rearrangement of the *(Z)*-*N*-allyl-*N,O*-silylketene aminal of *(3S,4E,αR)*-1-benzyloxy-3-(*N*-propionyl-*N*- $\alpha$ -methylbenzylamino)hex-4-ene furnishes *(2S,3R,4E,αR)*-*N*- $\alpha$ -methylbenzyl-2,3-dimethyl-7-benzyloxyhept-4-enamide in >92% d.e.; rearrangement of the diastereomeric *(3R,4E,αR)*-*(Z)*-*N,O*-silylketene aminal proceeds with low diastereoselectivity.

2136

**Cubic *Ia3d* large mesoporous silica: synthesis and replication to platinum nanowires, carbon nanorods and carbon nanotubes**

Freddy Kleitz, Shin Hei Choi and Ryong Ryoo\*



A new synthesis route to high-quality large mesoporous cubic *Ia3d* silica is reported, utilizing a triblock copolymer ( $\text{EO}_{20}\text{PO}_{70}\text{EO}_{20}$ )-butanol mixture for the structure direction in aqueous solution, with systematic tuning of pore diameters from 4 to 12 nm. TEM imaging of Pt nanowires and inverse carbon replications ascertain pore shape and connectivity.

2138

**Synthesis of thermally stable mesoporous cerium oxide with nanocrystalline frameworks using mesoporous silica templates**

S. C. Laha and R. Ryoo\*

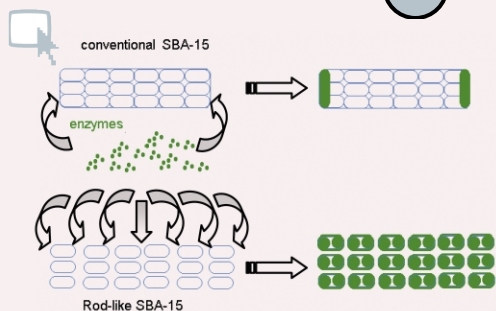


Highly ordered mesoporous cerium oxides with uniform mesopore sizes, exhibiting high thermal stability, were synthesized using mesoporous silica templates with hexagonal *p6mm* and cubic *Ia3d* symmetries.

2140

**Rapid and high-capacity immobilization of enzymes based on mesoporous silicas with controlled morphologies**

Jie Fan, Jie Lei, Limin Wang, Chengzhong Yu,\* Bo Tu and Dongyuan Zhao\*

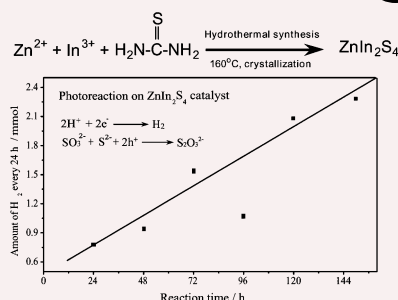


Very rapid (<10 min to reach equilibrium) and high-capacity (up to 533  $\text{mg g}^{-1}$ ) immobilization of enzymes within mesoporous silica has been achieved by finely tuning their morphologies.

2142

**Photocatalytic water reduction under visible light on a novel  $\text{ZnIn}_2\text{S}_4$  catalyst synthesized by hydrothermal method**

Zhibin Lei, Wansheng You, Meiyong Liu, Guohua Zhou, Tuyoshi Takata, Michikazu Hara, Kazunari Domen\* and Can Li\*



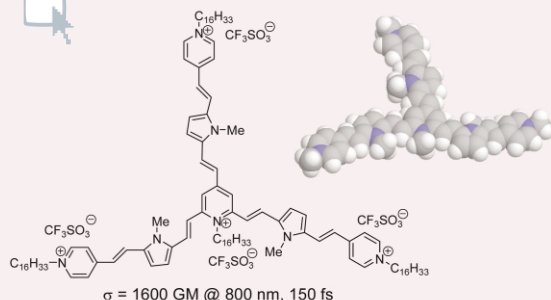
A novel  $\text{ZnIn}_2\text{S}_4$  catalyst synthesized by hydrothermal method shows high and stable photocatalytic activity for water reduction under visible light illumination.

2144

**Novel heteroaromatic-based multi-branched dyes with enhanced two-photon absorption activity**

Alessandro Abbotto,\* Luca Beverina, Renato Bozio, Antonio Facchetti, Camilla Ferrante, Giorgio A. Pagani,\* Danilo Pedron and Raffaella Signorini

The first example of heterocycle-based multi-branched dyes with large two-photon absorption activity and strong cooperative enhancement is described.

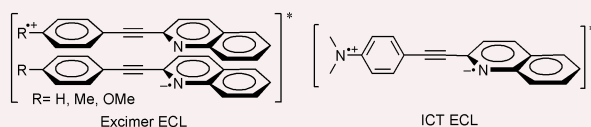


2146

**First synthesis and electrogenerated chemiluminescence of novel *p*-substituted phenyl-2-quinolinylethyne**

Arumugasamy Elangovan, Ting-Yu Chen, Chih-Yuan Chen and Tong-Ing Ho\*

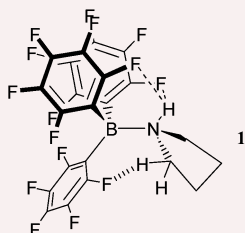
Electrogenerated radical ions of strong donor substituted phenyl-2-quinolinylethyne emit blue-green light from the excited intramolecular charge transfer (ICT) state while those without strong donor groups exhibit excimer electrogenerated chemiluminescence.



2148

**Intra- and inter-molecular C–H⋯F–C and N–H⋯F–C hydrogen bonding in secondary amine adducts of B(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>: relevance to key interactions in alkene polymerisation catalysis**

Andrew J. Mountford, David L. Hughes and Simon J. Lancaster\*

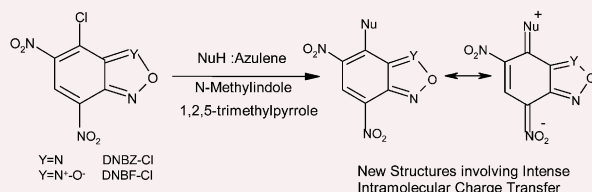
The reactions between the cyclic *sec.* amines pyrrolidine and piperidine with B(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub> yield Lewis acid–base adducts with both intra- and inter-molecular hydrogen bonding interactions between C–H and N–H groups and aryl-fluorines in the solid state.

2150

**Superelectrophilic heterocycles: facile S<sub>N</sub>Ar–S<sub>E</sub>Ar couplings involving very weak carbon nucleophiles**

Sergey Kurbatov, Pedro Rodriguez-Dafonte, Régis Goumont and François Terrier\*

Superelectrophilic halonitro-2,1,3-benzoxadiazoles undergo remarkably facile carbon–carbon couplings with some electron-rich aromatics and heteroaromatics, affording quantitatively products exhibiting an intense intramolecular charge transfer.

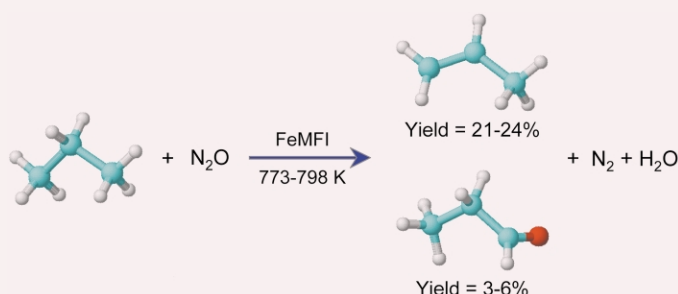


2152

**Steam-activated FeMFI zeolites as highly efficient catalysts for propane and N<sub>2</sub>O valorisation *via* oxidative conversions**

Javier Pérez-Ramírez\* and Evgueni V. Kondratenko

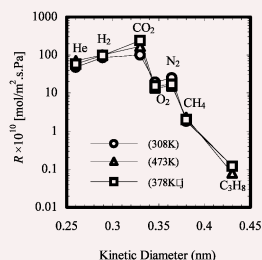
Steam-activated FeMFI zeolites with different distribution of iron species are highly efficient catalysts for oxidative conversion of propane with nitrous oxide, with yields towards propene and propionaldehyde up to 24% and 6%, respectively.



2154

**Preparation and gas separation properties of zeolite T membrane**

Ying Cui, Hidetoshi Kita and Ken-ichi Okamoto\*

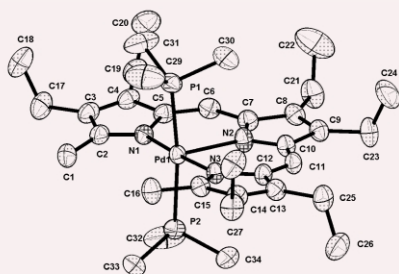


Zeolite T membrane selectively permeated CO<sub>2</sub> from CO<sub>2</sub>/CH<sub>4</sub> and CO<sub>2</sub>/N<sub>2</sub> mixtures with high separation performances, which were due to combined effects of molecular sieving and competitive adsorption.

2156

**A five coordinate Pd<sup>II</sup> complex stable in solution and in the solid state**

Martin Bröring\* and Carsten D. Brandt

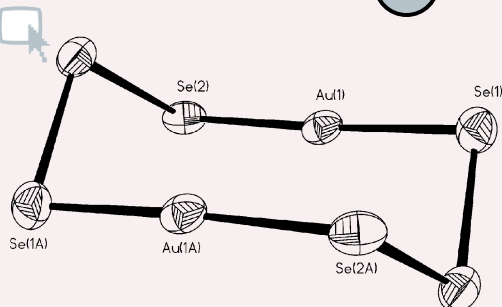


A pentacoordinate Pd<sup>II</sup> complex stable towards dissociation in solution was obtained by blocking the access of one *in-plane* coordination site.

2158

**[TeSe<sub>3</sub>]<sup>2-</sup> and [TeSe<sub>2</sub>]<sup>2-</sup> as synthons**

Sergey M. Dibrov and James A. Ibers\*

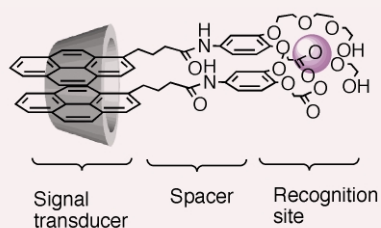


The [Au<sub>2</sub>(TeSe<sub>2</sub>)<sub>2</sub>]<sup>2-</sup> anion from the reaction of [TeSe<sub>3</sub>]<sup>2-</sup> with AuCN in DMF in the presence of PEt<sub>3</sub> or from the reaction of [TeSe<sub>2</sub>]<sup>2-</sup> with AuCN in DMF.

2160

**Highly selective recognition of lead ion in water by a podand fluoroionophore/ $\gamma$ -cyclodextrin complex sensor**

Takashi Hayashita,\* Dai Qing, Masakazu Minagawa, Jong Chan Lee, Chang Hoe Ku and Norio Teramae

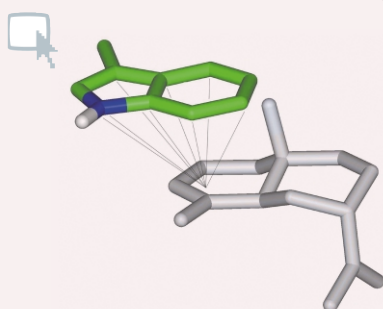


We report a novel podand fluoroionophore/ $\gamma$ -cyclodextrin ( $\gamma$ -CyD) complex sensor that shows markedly high selectivity for lead (Pb<sup>2+</sup>) ion in water.

2162

**Stabilisation of eudesmane cation by tryptophan 334 during aristolochene synthase catalysis**

Athina Deligeorgopoulou, Susan E. Taylor, Silvia Forcat and Rudolf K. Allemann\*



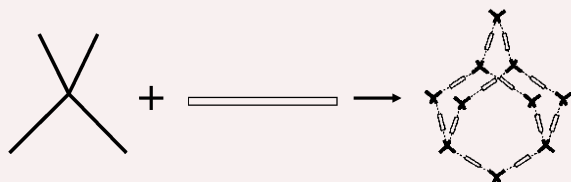
During catalysis by aristolochene synthase from *Penicillium roqueforti*, Trp 334 has a pivotal function for the efficient production of aristolochene from farnesyl pyrophosphate, most likely by stabilising the intermediate, eudesmane cation.

2164



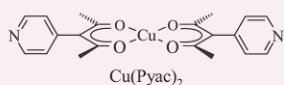
### The design and synthesis of a non-centric diamond-like network based $\text{NH}_4^+$ ion

Bao-Qing Ma, Hao-Ling Sun and Song Gao\*



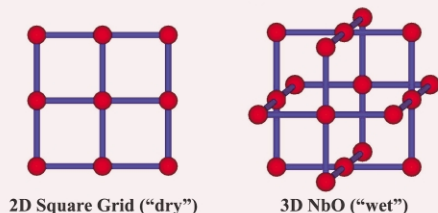
Assembly of a tetrahedral ammonium ion and linear spacers generates two novel 2D and 3D hydrogen bonded supramolecular networks which crystallize in polar space groups. The latter also exhibits an expected diamond architecture.

2166



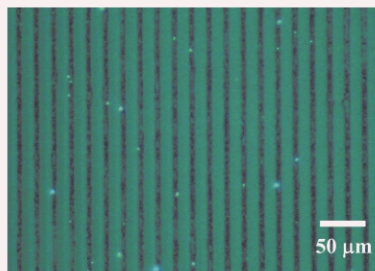
### Solvent-dependent $4^4$ square grid and $6^4.8^2$ NbO frameworks formed by $\text{Cu}(\text{Pyac})_2$ (bis[3-(4-pyridyl)pentane-2,4-dionato]copper(II))

Banglin Chen, Frank R. Fronczek and Andrew W. Maverick\*



$\text{Cu}(\text{Pyac})_2$  crystallizes in two different structures: a square-grid structure (from anhydrous solvents) and a porous 3D structure with the NbO topology (from wet solvents).

2168

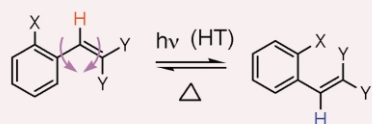


### Site-selective dye deposition on microstructures of fused silica fabricated using the LIBWE method

Ximing Ding, Yoshizo Kawaguchi, Tadatake Sato, Aiko Narazaki and Hiroyuki Niino\*

Using the laser-induced backside wet etching (LIBWE) method, and in conjunction with SAMs, fine microstructures with controllable surface properties were fabricated on the surface of fused silica plates, followed by site-selective deposition of dye molecules and proteins.

2170

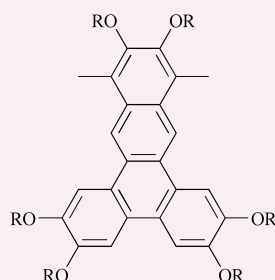


### Conformational isomerizations of symmetrically substituted styrenes. No-reaction photoreactions by Hula-twist

Govindarajan Krishnamoorthy, Alfred E. Asato and Robert S. H. Liu\*

Symmetrically substituted styrenes not known for their photoreactivity have yielded thermally unstable photoproducts in low temperature organic glass. Their formation is consistent with the recently postulated Hula-twist mechanism of photoisomerization.

2172



### Synthesis of a hexaalkoxybenzo[b]triphenylene mesogen

Kevin Lau, Johan Foster and Vance Williams\*

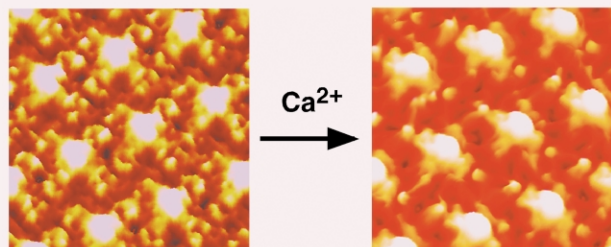
The synthesis of the first mesogenic hexaalkoxybenzo[b]triphenylene derivative is reported; this compound exhibits a broad columnar liquid crystal phase at temperatures only slightly above room temperature.



2174

**Host–guest recognition of calcium by crown-ether substituted phthalocyanine array on Au(111): relationship between crown moieties and gold lattice**

Soichiro Yoshimoto, Koji Suto, Kingo Itaya\* and Nagao Kobayashi\*

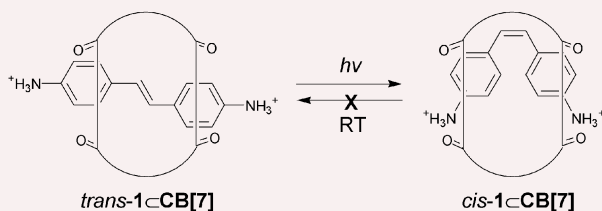


In the presence of 1 mM  $\text{Ca}^{2+}$ , two  $\text{Ca}^{2+}$  ions were trapped in two diagonally located 15-crown-5-ether moieties of 15-crown-5-ed CoPc molecule on Au(111) in 0.05 M  $\text{HClO}_4$ .

2176

**A stable *cis*-stilbene derivative encapsulated in cucurbit[7]uril**

Soowhan Choi, Sang Hyun Park, Albina Y. Ziganshina, Young Ho Ko, Jae Wook Lee and Kimoon Kim\*

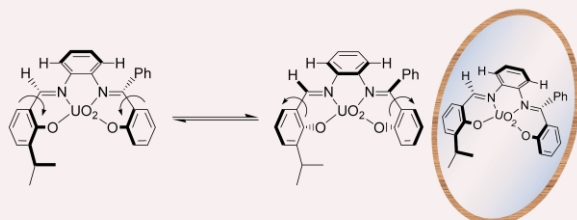


*cis*-Diaminostilbene dihydrochloride encapsulated in cucurbit[7]uril does not spontaneously isomerize to the *trans* isomer at room temperature as a result of the strong host–guest interactions including strong hydrogen bonds between the two protonated amine termini of the C-shaped guest and the portal oxygen atoms of the host.

2178

**Unprecedented detection of inherent chirality in uranyl–salophen complexes**

Antonella Dalla Cort, Luigi Mandolini,\* Giovanni Palmieri, Chiara Pasquini and Luca Schiaffino

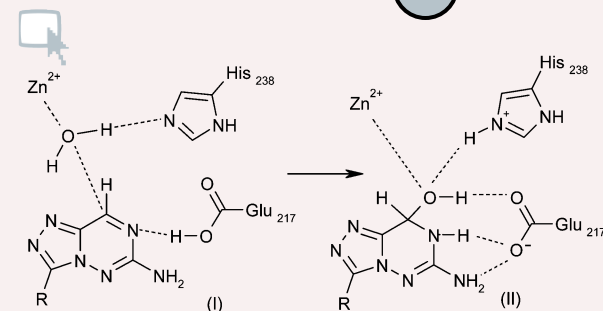


The inherent chirality of suitably substituted non symmetrical uranyl–salophen complexes has been demonstrated by  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectroscopy.

2180

**Prediction of the potency of inhibitors of adenosine deaminase by QM/MM calculations**

M. Paul Gleeson, Neil A. Burton and Ian H. Hillier\*

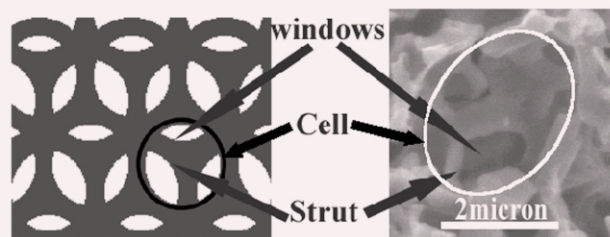


We show for the first time how hybrid QM/MM methods can be of great potential value in drug discovery by successfully predicting the relative potency of a range of inhibitors of the enzyme adenosine deaminase.

2182

**Macro-cellular silica foams: synthesis during the natural creaming process of an oil-in-water emulsion**

T. Sen, G. J. T. Tiddy, J. L. Casci and M. W. Anderson



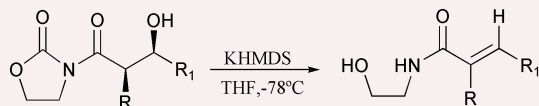
A simple room-temperature synthesis is reported of a porous silica material with high surface area and a hierarchical structure. Pore sizes range from nanometres to microns.

2184



### An (*E*)-selective synthesis of trisubstituted (*E*)- $\alpha,\beta$ -unsaturated acid derivatives

Fred J. P. Feuillet, Diane E. J. E. Robinson and Steven D. Bull\*

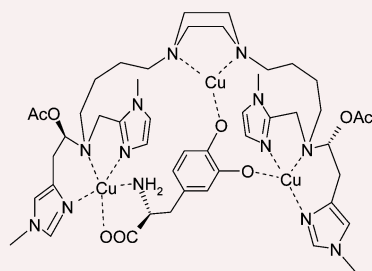


Potassium alkoxides of *N*-acyloxazolidin-2-one derived *syn*-aldolates undergo a novel tandem intramolecular cyclisation elimination reaction to afford trisubstituted (*E*)- $\alpha,\beta$ -unsaturated amides in high d.e.

2186

### Enantio-differentiating catalytic oxidation by a biomimetic trinuclear copper complex containing L-histidine residues

Laura Santagostini, Michele Gullotti, Roberto Pagliarin, Enrico Monzani and Luigi Casella\*



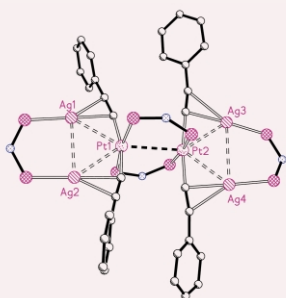
The chiral trinuclear complex  $[\text{Cu}_3\text{PHI}]^{6+}$ , exhibits remarkable enantio-differentiating ability in the catalytic oxidation of *L*- and *D*-Dopa using two copper centers for redox catalysis and the third copper center for chiral recognition of the substrate.

2188



### Luminescent heterohexanuclear complexes with platinum alkynyl and silver diphosphine as components

Qiao-Hua Wei, Gang-Qiang Yin, Zhen Ma, Lin-Xi Shi and Zhong-Ning Chen\*



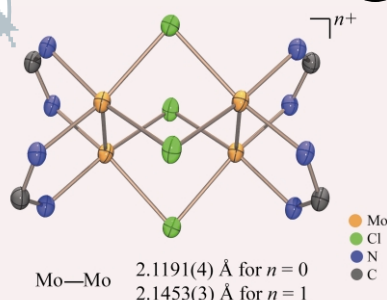
Self-assembly between platinum alkynyl  $[\text{Pt}((\text{C}\equiv\text{C})_6\text{H}_4\text{R}-p)_4]^{2-}$  ( $\text{R} = \text{H}, \text{CH}_3$ ) and silver diphosphine  $[\text{Ag}_2(\mu\text{-Ph}_2\text{PXPPh}_2)_2(\text{MeCN})_2]^{2+}$  afforded intensely luminescent heterohexanuclear complexes for  $\text{X} = \text{NH}$ , whereas a heterotrimeric complex was obtained for  $\text{X} = \text{CH}_2$ .

2190



### A mixed-valence compound with one unpaired electron delocalized over four molybdenum atoms in a cyclic tetranuclear ion

F. Albert Cotton,\* Chun Y. Liu, Carlos A. Murillo\* and Xiaoping Wang

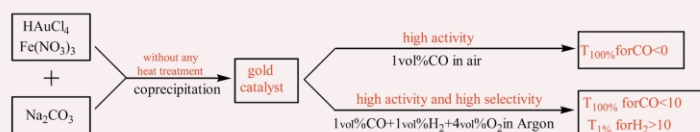


The first oxidation of a species derived from a compound having two linked, quadruply-bonded  $\text{Mo}_2^{4+}$  units has one unpaired electron and a fully delocalized structure and a  $K_C$  three orders of magnitude larger than that of the Creutz–Taube ion.

2192

### Highly effective ferric hydroxide supported gold catalyst for selective oxidation of CO in the presence of $\text{H}_2$

Botao Qiao and Youquan Deng\*



Ferric hydroxide supported Au prepared with coprecipitation without heat treatment could be a very effective catalyst for selective CO oxidation in the presence of  $\text{H}_2$  at lower temperatures

2194



### Bromobis(triphenylphosphine)(*N*-succinimide)palladium(II) as a novel catalyst for Stille cross-coupling reactions

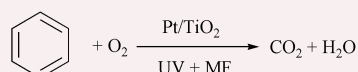
Catherine M. Crawford, Suzanne Burling, Ian J. S. Fairlamb,\*  
Richard J. K. Taylor\* and Adrian C. Whitwood

A new palladium catalyst is reported for Stille cross-coupling, namely  $\text{Pd}(\text{NCOCH}_2\text{CH}_2\text{CO})(\text{PPh}_3)_2\text{Br}$ . The catalyst is particularly useful for allylic and benzylic halide substrates.

2196

### Magnetic field effect on photocatalytic degradation of benzene over Pt/TiO<sub>2</sub>

Wen Zhang, Xuxu Wang and Xianzhi Fu\*

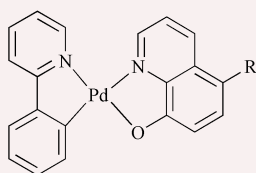


The magnetic field effect on photocatalytic degradation of benzene over Pt/TiO<sub>2</sub> has been observed for the first time. The coupling effect between magnetic field and photo field influences the conversion of benzene and production of CO<sub>2</sub>.

2198

### Mixed 2-phenylpyridine and 5-substitued-8-hydroxyquinolines palladium(II) complexes: new emitters in solutions at room temperature

Mauro Ghedini,\* Iolinda Aiello, Massimo La Deda and Annarita Grisolia

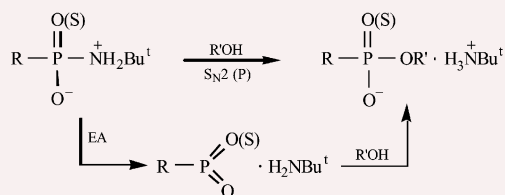


The 2-phenylpyridine palladium(II) complexes with 5-R-8-hydroxyquinolines ( $\text{R} = \text{H}, \text{NH-CO}-(\text{CH}_2)_{10}\text{CH}_3, \text{CHO}, \text{CH=N}-(\text{CH}_2)_{11}\text{CH}_3, \text{CH}_2\text{-NH}-(\text{CH}_2)_{11}\text{CH}_3$ ) are luminescent at room temperature with quantum yield ranging from 0.24% ( $\text{R} = \text{NH-CO}-(\text{CH}_2)_{10}\text{CH}_3$ ) to 0.80% ( $\text{R} = \text{CH}_2\text{-NH}-(\text{CH}_2)_{11}\text{CH}_3$ ).

2200

### Reactions of phosphonamic acids and phosphonamidothioic acids with alcohols: mechanistic differences revealed by differing responses to steric effects

Martin J. P. Harger\* and Cherylin Preston

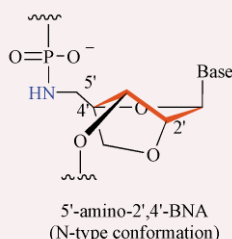


Elimination–addition (EA) with a metaphosphonate intermediate is much less accessible as an alternative to sterically-sensitive  $\text{S}_{\text{N}}2(\text{P})$  for phosphonamic acids than for their P=S counterparts.

2202

### Synthesis and properties of a novel bridged nucleic acid with a P3' → N5' phosphoramidate linkage, 5'-amino-2',4'-BNA

Satoshi Obika, Osamu Nakagawa, Akiko Hiroto, Yoshiyuki Hari and Takeshi Imanishi\*

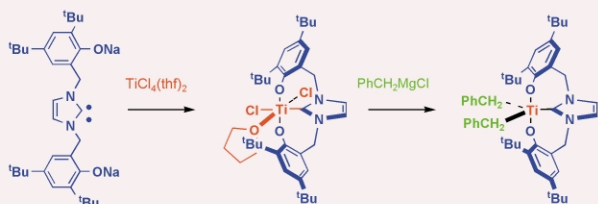


5'-Amino-2',4'-BNA, a novel analogue of BNA series compounds, was successfully synthesized, and its incorporated oligonucleotides showed potent duplex- and triplex-forming ability and resistance against snake venom phosphodiesterase.

2204

**Titanium N-heterocyclic carbene complexes incorporating an imidazolium-linked bis(phenol)**

Hidenori Aihara, Tsukasa Matsuo and Hiroyuki Kawaguchi\*

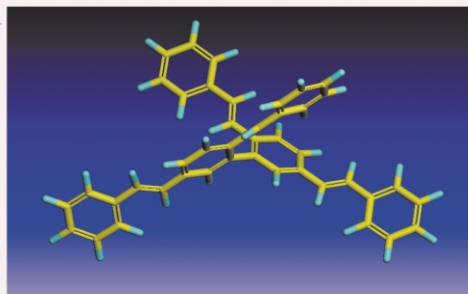


We designed the aryloxy-functionalized N-heterocyclic carbene ligand, in which the carbene unit is flanked by two aryloxy groups; here the synthesis and characterization of titanium complexes containing this ligand is reported along with their preliminary ethylene polymerization studies.

2206

**Synthesis, characteristics and luminescence properties of oligo(phenylenevinylene) dimers with a biphenyl linkage center**

Feng He, Gang Cheng, Haiquan Zhang, Yan Zheng, Zengqi Xie, Bing Yang, Yuguang Ma,\* Shiyong Liu and Jiacong Shen

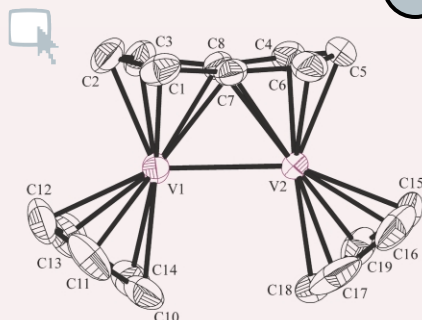


The new oligo(phenylenevinylene)s, by linking trimeric phenylenevinylene (TPV) exhibit weak intermolecular interactions and intense blue photoluminescence in the solid state. Organic light-emitting devices (OLEDs) based on these materials display blue emission with low turn-on voltage (about 3 V), maximum luminance approaching 2000 cd m<sup>-2</sup> and efficiency up to 1.6 cd A<sup>-1</sup>

2208

**[V(η<sup>5</sup>-C<sub>5</sub>H<sub>5</sub>)<sub>2</sub>]<sub>2</sub>C<sub>8</sub>H<sub>6</sub>: a bimetallic pentalene-bridged complex with multiple bonding between the metal atoms**

Simon C. Jones and Dermot O'Hare\*

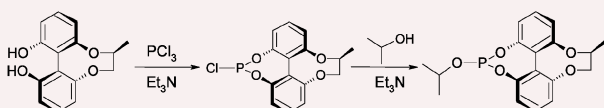


[V(Cp)<sub>2</sub>]<sub>2</sub>Pn, a rare example of a *syn*-dinuclear pentalene complex, has been synthesised and its magnetic properties investigated. The complex exhibits a high-spin/low-spin equilibrium in both solution and the solid-state.

2210

**New monodentate chiral phosphite ligands for asymmetric hydrogenation**

Peter Hannen, H.-Christian Militzer, Erasmus M. Vogl and Florian A. Rampf\*

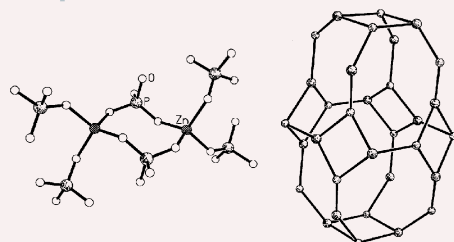


We report the synthesis of chiral monodentate phosphite ligands with a biphenyl backbone, the axial chirality of which is introduced by asymmetric desymmetrisation. We also describe results obtained with these ligands in rhodium-catalysed hydrogenation.

2212

**Transformation of a 4-membered ring zinc phosphate SBU to a sodalite-related 3-dimensional structure through a linear chain structure**

Meenakshi Dan, D. Udayakumar and C. N. R. Rao\*

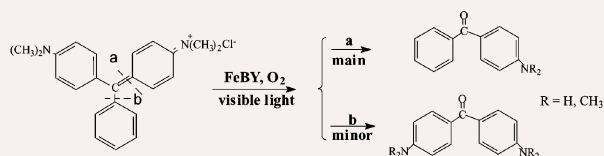


A four-membered ring Zn phosphate is shown to transform to a 3D sodalite-related structure through a linear chain structure.

2214

**A highly selective photooxidation approach using O<sub>2</sub> in water catalyzed by iron(II) bipyridine complex supported on NaY zeolite**

Jing Li, Wanhong Ma, Yingping Huang, Mingming Cheng, Jincai Zhao\* and Jimmy C. Yu

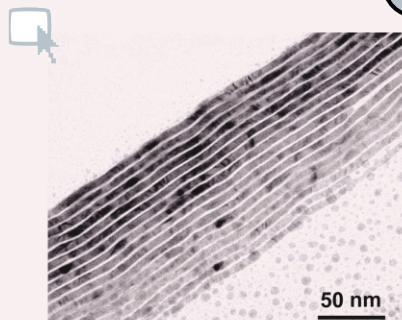


Iron(II) bipyridine supported on NaY zeolite (FeBY) shows excellent reactivity and selectivity in the photooxidation of organic compounds and avoids undesirable mineralization into CO<sub>2</sub> and H<sub>2</sub>O.

2216

**Formation of assembled silver nanowires by reduction of silver thiolate in polyol/toluene medium**

Guillaume Viau,\* Jean-Yves Piquemal, Marta Esparrica, Diane Ung, Nassira Chakroune, Fabienne Warmont and Fernand Fiévet

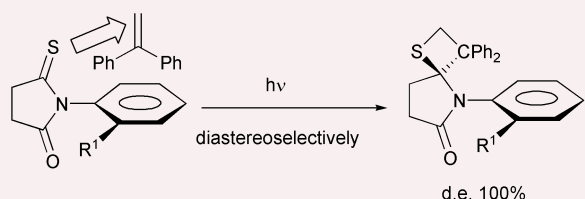


The interaction between silver nanoparticles produced by reduction in polyol/toluene medium and the layered phase AgSC<sub>12</sub>H<sub>25</sub> leads to monodisperse assembled silver nanowires.

2218

**Diastereoselective photocycloaddition of axially chiral monothiosuccinimides to 1,1-diphenylethylene**

Masami Sakamoto,\* Masaki Shigekura, Ayako Saito, Tomoko Ohtake, Takashi Mino and Tsutomu Fujita

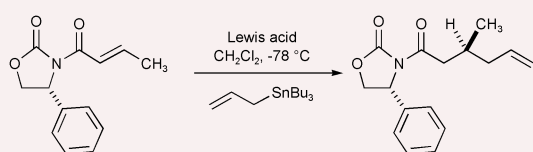


Photolysis of axially chiral monothiosuccinimides in the presence of diphenylethylene gave spirothietanes effectively, where the cycloaddition took place diastereoselectively by way of the steric effect of the *ortho*-substituent on the phenyl ring.

2220

**Asymmetric conjugate addition reactions of allyl- and crotylstannanes**

David R. Williams,\* Richard J. Mullins and Nathan A. Miller

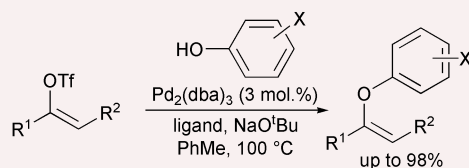


The conjugate addition reactions of allylic stannanes have been investigated utilizing nonracemic *N*-enoyl-4-phenyl-1,3-oxazolidinones with Lewis acid precomplexation.

2222

**Palladium catalysed aryl enol ether synthesis from vinyl triflates**

Michael C. Willis,\* Dawn Taylor and Adam T. Gillmore



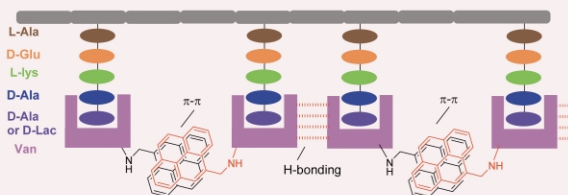
Vinyl triflates can be efficiently converted into the corresponding aryl enol ethers by treatment with a phenol, NaO<sup>t</sup>Bu and a catalyst generated from Pd<sub>2</sub>(dba)<sub>3</sub> and 2-(di-<sup>t</sup>Bu-phosphino)biphenyl. Palladium catalysed vinylic C–O bond formation is the key step in the efficient preparation of a range of substituted aryl enol ethers.

2224

**Self-assembled multivalent vancomycin on cell surfaces against vancomycin-resistant enterococci (VRE)**

Bengang Xing, Pak Leung Ho, Chun-Wing Yu, Kin-Hung Chow, Hongwei Gu and Bing Xu\*

A vancomycin (Van) derivative self-assembles on cell surfaces as a multivalent Van, which offers potent activity against VRE and suggests a new way to design polyvalent inhibitors.

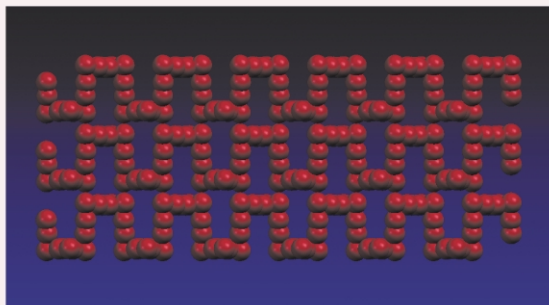


2226

**First example of an infinite polybromide 2D-network**

M. Carla Aragoni, Massimiliano Arca,\* Francesco A. Devillanova,\* Francesco Isaia, Vito Lippolis, Annalisa Mancini, Luca Pala, Alexandra M. Z. Slawin and J. Derek Woollins

We report an infinite polybromide network which suggests the possibility of bromine to give rise to interactions similar to those found in the more explored chemistry of polyiodides.

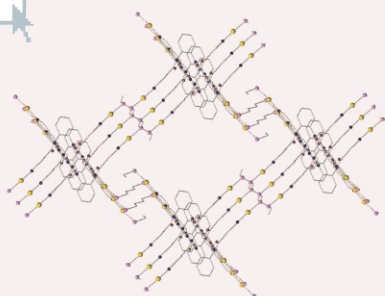


2228

**Ring-opening polymerization of gold macrocycles and self-assembly of a coordination polymer through hydrogen-bonding**

Tara J. Burchell, Dana J. Eisler, Michael C. Jennings and Richard J. Puddephatt\*

The equilibrium between digold and tetragold rings and a ring-opened oligomer and polymer is established by NMR and ESI-MS studies in solution and by structure determinations in the solid state; the polymer containing amide-derivatized ligands undergoes self-assembly through hydrogen bonding to give an ordered network.

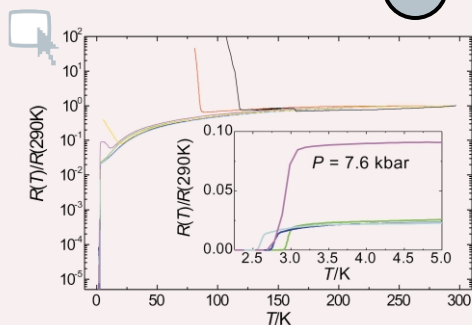


2230

**A new organic superconductor,  $\beta$ -(BDA-TTP)<sub>2</sub>GaCl<sub>4</sub> [BDA-TTP = 2,5-(1,3-dithian-2-ylidene)-1,3,4,6-tetrathiapentalene]**

Jun-ichi Yamada,\* Takashi Toita, Hiroki Akutsu, Shin'ichi Nakatsuji, Hiroyuki Nishikawa, Isao Ikemoto, Koichi Kikuchi, Eun S. Choi, David Graf and James S. Brooks

The BDA-TTP donor gives a new organic superconductor  $\beta$ -(BDA-TTP)<sub>2</sub>GaCl<sub>4</sub>, which exhibits a superconducting transition temperature of 3.1 K under an applied pressure of 7.6 kbar.

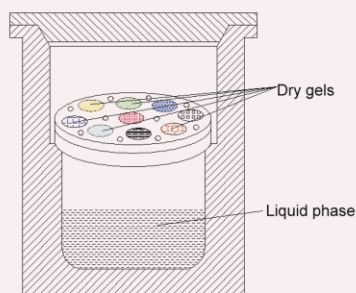


2232

**Combinatorial synthesis of SAPO-34 via vapor-phase transport**

Lixiong Zhang,\* Jianfeng Yao, Changfeng Zeng and Nanping Xu

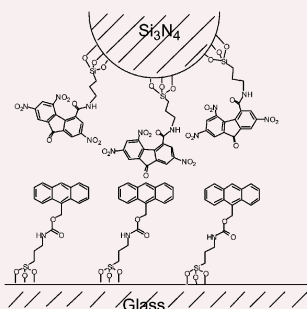
Vapor-phase transport synthesis of SAPO-34 is explored using combinatorial chemistry technique.



2234

**Charge-transfer complexes interactions evidenced by chemical force microscopy**

Richard Gil, Jean-Claude Fiaud, Jean-Claude Poulin\* and Emmanuelle Schulz\*

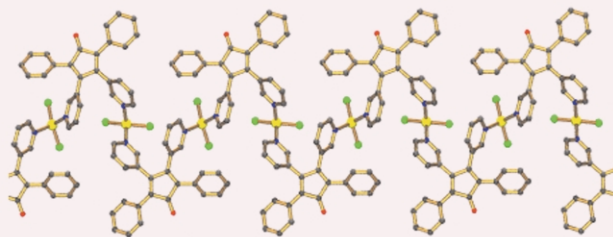


Charge-transfer complexes have been detected by chemical force microscopy (CFM) between a tip and a substrate respectively functionalized with trinitrofluorenone and 9-anthracenemethanol siloxane derivatives.

2236

**Spontaneous chiral resolution of a coordination polymer with distorted helical structure consisting of achiral building blocks**

Ulrich Siemeling,\* Imke Scheppelmann, Beate Neumann, Anja Stammer, Hans-Georg Stammer and Jadwiga Frelek

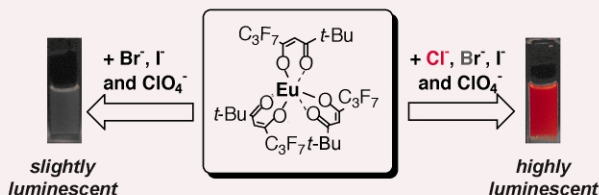


Chiral coordination polymers based on a redox-active bidentate ligand are formed from achiral components by supramolecular self-organisation. They show spontaneous chiral resolution, forming colonies of homochiral crystals, whose polymer chains are united by  $\pi$ - $\pi$ -interactions.

2238

**Anion receptor functions of lanthanide tris( $\beta$ -diketonate) complexes: naked eye detection and ion-selective electrode determination of  $\text{Cl}^-$  anion**

Rakesh Kumar Mahajan,\* Inderpreet Kaur, Ravneet Kaur, Soya Uchida, Aki Onimaru, Satoshi Shinoda and Hiroshi Tsukube\*

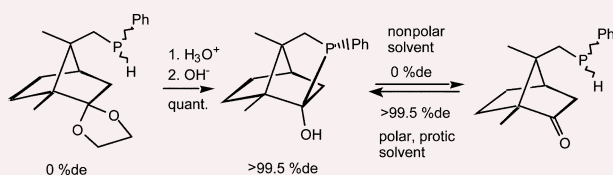


Lanthanide tris(fluorinated  $\beta$ -diketonates) acted as effective receptors of  $\text{Cl}^-$  anion in luminescence sensing and ion-selective electrode systems via highly coordinated complexation.

2240

**Highly stereoselective, thermodynamically controlled and reversible formation of a new *P*-chiral phosphine**

Igor V. Komarov,\* Anke Spannenberg, Jens Holz and Armin Börner\*

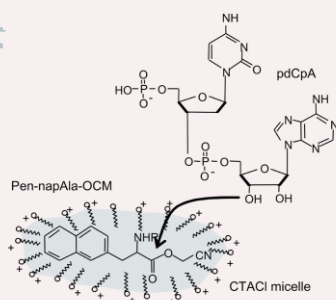


The highly stereoselective formation of a chiral  $\alpha$ -hydroxyphospholane under very mild conditions is reported, taking place on a camphor skeleton by an intramolecular thermodynamically controlled and reversible addition of an epimeric secondary phosphine group to a carbonyl group.

2242

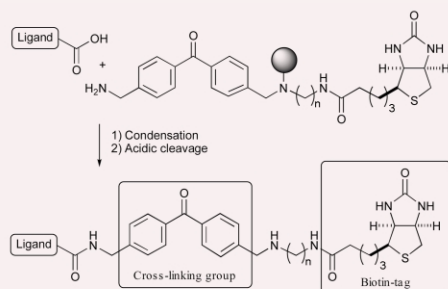
**Facile aminoacylation of pdCpA dinucleotide with a nonnatural amino acid in cationic micelle**

Keiko Ninomiya, Tomoyoshi Kurita, Takahiro Hohsaka and Masahiko Sisido\*



A dinucleotide pdCpA was aminoacylated in micellar solution. The product was used to synthesize aminoacylated tRNA. The latter worked in an *E. coli* *in vitro* protein synthesizing system to produce a nonnatural mutant of streptavidin.

2244

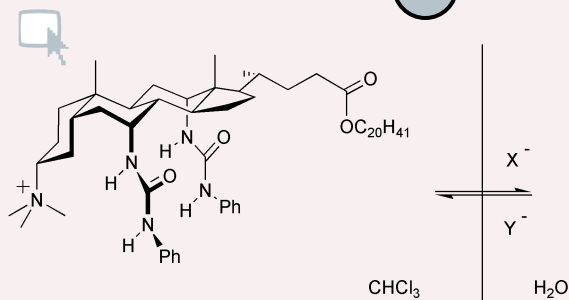


### Solid-phase synthesis of photoaffinity probes: highly efficient incorporation of biotin-tag and cross-linking groups

Toshiyuki Kan, Yusuke Tominari, Yuichi Morohashi, Hideaki Natsugari, Taisuke Tomita, Takeshi Iwatsubo and Tohru Fukuyama\*

A polymer-bound benzophenone derivative with (+)-biotin has been prepared which serves as a convenient tool for photoaffinity labelling.

2246

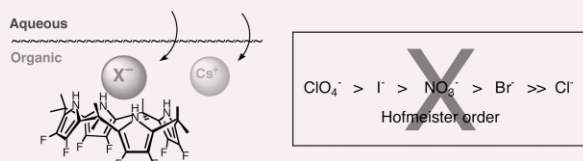


### Perturbing the Hofmeister series: a steroid-based anion receptor with preorganised quaternary ammonium and H-bond donor groups

Adam L. Sisson, John P. Clare, Luke H. Taylor, Jonathan P. H. Charmant and Anthony P. Davis\*

Preorganised urea groups confer distinct anion-exchange preferences and enhanced transport properties on this "smart" phase transfer agent.

2248

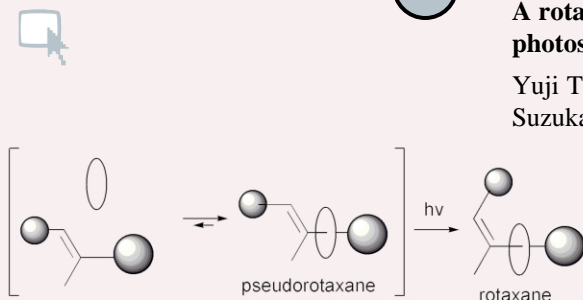


### Fluorinated calixpyrroles: anion-binding extractants that reduce the Hofmeister bias

Tatiana G. Levitskaia, Manuel Marquez, Jonathan L. Sessler,\* James A. Shriver, Thomas Vercouter and Bruce A. Moyer\*

$\beta$ -Fluorinated calixpyrroles  $\beta$ -octafluoro-*meso*-octamethylcalix-[4]pyrrole (1) and  $\beta$ -decafluoro-*meso*-decamethylcalix[5]pyrrole (2), known to be strong, neutral anion-binding agents, were found to extract small anions effectively while overcoming the classical solvation-based Hofmeister anion bias selectivity.

2250



### A rotaxane synthesis based on stilbene photoisomerization. A photoswitchable catch and release process

Yuji Tokunaga,\* Koichiro Akasaka, Kenji Hisada, Youji Shimomura and Suzuka Kakuchi

A [2]rotaxane, having (*Z*)- $\alpha$ -methylstilbene as a stopper, is (1) synthesized in good yield by using a (*E*)- to (*Z*)-stilbene photoisomerization process, and (2) dissociated by reverse photoisomerization from (*Z*)- to (*E*)-stilbene.

## ADDITIONS AND CORRECTIONS

2252

Akihiko Ishii, Takeshi Takahashi, Akira Tawata, Aki Furukawa, Hideaki Oshida and Juzo Nakayama

### First synthesis and characterization of isolable thioselenenic acid, triptycene-9-thioselenenic acid



## CONFERENCE REPORT

2253

Matthew J. Gaunt and Guy C.  
Lloyd-Jones

**Highlights from the 38th ESF/EUCHEM Conference on Stereochemistry,  
Bürgenstock, Switzerland, April/May 2003**

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