**Cover (far left)**

Nepali villagers drifting crossing the Rapti river on a canoe ferry. The same principle is used on the molecular level to promote the transport of ions and phospholipids across bilayer membranes. Background photo by Arie van der Velden, © 2002, Front Range Publishing (pp. 2261–2268).

Inside cover (left)

The asymmetric unit of calix[5]arene : C_{70} (pp. 2270–2271).

contents

FOCUS ARTICLE

2257

Catalysis and nanoscience

Jeff Grunes, Ji Zhu and Gabor A. Somorjai*



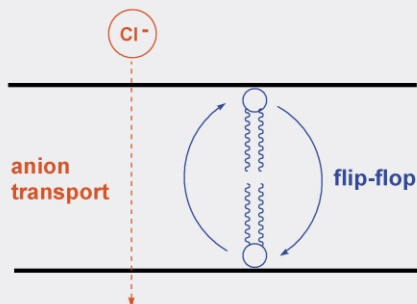
Catalysis is an integral part of nanotechnology. Biological catalysts—enzymes—are the foundation of biological systems, while synthetic heterogeneous catalysts—metal or metal oxide nanoparticles supported on oxides—are the foundation of the chemical industry.

FEATURE ARTICLE

2261

Molecular ferries: membrane carriers that promote phospholipid flip-flop and chloride transport

Bradley D. Smith* and Timothy N. Lambert



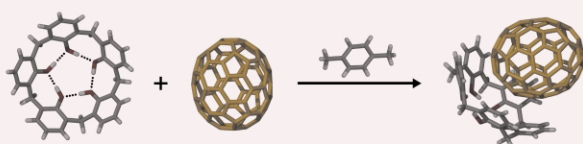
Synthetic receptors with affinities for anions can act as mobile transport carriers and facilitate the movement of phospholipid head-groups, chloride ions, and salts across vesicle and cell membranes.

COMMUNICATIONS

2270

Association and orientation of C_{70} on complexation with calix[5]arene

Jerry L. Atwood, Leonard J. Barbour, Michael W. Heaven and Colin L. Raston*



The solid state structure of complexes of calix[5]arene and C_{70} can be controlled by the choice of solvent.

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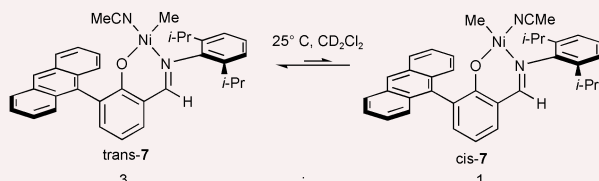
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2272

Synthesis of neutral nickel catalysts for ethylene polymerization – the influence of ligand size on catalyst stability

Eric F. Connor, Todd R. Younkin, Jason I. Henderson, Andrew W. Waltman and Robert H. Grubbs*

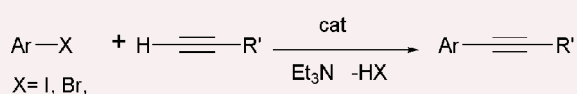
The synthesis of neutral salicylaldimine nickel complexes is described, providing insight on the role played by ligand size in catalyst stability and mechanistic behavior of highly active catalysts.



2274

Copper-free, recoverable dendritic Pd catalysts for the Sonogashira reaction

Karine Heuzé, Denise Méry, Dominik Gauss and Didier Astruc



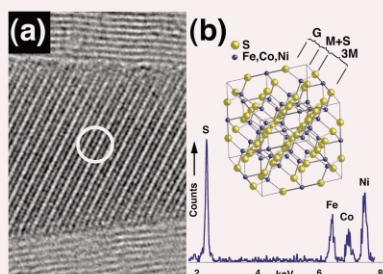
The recoverable Cu-free Pd catalyst used in the reaction shown is one of the first three generations of DAB-dendr-[N(CH₂PCy₂)₂Pd(OAc)₂].

2276

Encapsulation of quaternary 1D pentlandite-type alloy crystals within conical multi-layer carbon nanotubes

Pedro M. F. J. Costa, Jeremy Sloan,* John L. Hutchison and Malcolm L. H. Green*

Crystals of a complex quaternary pentlandite-type alloy with the composition Fe₃Ni₄Co₂S₈ have been synthesised inside conical multiple walled carbon nanotubes.

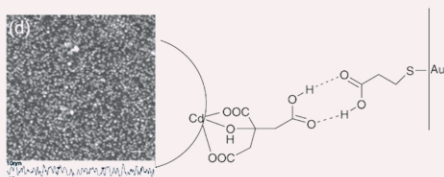


2278

Self-assembly of CdSe/CdS quantum dots by hydrogen bonding on Au surfaces for photoreception

Jing Tang, Henrik Birkedal, Eric W. McFarland* and Galen D. Stucky*

CdSe/CdS core-shell quantum dots have been self-assembled onto thiolcarboxylic acid functionalized gold surfaces by hydrogen bonding; control of the pH during deposition allows producing a high coverage photoactive surface for use in a surface sensitized Schottky barrier photovoltaic structure.

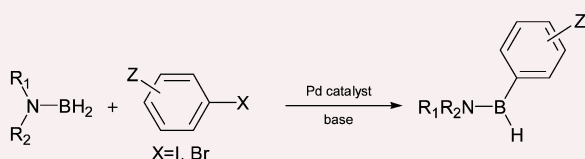


2280

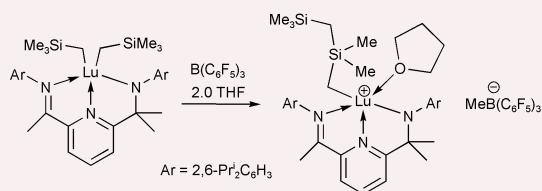
Monomeric (dialkylamino)boranes: a new and efficient boron source in palladium catalyzed C–B bond formation with aryl halides

Lisenn Euzenat, David Horhant, Yann Ribourdouille, Christophe Duriez, Gilles Alcaraz* and Michel Vaultier

Monomeric (amino)dihydroboranes are used for the first time as efficient boron transfer reagents in palladium-catalyzed carbon–boron bond formation.



2282

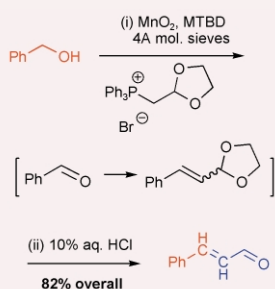


Unusual alkyl group activation and cationic complex formation from a novel lutetium dialkyl complex supported by a tridentate monoanionic ligand

Thomas M. Cameron, John C. Gordon,* Ryszard Michalczyk and Brian L. Scott

We report herein the synthesis and characterization of a lutetium dialkyl complex supported by a multidentate, anido-pyridine-imine ligand and its subsequent transformation into an unprecedented cationic monoalkyl derivative.

2284

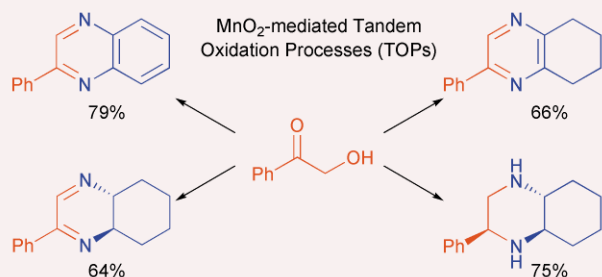


Two carbon homologated α,β -unsaturated aldehydes from alcohols using the *in situ* oxidation–Wittig reaction

Mark Reid, David J. Rowe and Richard J. K. Taylor*

In situ oxidation–Wittig methodology, followed by hydrolysis, has been applied to the conversion of primary alcohols into α,β -unsaturated aldehydes.

2286

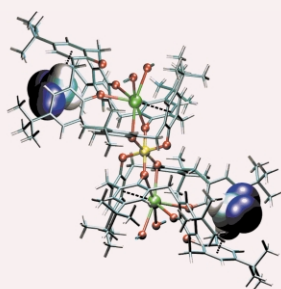


Preparation of quinoxalines, dihydropyrazines, pyrazines and piperazines using tandem oxidation processes

Steven A. Raw, Cecilia D. Wilfred and Richard J. K. Taylor*

α -Hydroxyketones undergo MnO₂-mediated oxidation followed by *in situ* trapping with aromatic or aliphatic 1,2-diamines to give quinoxalines or dihydropyrazines, respectively, in a one pot procedure which avoids the need to isolate the highly reactive 1,2-dicarbonyl intermediates. Modifications of the procedure allow the formation of pyrazines and piperazines.

2288

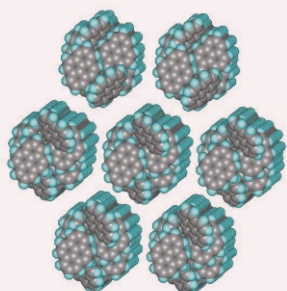


2 : 1 Ba/Ti(IV) Heterobimetallic complex based on two calix[6]arenes

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

Reaction of *p*-Bu^t-calix[6]arene with barium metal in methanol then [Ti(OPr^t)₄] affords a heterobimetallic complex with a central Ti(IV) attached to two calix[6]arenes in the 1,3-alternate conformation, each with an *endo*-barium sharing common phenolate groups with the titanium centre.

2290



Formation of pyrene nano-rods within a supramolecular framework

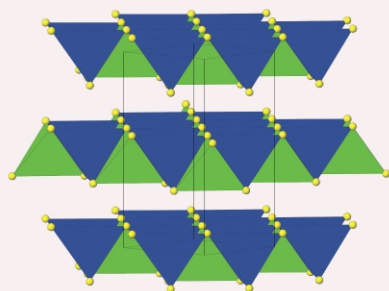
Bao-Qing Ma and Philip Coppens*

Assembly of three-armed trimesic acid and 1,3,5-tri(4-pyridyl)-2,4,6-triazine gives rise to a honeycomb framework with large channels in which infinite pyrene nano-sized aggregates are encapsulated.

2292

Synthesis and characterisation of a new high pressure polymorph of Cu_2WS_4

Clare J. Crossland and John S. O. Evans*

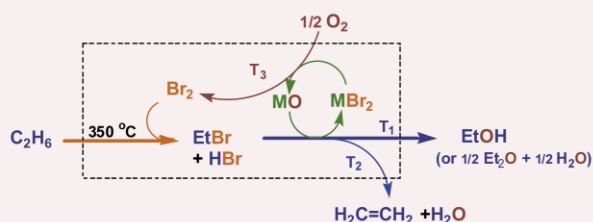


We report the synthesis and structural characterisation of a new body centred polymorph of Cu_2WS_4 prepared using hydrothermal methods. $I\text{-Cu}_2\text{WS}_4$ has a new structure type containing layers of edge-sharing CuS_4 and WS_4 tetrahedra.

2294

An integrated process for partial oxidation of alkanes

Xiao-Ping Zhou, Aysen Yilmaz, Gurkan A. Yilmaz, Ivan M. Lorkovic, Leroy E. Laverman, Michael Weiss, Jeffrey H. Sherman, Eric W. McFarland,* Galen D. Stucky* and Peter C. Ford*

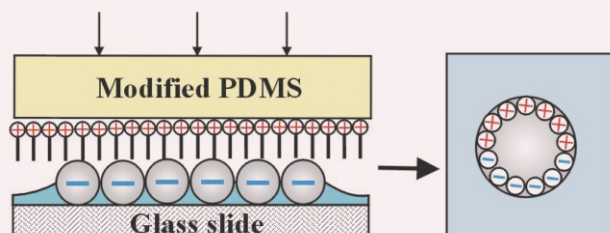


Partial oxidation of alkanes is accomplished by bromination then reaction with solid metal oxides (MO) to give product distributions that are tuned by varying MO composition and reaction conditions.

2296

Fabrication of dipolar colloid particles by microcontact printing

Olivier Cayre, Vesselin N. Paunov* and Orlin D. Velev

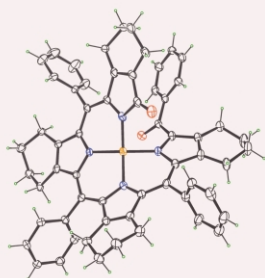


A novel technique for preparation of dipolar colloid particles has been developed which is based on microcontact printing of films of water-insoluble ionic surfactants onto monolayers of colloid particles of opposite surface charge.

2298

Benzoylbiliverdins from chemical oxidation of dodeca-substituted porphyrins

Owendi Ongayi, Frank R. Fronczek and M. Graça H. Vicente*

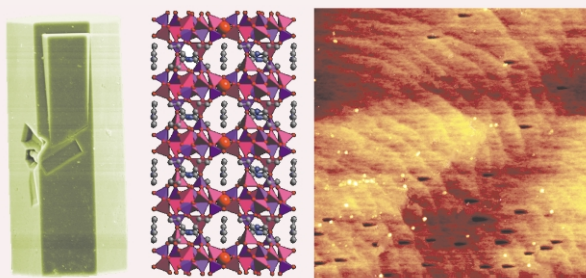


We report the syntheses and characterization of novel undeca-substituted benzoylbiliverdins and Ni(II)-nitrocyclohexadienylporphyrins. The mechanisms of these reactions and the molecular structures of the main products are presented.

2300

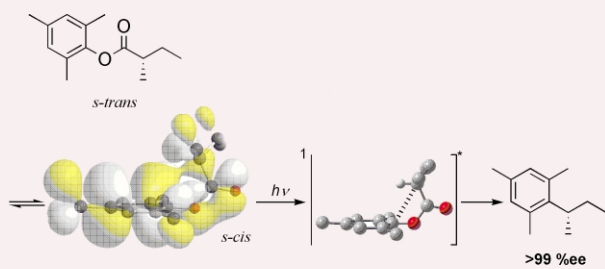
Atomic force microscopy study of the molecular sieve MnAPO-50

L. Itzel Meza, Jonathan R. Agger,* Nataša Z. Logar, Venčeslav Kaučič and Michael W. Anderson



AFM crystal growth studies of the manganese-substituted aluminophosphate MnAPO-50 reveal previously unobserved surface features in addition to a layer by layer deposition mechanism.

2302

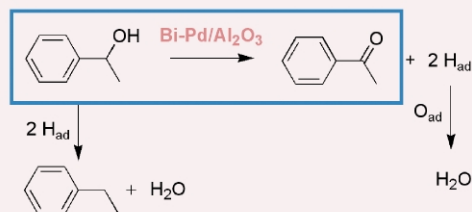


Complete memory of chirality upon photodecarboxylation of mesityl alkananoate to mesitylalkane: theoretical and experimental evidence for cheletropic decarboxylation via a spiro-lactonic transition state

Tadashi Mori,* Hideaki Saito and Yoshihisa Inoue*

The photodecarboxylation of chiral mesityl alkananoate proceeds to give the alkylmesitylene in $>99\%$ ee under a variety of conditions, indicating the concerted cheletropic extrusion of CO_2 from the energetically less favored *s-cis* conformation.

2304

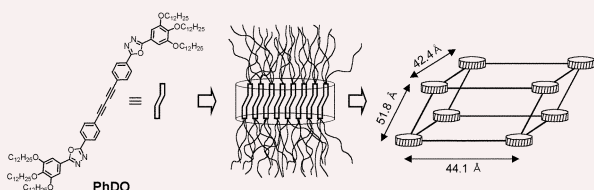


Liquid phase oxidation of alcohols with oxygen: *in situ* monitoring of the oxidation state of Bi-promoted Pd/Al₂O₃

Csilla Keresszegi, Jan-Dierk Grunwaldt, Tamas Mallat and Alfons Baiker*

In situ, time-resolved XAS studies on a Bi-Pd/Al₂O₃ catalyst indicate that Pd, and Bi located on the Pd surface, are in a reduced, metallic state during the oxidation of 1-phenylethanol with molecular oxygen.

2306

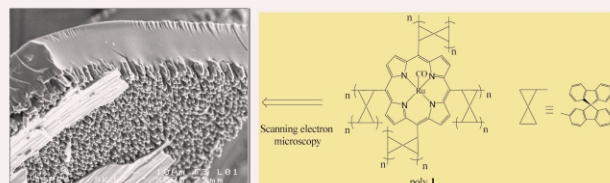


Supramolecular assembly of fluorescent phasmidic diacetylene and its photopolymerization

Bong Gi Kim, Sehoon Kim, Jangwon Seo, Nam-Keun Oh, Wang-Cheol Zin and Soo Young Park*

The closed micellar triclinic structure of a fluorescent phasmidic diacetylene (PhDO) has been fixed by topochemical photopolymerization which induced fluorescence quenching to offer a novel method of image photopatterning.

2308



Poly(ruthenium carbonyl spirobifluorenylporphyrin): a new polymer used as a catalytic device for carbene transfer

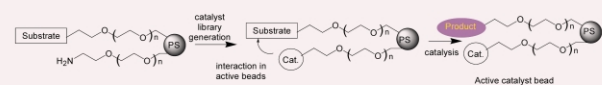
Cyril Poriel, Yann Ferrand, Paul le Maux, Christine Paul, Joëlle Rault-Berthelot* and Gerard Simonneaux*

Poly(tetraspirobifluorenylporphyrin ruthenium(II) carbonyl) materials are able to catalyze heterogeneous cyclopropanation and 2,3 sigmatropic rearrangement with ethyl diazoacetate.

2310

Dyad beads and the combinatorial discovery of catalysts

Iain Lingard, Gurdip Bhalay and Mark Bradley*



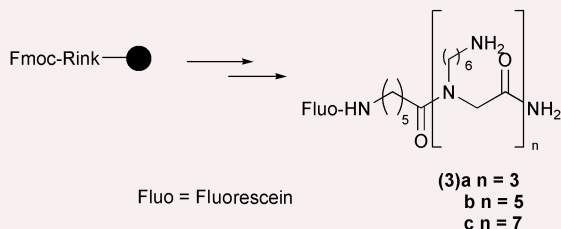
The discovery of catalysts from combinatorial libraries using site to site substrate-catalyst interaction has been developed and could be a valuable new method in the combinatorial discovery and development of catalysts. The technique can readily be adapted to any catalytic bond forming reaction, as long as one substrate can be immobilised onto a solid support and the other labelled with a dye.

2312



Cell penetrable peptoid carrier vehicles: synthesis and evaluation

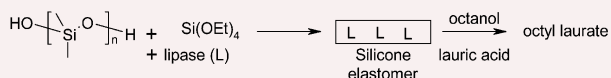
Ilaria Peretto, Rosario M. Sanchez-Martin, Xui-hong Wang, John Ellard, Stifun Mittoo and Mark Bradley*



2314

Highly activated, silicone entrapped, lipase

Amro Ragheb, Michael A. Brook* and Michael Hrynyk

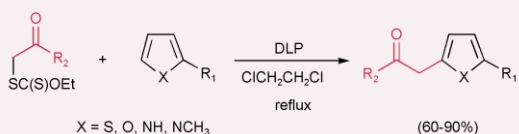


Lipase is more reactive in silicone oil or silicone elastomers than in hydrocarbons, and can be formulated into convenient, active, immobilized enzyme packages.

2316

Efficient, intermolecular, oxidative radical alkylation of heteroaromatic systems under "tin-free" conditions

Yazmin M. Osornio, Raymundo Cruz-Almanza, Vicente Jiménez-Montaño and Luis D. Miranda*



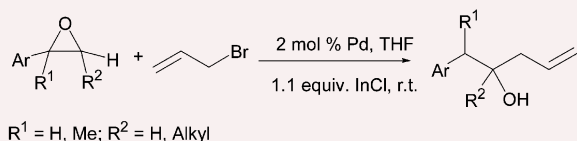
Novel and efficient radical alkylation of several heterocyclic systems including pyrroles, indoles, furan and thiophenes is described using xanthate based radical chemistry.

2318



A novel palladium-catalyzed coupling of epoxides with allyl bromide mediated by indium(I) chloride: a cascade epoxide rearrangement–carbonyl allylation

Nan Jiang, Qingyuan Hu, Carolyn S. Reid, Yunfeng Lu* and Chao-Jun Li*



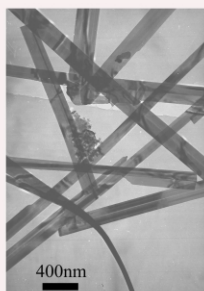
A cascade epoxide rearrangement–allylation mediated by InCl and catalyzed by reusable heterogeneous mesoporous silica supported palladium.

R¹ = H, Me; R² = H, Alkyl

2320

Synthesis of single-crystalline nanobelts of ternary bismuth oxide bromide with different compositions

Junwei Wang and Yadong Li*



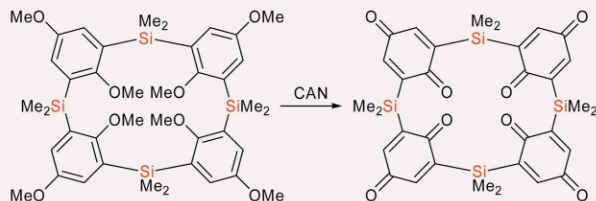
Ternary bismuth oxide bromide nanobelts have been prepared by using the cationic surfactant cetyltrimethylammonium bromide (CTAB) as the bromine source; their composition can be easily controlled by changing the reaction conditions.

2322



Preparation and structures of novel silamacrocyclic compounds: silacalix[4]quinone and silacalix[4]hydroquinone octamethyl ether

Shinobu Tsutsui* and Kenkichi Sakamoto*



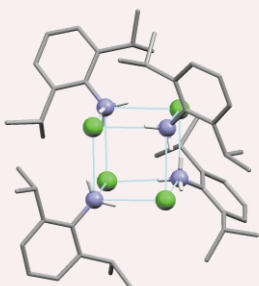
Synthesis of 2,8,14,20-tetrasilacalix[4]hydroquinone octamethyl ether was carried out. Oxidation of the compound using cerium ammonium nitrate gave the first heteroatom-bridged calix[4]quinone, 2,8,14,20-tetrasilacalix[4]quinone. Both silacalixarenes adopted 1,3-alternate structures in the solid states.

2324



Hydrogen-bonded cubanes in the crystal structure of 2,6-di(Prⁱ)aniline hydrochloride and their inorganic analogues [M²⁺(2,6-di(Prⁱ)C₆H₅N²⁻)]₄ (M = Sn, Pb)

Andrew D. Bond* and Emma L. Doyle



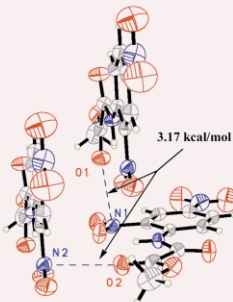
The crystal structure of 2,6-di(Prⁱ)aniline hydrochloride contains hydrogen-bonded cubanes analogous to those in the complexes [M²⁺(2,6-di(Prⁱ)C₆H₅N²⁻)]₄, M = Sn, Pb.

2326



The first observation of nitrogen–carbonyl bonding: self-assembly of *N*-oxalyl 2,4-dinitroanilide assisted by a weak N⋯O=C interaction

Zhenming Yin, Ling Jiang, Jiaqi He and Jin-Pei Cheng*



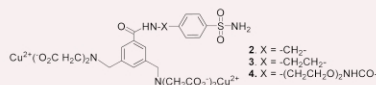
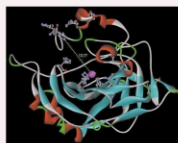
A new type of O⋯N bond, the nitrogen–carbonyl interaction (N⋯O=C), in a simple system, was confirmed by crystal analysis and *ab initio* calculation.

2328



Conjugation of poor inhibitors with surface binding groups: a strategy to improve inhibition

Bidhan C. Roy, Ryan Hegge, Theresa Rosendahl, Xiao Jia, Rachael Lareau, Sanku Mallik* and D. K. Srivastava



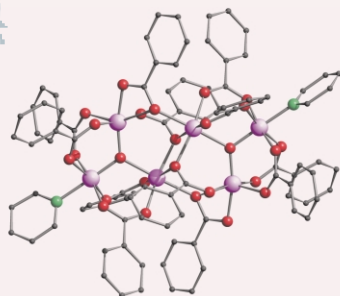
The design, synthesis and inhibition properties of sulfonamide-based copper complexes for carbonic anhydrase are demonstrated.

2330



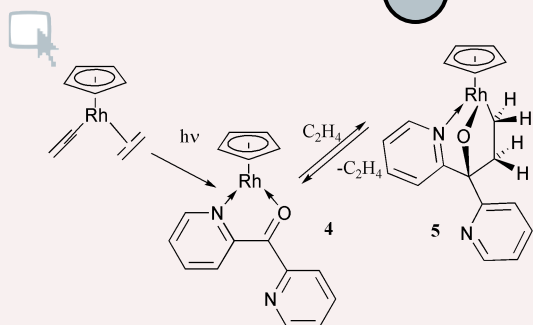
New routes to high nuclearity cages: dimerisation of a manganese triangle *via* solvothermal synthesis

David M. Low, Euan K. Brechin,* Madeleine Helliwell, Talal Mallah, Eric Rivière and Eric J. L. McInnes*



Heating [Mn₃O(O₂CPh)₆(py)₂(H₂O)] in MeCN at 100 °C for 12 hours in a sealed Teflon container produces the hexanuclear species [Mn₆O₂(O₂CPh)₁₂(py)₂]. The complex, a dimer of the original starting material, is characterised by an *S* = 3 spin ground state.

2332

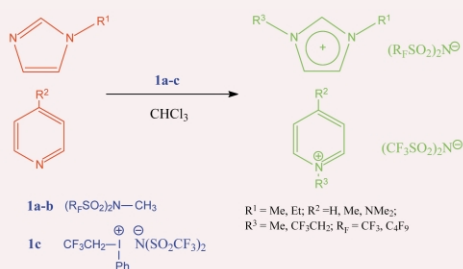


Dipyridylketone binding and subsequent C–C bond insertion reactions at cyclopentadienylrhodium

Cyril Godard, Simon B. Duckett,* Simon Parsons and Robin N. Perutz

The κ^2 -N,O binding mode of UV irradiation of 2,2'-dipyridylketone is established unequivocally in its $(\eta^5\text{-C}_5\text{H}_5)\text{Rh}$ complex **4**; the latter undergoes an unusual insertion reaction to form a bicyclic oxametallacyclopentane **5**.

2334

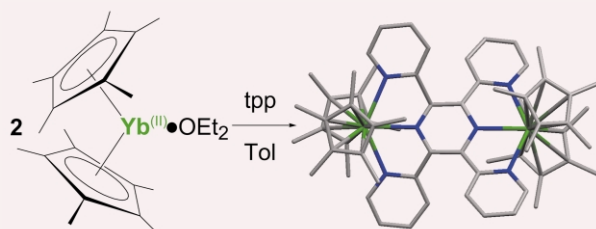


Direct methylation and trifluoroethylation of imidazole and pyridine derivatives

Jie Zhang, George Robert Martin and Darryl D. DesMarteau*

Direct methylation or trifluoroethylation of imidazole and pyridine derivatives using *N*-methyl bis((perfluoroalkyl)sulfonyl)imides or trifluoroethyl phenyliodonium bis((trifluoromethyl)sulfonyl)imide affords high yields of the corresponding salts. This methodology provides a simple route to a variety of room temperature ionic liquids (RTILs).

2336

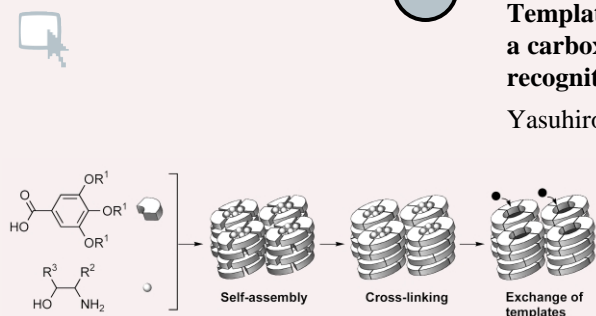


Toward new paradigms in mixed-valency: ytterbocene–terpyridine charge-transfer complexes

Christopher J. Kuehl, Ryan E. Da Re, Brian L. Scott, David E. Morris* and Kevin D. John*

$(\text{C}_5\text{Me}_5)_2\text{Yb}\cdot\text{OEt}_2$ reacts with terpyridine and tetrapyridinylpyrazine to afford new mixed-valent systems.

2338

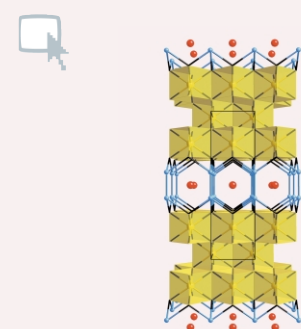


Template polymerization of columnar architectures based on the salts of a carboxylic acid and 2-amino alcohols: application to the molecular recognition of 2-amino alcohols

Yasuhiro Ishida, Sayaka Amano and Kazuhiko Saigo*

We found that the salts of trialkoxybenzoic acids and 2-amino alcohols generally show a columnar liquid crystalline phase. When a polymerizable acid unit is used, the resultant columnar structure can be fixed by an *in situ* cross-linking reaction, where the ordered structure is essentially maintained.

2340

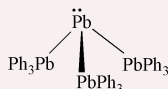


REAu₄Al₈Si: the end member of a new homologous series of intermetallics featuring thick AuAl₂ layers

Susan E. Latturner and Mercouri G. Kanatzidis*

REAu₄Al₈Si (RE = Ce–Gd, and Yb) is a new intermetallic structure grown from aluminium flux; this new structure contains thick antifluorite AuAl₂ slabs and the ytterbium analog exhibits mixed-valent behavior.

2342

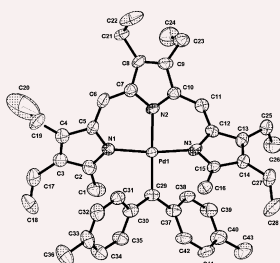


Tris(triphenylplumbyl)plumbate: an anion with three stretched lead–lead bonds

Frank Stabenow, Wolfgang Saak and Manfred Weidenbruch*

Treatment of lead(II) bromide with phenylmagnesium bromide at low temperature furnished yellow crystals of an ionic compound whose anion contains three stretched Pb–Pb bonds and Pb–Pb–Pb angles of about 93°.

2344

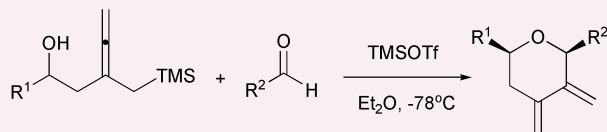


The first Pd^{II} complex of a non-heteroatom stabilised carbene ligand

Martin Bröring,* Carsten D. Brandt and Sascha Stellwag

The reaction of the cationic tripyrriato palladium species TrpyPd BAR^F with di(*p*-tolyl)diazomethane yields the first Pd^{II} carbene complex with a non-heteroatom stabilised carbene ligand.

2346

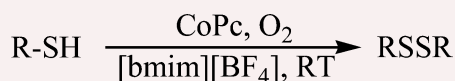


Synthesis of novel 2,6-disubstituted-3,4-dimethylidene tetrahydropyrans via Prins-type cyclization

Yong Seo Cho,* Kaliyan Karupaiyan, Hyun Jung Kang, Ae Nim Pae,* Joo Hwan Cha, Hun Yeong Koh and Moon Ho Chang

Synthesis of novel substituted tetrahydropyrans with adjacent *exo*-methylene groups at the C3 and C4 positions via Prins-type cyclization has been described.

2348

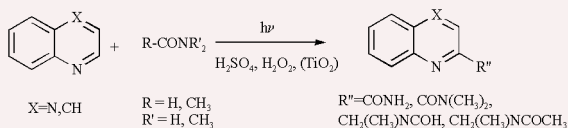


Oxidation of thiols with molecular oxygen catalyzed by cobalt(II) phthalocyanines in ionic liquid

S. M. S. Chauhan,* Anil Kumar and K. A. Srinivas

An efficient procedure for catalyst solubility, recycling and easy product isolation in oxidation of thiols to disulfides with molecular oxygen catalyzed by cobalt(II) phthalocyanines immobilized in ionic liquid at room temperature is reported.

2350



Sunlight induced functionalisation of some heterocyclic bases in the presence of polycrystalline TiO₂

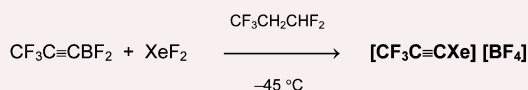
T. Caronna,* C. Gambarotti, L. Palmisano, C. Punta and F. Recupero

Sunlight induced functionalisation of some heterocyclic bases in the absence or presence of polycrystalline TiO₂ is reported as a new method of less environmental impact.

2352

Trifluoropropynylxenon(II) tetrafluoroborate [CF₃C≡CXe] [BF₄] – isolation of an alkynylxenon(II) compound for the first time

Hermann-Josef Frohn* and Vadim V. Bardin



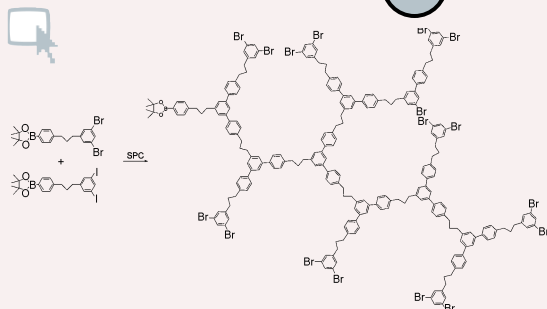
The reaction of the hitherto unknown borane CF₃C≡CBF₂ with XeF₂ yielded the first isolated alkynylxenon(II) salt [CF₃C≡CXe] [BF₄], a compound of relatively high thermal stability in the solid state as well as in anhydrous HF solution.

2354

“AB₂ + AC₂” approach to hyperbranched polymers with a high degree of branching

Zhishan Bo* and A. D. Schlüter

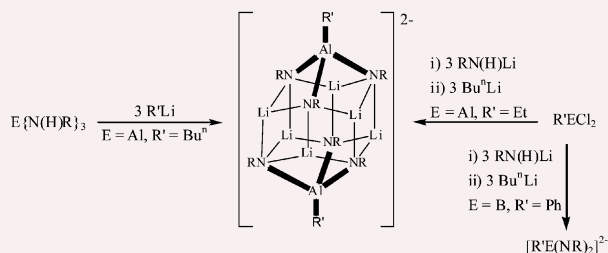
A novel one-pot “AB₂ + AC₂” approach based on palladium catalyzed Suzuki polycondensation was developed to prepare hyperbranched aryl/alkyl polymers with a high degree of branching.



2356

Heterobimetallic lithium alkyltriimido aluminate cages containing the [R'Al(NR)₃]⁴⁻ tetraanion (R' = Buⁿ, Et; R = 2-OMeC₆H₄)

May C. Copsey, John C. Jeffery, Christopher A. Russell,* John M. Slattery and Jennifer A. Straughan



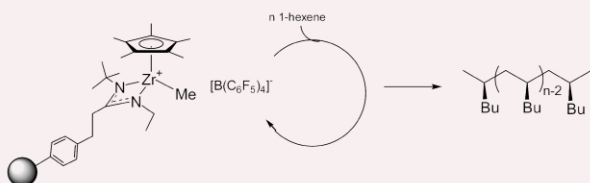
Attempted metallation of a triamidoaluminane gives a complex containing the [R'Al(NR)₃]⁴⁻ anion whose formal tetranegative charge is the highest charge observed crystallographically for a simple mononuclear imido main group anion system.

2358

Solid-supported stereospecific living Ziegler–Natta polymerization of α-olefins

Yonghui Zhang and Lawrence R. Sita*

A successful strategy has been developed for the synthesis of a cationic pentamethylcyclopentadienyl zirconium amidinate initiator on a lightly crosslinked polystyrene-divinylbenzene support that can be used to polymerize α-olefins in a living and stereospecific fashion.

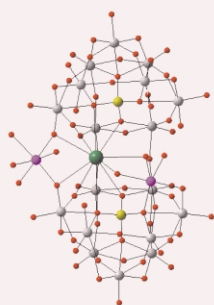


2360

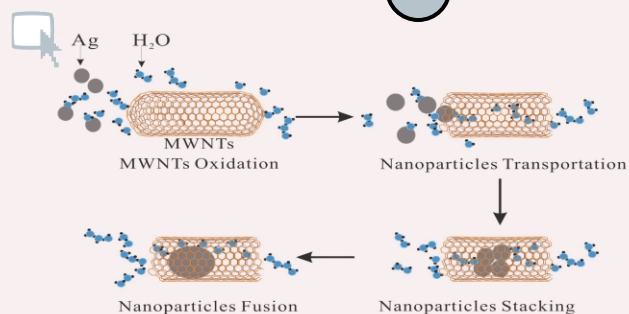
Synthesis, molecular structure and chemical properties of a new tungstosilicate with an open Wells–Dawson structure, α-[Si₂W₁₈O₆₆]¹⁶⁻

Nathalie Laronze,* Jérôme Marrot and Gilbert Hervé

A new tungstosilicate α-[Si₂W₁₈O₆₆]¹⁶⁻ has been synthesized and its structure determined. It is an intermediate in the formation of the hypothetical α-[Si₂W₁₈O₆₂]⁸⁻ Wells–Dawson anion. Its open structure allows the fixation of three potassium and transition metal cations.



2362

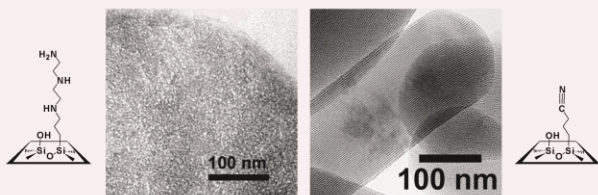


Transportation of silver nanoparticles in nanochannels of carbon nanotubes with supercritical water

Jia-Yaw Chang, Fu-Der Mai, Bertrand Lo, Jia-Jiu Chang, Shin-Hwa Tzing, Anil Ghule and Yong-Chien Ling*

The destructive nature of supercritical water (SCW) was utilized to open multiwall carbon nanotubes (MWNTs) and to break silver aggregates into nanoparticles (diameter 2–20 nm), which transported in nanochannels of MWNTs by capillary suction and fluidity of SCW, stacked and fused to form nanorods.

2364

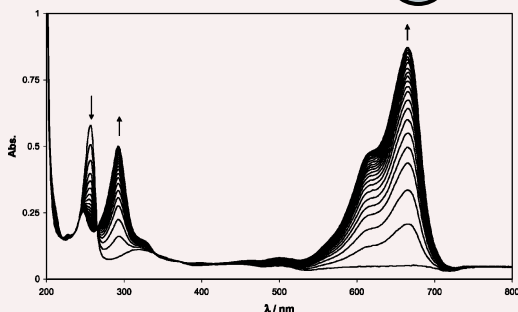


Tuning of particle morphology and pore properties in mesoporous silicas with multiple organic functional groups

Seong Huh, Jerzy W. Wiench, Brian G. Trewyn, Seahn Song, Marek Pruski and Victor S.-Y. Lin*

A synthetic method that can control both multi-functionalization and morphology of mesoporous organic–inorganic hybrid materials has been developed by introducing different molar ratios of organoalkoxysilanes to a co-condensation of silicate.

2366

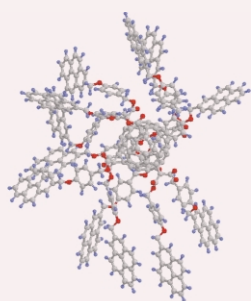


Novel photochemistry of *leuco*-Methylene Blue

Soo-Keun Lee and Andrew Mills*

leuco-Methylene Blue undergoes photo-oxidative quenching with dissolved oxygen to generate Methylene Blue.

2368



Interesting fluorescence properties of C₆₀-centered dendritic adduct with twelve symmetrically attached pyrenes

Robert B. Martin, Kefu Fu, Huaping Li, Daniel Cole and Ya-Ping Sun*

A C₆₀-centered dendritic adduct with 12 symmetrically attached pyrene species was synthesized and found to have relatively simple fluorescence emission kinetics, in particular, the mono-exponential decay of the significant pyrene excimer emission.

2370

Relationship between rate and distance

Fredric M. Menger,* Ashley L. Galloway and Djmaladdin G. Musaev*

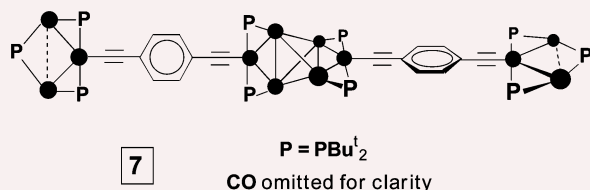
The activation energies for four Smiles reactions vary with the distance squared between the nucleophilic and electrophilic atoms (consistent with theoretical considerations and pertinent to organic and enzymatic catalyses).

$$E_a = \frac{Fd^2}{8}$$

2372

Trinuclear and hexanuclear platinum clusters as building blocks for organometallic one-dimensional structures

Piero Leoni,* Fabio Marchetti, Lorella Marchetti and Marco Pasquali

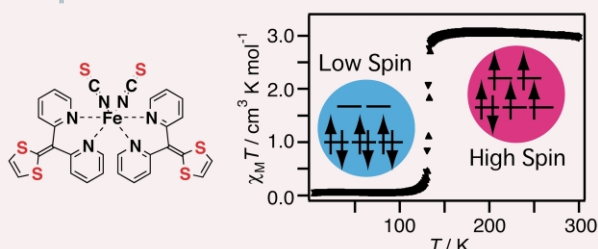


The reaction between the new hexa- and trinuclear clusters $\text{Pt}_6(\text{CO})_4(\mu\text{-PrBu}_2)_4(\text{CC-C}_6\text{H}_4\text{-CCH})_2$ (**4**) and $\text{Pt}_3(\mu\text{-PrBu}_2)_3(\text{CO})_2\text{Cl}$ (**6**) in CuI/Amine gives the thermally and air stable molecular wire **7**, where the cluster units are separated by conjugated 1,4-diethynylphenyl groups.

2374

An abrupt spin transition based on short S...S contacts in a novel Fe(II) complex whose ligand contains a 1,3-dithiole ring

Kazuyuki Takahashi, Tomoko Kawakami, Zhong-ze Gu, Yasuaki Einaga, Akira Fujishima and Osamu Sato*

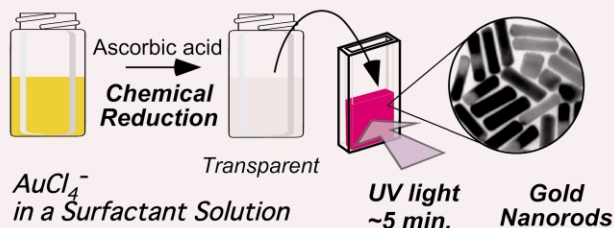


The first preparation of an Fe(II) spin-crossover complex including a 1,3-dithiole ligand is reported. Crystal analyses of both the low- and the high-temperature phases reveal that short S...S contacts play a key role in an abrupt spin transition.

2376

Rapid synthesis of gold nanorods by the combination of chemical reduction and photoirradiation processes; morphological changes depending on the growing processes

Yasuro Niidome,* Koji Nishioka, Hideya Kawasaki and Sunao Yamada*

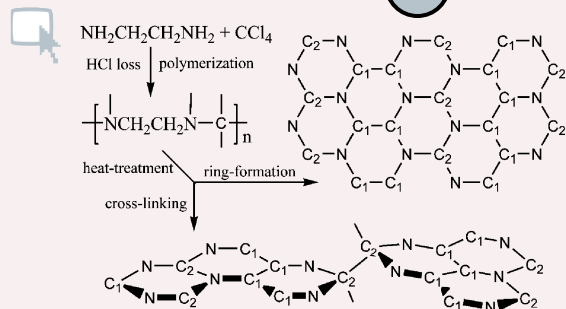


Combination of chemical reduction of tetrachloroaurate by ascorbic acid and subsequent ultraviolet photoirradiation resulted in the quick generation of gold nanorods.

2378

Chemical synthesis of turbostratic carbon nitride, containing C-N crystallites, at atmospheric pressure

Yu Qiu and Lian Gao*

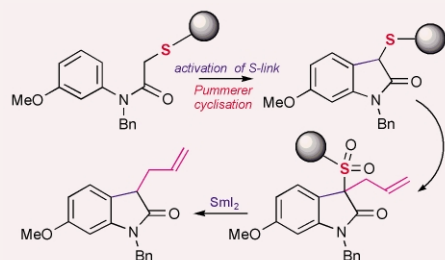


Turbostratic carbon nitride ($t\text{-CN}_x$) is chemically synthesized at atmospheric pressure, containing small C-N crystallites in the $\alpha\text{-C}_3\text{N}_4$ structure. This $t\text{-CN}_x$ material is a very promising precursor for superhard carbon nitride synthesis at atmospheric pressure.

2380

The first Pummerer cyclisations on solid phase. Convenient construction of oxindoles enabled by a sulfur-link to resin

Laura A. McAllister, Stephen Brand, Rémy de Gentile and David J. Procter*



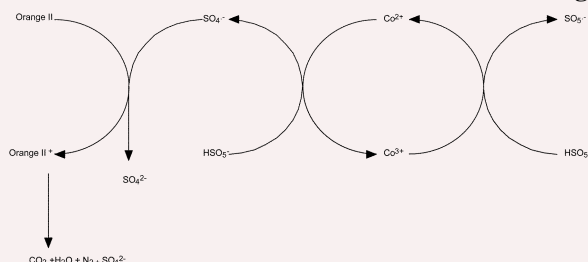
α -Sulfanyl *N*-aryl acetamides attached to resin *via* sulfur undergo efficient Pummerer cyclisation to give oxindoles upon activation of the sulfur link. The sulfur link enables the cyclisation chemistry but remains intact. Heterocyclic products are cleaved from resin using SmI_2 .

2382

Photobleaching of Orange II within seconds using the oxone/Co²⁺ reagent through Fenton-like chemistry

Javier Fernandez, Victor Nadochenko and John Kiwi*

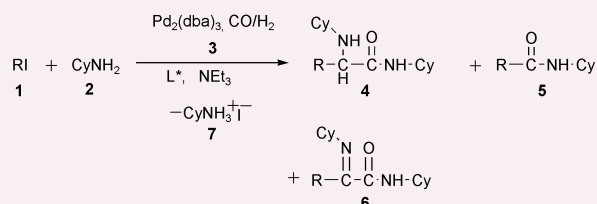
The oxidation of organic compounds by peroxomonosulfate under visible light in the presence of Co²⁺ produces highly oxidizing sulfate radicals able to photobleach azo-dyes within seconds in Fenton-like processes.



2384

Asymmetric synthesis of α -aminoamides by Pd-catalyzed double carbohydroamination

Perli Nanayakkara and Howard Alper*



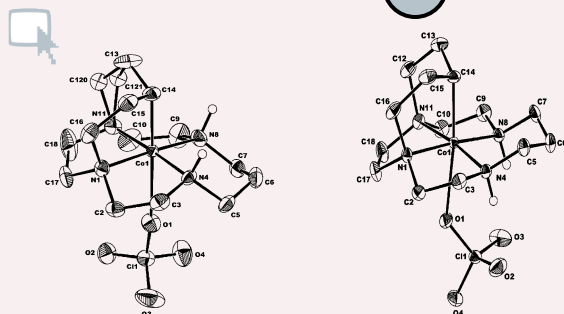
Tris(dibenzylideneacetone)dipalladium(0) [Pd₂(dba)₃] catalyzed asymmetric double carbohydroamination of iodoarenes in the presence of a chiral ligand is an excellent method for the chiral synthesis of α -aminoamides (4) in up to 99% ee.

2386

The first structurally characterised perchlorato-cobalt(III) complexes, involving the C-bonded macrobicyclic ligand 1,4,8,11-tetraazabicyclo[9.5.2]octadecane

Xiangting Zhou, Anthony I. Day, Anthony C. Willis and W. Gregory Jackson*

Two isomeric C-bonded complexes, *sym-anti*-[Co(L-C)(OH₂)₂]²⁺ and *sym-syn*-[Co(L-C)(OH₂)₂]²⁺ (L = 1,4,8,11-tetraazabicyclo[9.5.2]octadecane) when crystallised from aqueous NaClO₄ remarkably yielded the corresponding perchlorato complexes.



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