**Cover (far left)**Gold nanoparticle dendronized with polyferrocenyl thiols applied to ATP²⁻ redox sensing (pp. 2637 - 2649).**Inside cover (left)**

Old compact disks have been found to have various uses in modern chemical research (pp. 2633 - 2636).

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

contents

C89

Chemical Science

December 2004/Volume 1/Issue 12

www.rsc.org/chemicalscienceDrawing together the research highlights and news from all RSC publications, *Chemical Science* provides a 'snapshot' of the latest developments across the chemical sciences showcasing newsworthy articles, as well as the most significant scientific advances.

FOCUS ARTICLE

2633

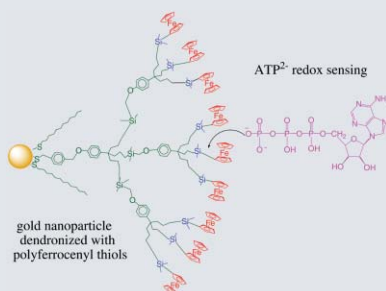
**New chemistry on old CDs**

Hua-Zhong Yu

The metal reflective film of old compact discs is suitable for the preparation of high-quality self-assembled monolayers (SAMs) and for electrochemical analysis; pre-grooved polycarbonate base is ideal for the "customized" fabrication of material micro/nanostructures; and the immobilization of biomolecules on CDs, in conjunction with a conventional CD drive, promises to be an inexpensive tool for point-of-care biomedical diagnosis and gene analysis.

FEATURE ARTICLE

2637

**Dendrimers and gold nanoparticles as exo-receptors sensing biologically important anions**

Didier Astruc,* Marie-Christine Daniel and Jaime Ruiz

Dendrimers whose tethers are terminated by ferrocenyl and other organoiron redox groups including hydrogen-bonded and gold-nanoparticle-cored dendrimers are selective, regenerable exo-receptors with positive dendritic effects for the recognition, sensing and titration of anions including ATP²⁻.

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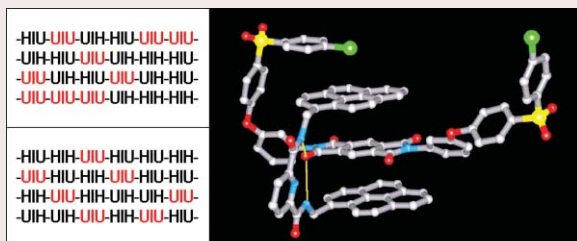
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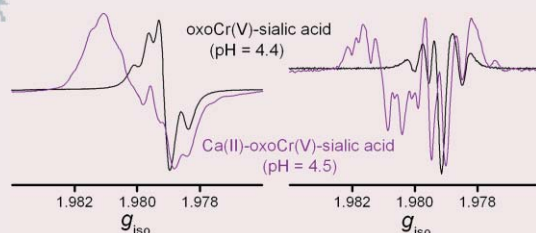


Principles of sequence-recognition in aromatic polyimides

Howard M. Colquhoun,* Zhixue Zhu,* Christine J. Cardin and Yu Gan

Studies of tweezer-type complexes with aromatic co-polyimides having different sequence-restrictions show that extended co-monomer sequences can be “read” by the tweezer, through sequence-selective complexation, and “reported” *via* differential aromatic ring-current shifts in ^1H NMR resonances associated with the different sequences.

2653

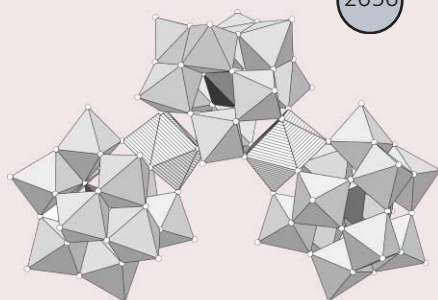


Metalloglycomics: a new perspective upon competitive metal-carbohydrate binding using EPR spectroscopy

Rachel Codd

Electron paramagnetic resonance (EPR) spectra of solutions of oxoCr(v) complexes with *N*-acetylneuraminic (sialic) acid (naH_6) show striking signal modulation in the presence of excess $\text{Ca}(\text{II})$, indicating the formation of ternary $\text{Ca}(\text{II})$ -oxoCr(v)- naH_6 complexes that have electronic structures and equilibrium distributions distinct from the binary analogues

2656

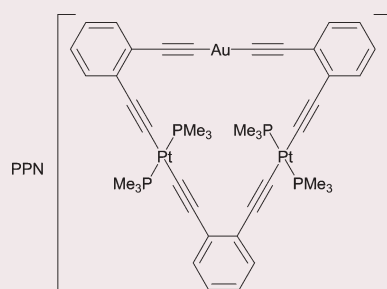


Novel cerium(IV) heteropolyoxotungstate containing two types of lacunary Keggin anions

Filipa L. Sousa, Filipe A. Almeida Paz, Ana M. V. Cavaleiro, Jacek Klinowski and Helena I. S. Nogueira*

A novel V-shaped polyoxotungstate is formed when Ce^{IV} metal centres bridge monolacunary $[\text{PW}_{11}\text{O}_{39}]^{7-}$ anions to an unusual 1,4-bilacunary $[\text{PW}_{10}\text{O}_{38}]^{11-}$ anion which appears with an unprecedented bridging structural motif.

2658

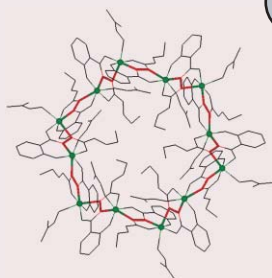


Synthesis and X-ray crystal structure of an anionic heteronuclear metallamacrocyclic triangle

José Vicente,* María-Teresa Chicote, Miguel M. Alvarez-Falcón and Peter G. Jones*

The synthesis of the first metallamacrocyclic triangle being (i) anionic, (ii) heteronuclear or (iii) a carbametallacycle containing gold or platinum is reported.

2660

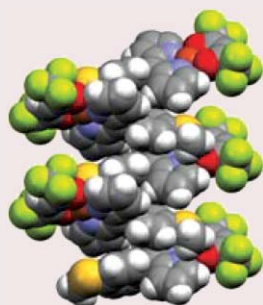


Novel 36-membered dodecanuclear manganese metalladiazamacrocycle

Rohith P. John, Kyungjae Lee and Myoung Soo Lah*

A novel dodecanuclear manganese metalladiazamacrocycle has been prepared. The metal-organic assembly contains a backbone of a 36-membered cyclic structure. The unique arrangement of manganese centers result in a highly puckered metalladiazamacrocycle with an S_6 -point group symmetry.

2662

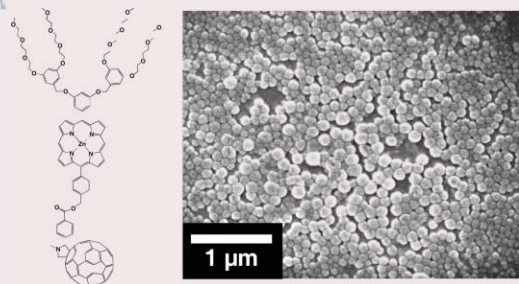


Helical coordination polymers and cyclic dimers formed from heteroleptic thioether-dipyrrinato copper(II) complexes

Loi Do, Sara R. Halper and Seth M. Cohen*

Thioether-functionalized dipyrrinato ligands are found to form self-complementary, supramolecular binuclear and polymeric complexes with copper(II).

2664

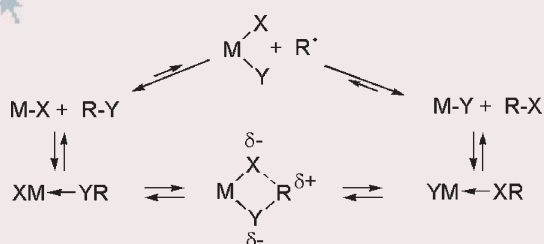


Self-assembly of a π -electronic amphiphile consisting of a zinc porphyrin–fullerene dyad: formation of micro-vesicles with a high stability

Richard Charvet, Dong-Lin Jiang and Takuzo Aida*

A non-ionic amphiphilic zinc porphyrin–fullerene dyad appended with dendronized triethyleneglycol chains self-assembles in aqueous media to form uniformly-sized, multilamellar micro-vesicles ($D_h \approx 100$ nm) with a high stability.

2666

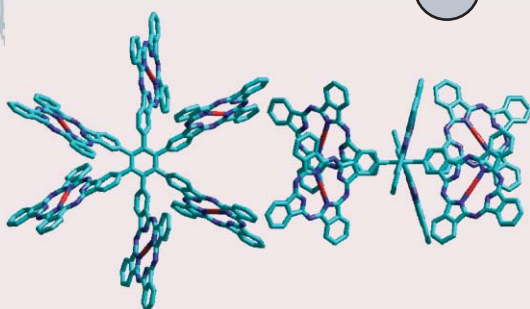


Al(OPr)ⁱ₃-catalysed halogen exchange processes of relevance to atom transfer radical polymerization: the effect depends on the metal electronic structure

François Stoffelbach and Rinaldo Poli*

Tri(isopropoxo)aluminium is found to catalyse halogen exchange between a metal complex and an organic halide initiator, as well as ATRP, when using a 17-electron half-sandwich molybdenum(III) compound.

2668

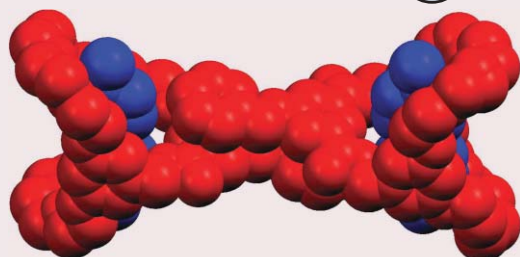


Synthesis and characterization of a benzene-centered, phthalocyanine hexamer

Giovanni Bottari and Tomás Torres*

A novel benzene-centered phthalocyanine hexamer has been synthesized by a cobalt-catalyzed trimerization reaction of an ethynyl-bridged bisphthalocyanine. This molecule represents an interesting example of a sterically-constrained multi-phthalocyanine system.

2670

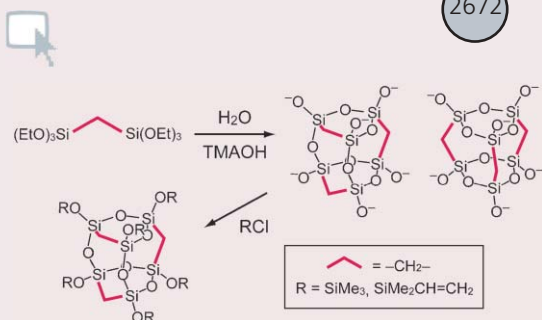


Formation of dimers of inclusion cryptand/paraquat complexes driven by dipole–dipole and face-to-face π -stacking interactions

Feihe Huang, Liang Zhou, Jason W. Jones, Harry W. Gibson* and Mehdi Ashraf-Khorassani

Dimers are formed from inclusion complexes of a new cryptand with paraquats, driven by dipole–dipole and face-to-face π -stacking interactions as shown by electrospray mass spectrometric characterization and X-ray analysis.

2672

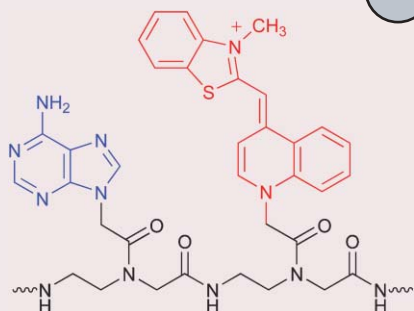


Selective formation of siloxane-based hybrid cages with methylene groups in the frameworks

Atsushi Shimojima* and Kazuyuki Kuroda*

Novel cage-like oligomers having methylene groups in the frameworks have been selectively formed by hydrolysis and polycondensation of bis(triethoxysilyl)methane in the presence of tetramethylammonium ions.

2674

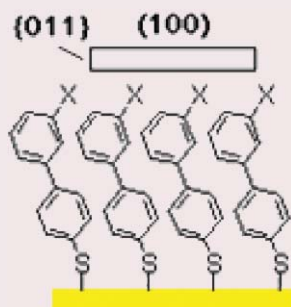


Ensemble hybridisation – a new method for exploring sequence dependent fluorescence of dye–nucleic acid conjugates

Olaf Köhler, Dilip Venkatrao Jarikote and Oliver Seitz*

The influence of nearest neighbours on the emission of fluorescent nucleobases and analogues can be rapidly and conveniently probed by ensemble measurements. The intercalator dye thiazole orange as artificial base in PNA was explored as a paradigm.

2676

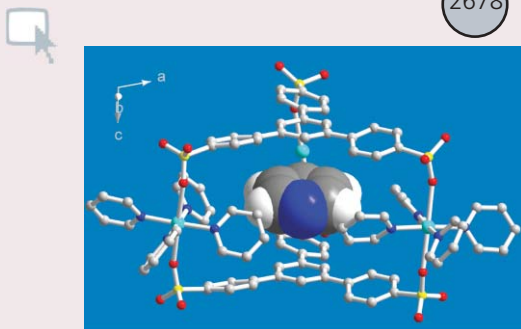


Selective growth of a less stable polymorph of 2-iodo-4-nitroaniline on a self-assembled monolayer template

Rupa Hiremath, Stephen W. Varney and Jennifer A. Swift*

Self-assembled monolayers are used as templates to preferentially nucleate a less stable phase of a polymorphic organic molecular crystal.

2678

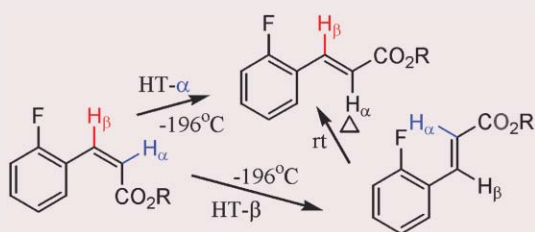


A neutral self-assembled coordination cage organized for inclusion of aromatic guests

Amir H. Mahmoudkhani, Adrien P. Côté and George K. H. Shimizu*

Jahn–Teller distorted Cu^{2+} centers, axially ligated by RSO_3^- groups, act as spacers in a neutral cage molecule to organize polyaromatic ligands at a distance well-suited for inclusion of aromatic molecules.

2680

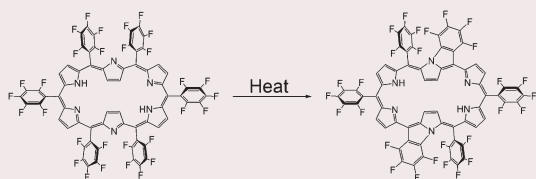


Regioselective Hula-twist photoisomerization of cinnamate esters in organic glass

Stefan Schieffer, John Pescatore, Richard Ulsh and Robert S. H. Liu*

The two possible modes of Hula-twist photo-isomerization processes of *cis*-cinnamate have been detected with a high preference for reaction at the β -center.

2682

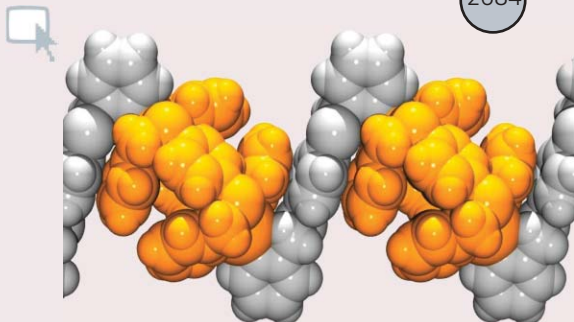


Doubly N-fused *meso*-aryl substituted hexaphyrins(1.1.1.1.1.1)

Masaaki Suzuki, Ryuichiro Taniguchi and Atsuhiro Osuka*

Doubly N-fused hexaphyrins(1.1.1.1.1.1) were synthesized by heating *meso*-aryl substituted hexaphyrins(1.1.1.1.1.1) in the presence of Fe(III) acetylacetonate.

2684

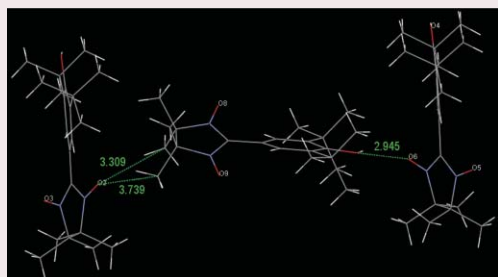


Coordination polymers with macrocyclic cages and pockets within their backbones

Moonhyun Oh, Charlotte L. Stern and Chad A. Mirkin*

Co-polymerization of Ag^+ ions and the flexible ligand (1,4-bis(pyridine-2-yl-methanethio)benzene) results in coordination polymers containing macrocyclic pockets or cages, depending upon the stoichiometry of the reaction.

2686

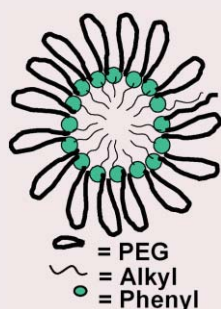


Crystallography and magnetism of radicals with hindered hydroxyl groups: 2-(3,5-di-*tert*-butyl-4-hydroxyphenyl)-4,4,5,5-tetramethyl-4,5-dihydro-1*H*-imidazole-3-oxide-1-oxyl and 2-(3,5-di-*tert*-butyl-4-hydroxyphenyl)-4,4,5,5-tetramethyl-4,5-dihydro-1*H*-imidazole-1-oxyl

Patrick Taylor and Paul M. Lahti*

The title radicals form crystallographic networks with $\text{OH}\cdots\text{Me}(\text{nitroxide})$ and $\text{OH}\cdots\text{ON}$ contacts; magnetostructural analysis of the nitronitroxide suggests that the OH plays a vital role in yielding antiferromagnetic exchange behaviour consistent with 1-D chain interactions.

2689

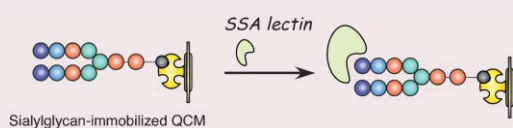


Influence of EDA- π interactions in drug encapsulation using nanospheres

Sunil K. Sharma, Rajesh Kumar, Sumit Kumar, Ravi Mosurkal, Virinder S. Parmar,* Lynne A. Samuelson, Arthur C. Watterson* and Jayant Kumar*

Encapsulation of small hydrophobic drugs using a novel polymeric nanosphere has been reported. This is an appropriate model system to evaluate the influence of aromatic and hydrophobic interactions on encapsulation.

2692

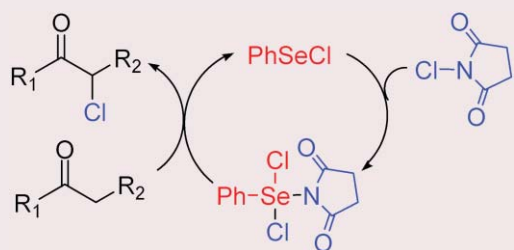


Enzymatic preparation of biotinylated naturally-occurring sialylglycan and its molecular recognition on a quartz-crystal microbalance

Toshiaki Mori, Yoshimi Sekine, Kenji Yamamoto and Yoshio Okahata*

A biotinylated sialylglycan was prepared enzymatically by *endo*-M, and binding behavior of an SSA lectin was studied on a different coverage of a sialylglycan-immobilized 27 MHz quartz-crystal microbalance (QCM).

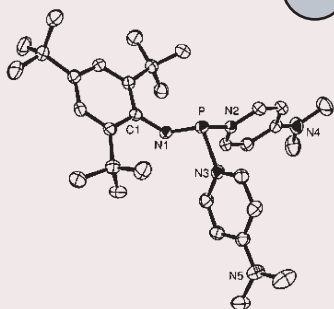
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**Selenocatalytic α -halogenation**

Chao Wang and Jon Tunge*

Through a 2e- oxidation-reduction cycle, phenylselenides catalytically activate *N*-chlorosuccinimide toward electrophilic reactions with ketones, resulting in α -haloketones.

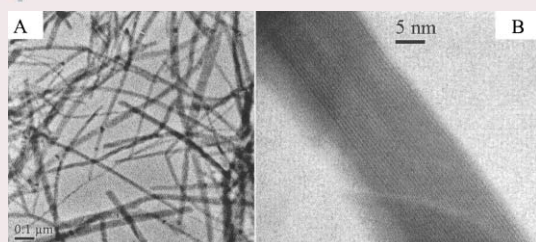
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**Donor-rich and acceptor-rich pyridine-phosphadiazonium adducts: Diversifying the Lewis acceptor chemistry of phosphorus(III)**

Neil Burford,* Heather A. Spinney, Michael J. Ferguson and Robert McDonald

The cation $[\text{Mes}^*\text{NP}(\text{DMAP})_2]^+$ represents the first ligand-rich coordination complex of a phosphorus(III) Lewis acceptor, demonstrating the potential to develop the coordination chemistry of electron-rich (lone pair bearing) centers, in addition, $[(\text{Mes}^*\text{NP})_2(4,4'\text{-BIPY})][\text{OTf}]_2$ contains an acceptor-rich dication.

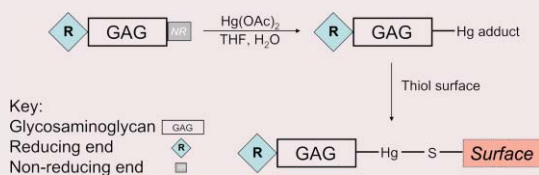
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**Chemical routes to GeS_2 and GeSe_2 nanowires**

Manashi Nath, Amitava Choudhury and C. N. R. Rao*

Nanowires of $\delta\text{-GeS}_2$ (A) and GeSe_2 (B) have been synthesized by different chemical routes from molecular precursors containing the super-tetrahedral Ge_4S_{10} adamantanoid and dimeric Ge_2Se_6 unit respectively.

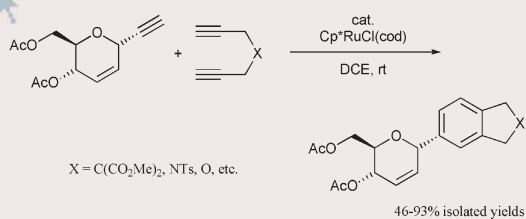
2700

**Attachment of glycosaminoglycan oligosaccharides to thiol-derivatised gold surfaces**

Mark A. Skidmore, Susannah J. Patey, Nguyen T. K. Thanh, David G. Fernig, Jeremy E. Turnbull and Edwin A. Yates*

Biologically and medically important glycosaminoglycans have been attached to thiol-derivatised gold surfaces *via* mercury adducts, representing a new class of versatile glycoconjugates.

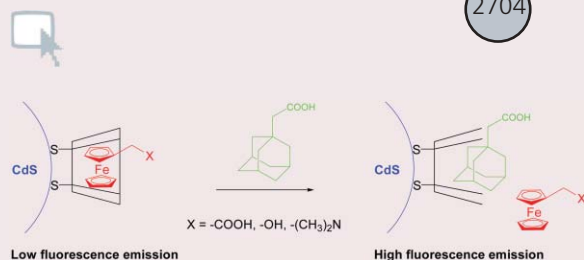
2702

**Synthesis of *C*-arylglycosides *via* Ru(II)-catalyzed [2 + 2 + 2] cycloaddition**

Yoshihiko Yamamoto,* Tomoaki Saigoku, Takashige Ohgai, Hisao Nishiyama and Kenji Itoh

Various *C*-arylglycosides were synthesized by means of the Ru(II)-catalysed [2 + 2 + 2] cycloaddition of α,ω -diynes with *C*-alkynylglycosides under mild conditions.

2704

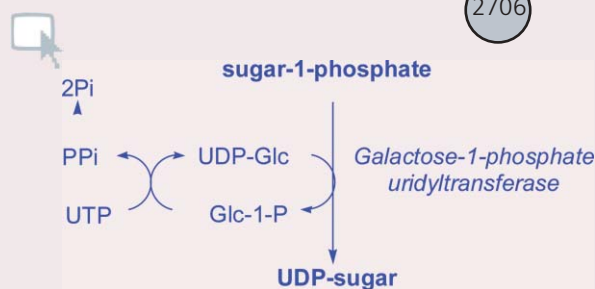


Supramolecular control of complexation-induced fluorescence change of water-soluble, β -cyclodextrin-modified CdS quantum dots

Kumaranand Palaniappan, Stephen A. Hackney and Jian Liu*

The fluorescence of β -cyclodextrin-modified CdS quantum dots can be reversibly tuned by introducing different substrates in aqueous media.

2706

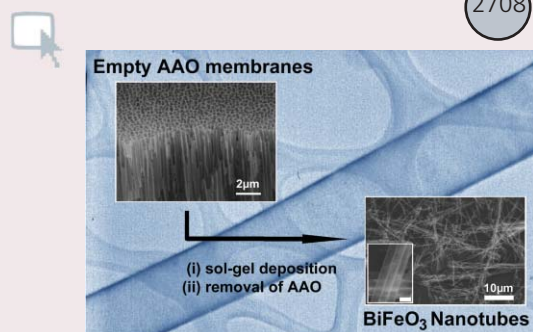


Flexible enzymatic and chemo-enzymatic approaches to a broad range of uridine-diphospho-sugars

James C. Errey, Balam Mukhopadhyay, K. P. Ravindranathan Kartha and Robert A. Field*

Enzyme catalysed transformation of a wide range of sugar-1-phosphates to their UDP adducts can be effected with galactose-1-phosphate uridylyltransferase (2-azido-2-deoxygalactose—76%; mannose—93%; *N*-acetylglucosamine—30%; xylose—89%; galactofuranose—79%; L-fucose—12%).

2708

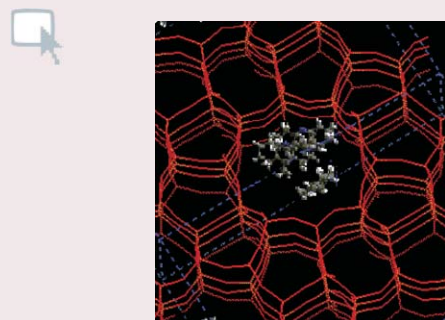


Synthesis and characterization of multiferroic BiFeO₃ nanotubes

Tae-Jin Park, Yuanbing Mao and Stanislaus S. Wong*

Multiferroic bismuth ferrite (BiFeO₃) nanotubes have been synthesized using a modified template methodology, and were extensively structurally characterized.

2710

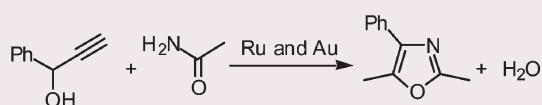


CeZSM-5—a designer's catalyst for selective synthesis of octahydroacridine

A. Ratnamala, V. Durga Kumari,* M. Subrahmanyam and N. Archana

High activity of cyclohexanone, formaldehyde and ammonia to form octahydroacridine (OHA) is observed over zeolites and molecular modeling studies confirm the suitability of HZSM-5 catalyst for selective synthesis of OHA.

2712

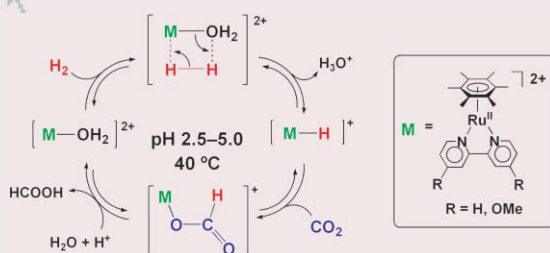


Ruthenium- and gold-catalysed sequential reactions: a straightforward synthesis of substituted oxazoles from propargylic alcohols and amides

Marilyn Daisy Milton, Youichi Inada, Yoshiaki Nishibayashi* and Sakae Uemura*

A convenient and straightforward one-pot reaction of propargylic alcohols bearing a terminal alkyne moiety with amides by the sequential action of ruthenium and gold catalysts gives the corresponding substituted oxazoles in good yields with a complete regioselectivity.

2714

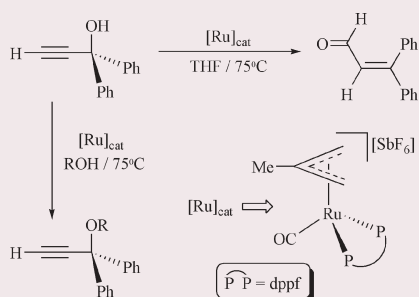


Aqueous hydrogenation of carbon dioxide catalysed by water-soluble ruthenium aqua complexes under acidic conditions

Hideki Hayashi, Seiji Ogo* and Shunichi Fukuzumi*

Hydrogenation of carbon dioxide ($P(\text{H}_2/\text{CO}_2) = 5.5/2.5$ MPa) into formic acid (HCOOH) under acidic conditions (pH 2.5–5.0) in water has been achieved by using water-soluble ruthenium aqua catalysts $[(\eta^6\text{-C}_6\text{Me}_6)\text{Ru}^{\text{II}}(\text{L})(\text{OH}_2)]\text{SO}_4$ ($\text{L} = 2,2'$ -bipyridine or $4,4'$ -dimethoxy- $2,2'$ -bipyridine).

2716

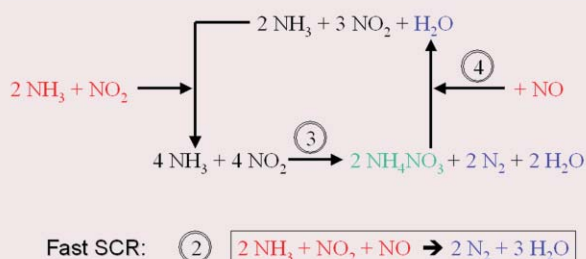


$[\text{Ru}(\eta^3\text{-}2\text{-C}_3\text{H}_4\text{Me})(\text{CO})(\text{dppf})][\text{SbF}_6]$: a mononuclear $16e^-$ ruthenium(II) catalyst for propargylic substitution and isomerization of $\text{HC}\equiv\text{CCPh}_2(\text{OH})$

Victorio Cadierno,* Josefina Díez, Sergio E. García-Garrido and José Gimeno*

The $16e^-$ (η^3 -allyl)-ruthenium(II) derivative $[\text{Ru}(\eta^3\text{-}2\text{-C}_3\text{H}_4\text{Me})(\text{CO})(\text{dppf})][\text{SbF}_6]$ catalyzes: (i) the propargylic substitution reaction of 1,1-diphenyl-2-propyn-1-ol with alcohols to produce the corresponding propargylic ethers, and (ii) the formal isomerization of 1,1-diphenyl-2-propyn-1-ol into 3,3-diphenyl-2-propenal.

2718

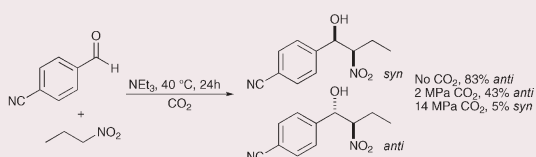


A “Nitrate Route” for the low temperature “Fast SCR” reaction over a $\text{V}_2\text{O}_5\text{-WO}_3/\text{TiO}_2$ commercial catalyst

Cristian Ciardelli, Isabella Nova, Enrico Tronconi,* Daniel Chatterjee and Brigitte Bandl-Konrad

A novel mechanism is proposed for the “Fast SCR” reaction at low temperature involving the formation of ammonium nitrate from NH_3 and NO_2 as intermediate, and its subsequent reaction with NO .

2720

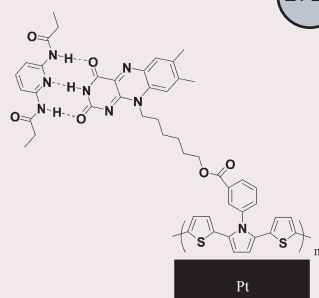


Manipulation of the stereochemical outcome and product distribution in the Henry reaction using CO_2 pressure

Andrew J. Parratt, Dave J. Adams, Anthony A. Clifford and Christopher M. Rayner*

The rate and stereocontrol of the Henry reaction in the presence of CO_2 can be controlled simply by manipulation of CO_2 pressure, and can be understood on the basis of kinetic and thermodynamic aspects of the reaction.

2722

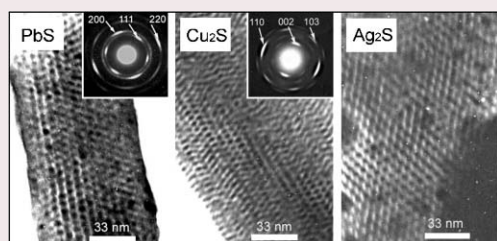


The electrochemically tuneable recognition properties of an electropolymerised flavin derivative

Graeme Cooke,* James Garety, Suhil Mabruk, Vincent Rotello, Gheorghe Surpateanu and Patrice Woisel

The electrochemically tuneable recognition properties between an electropolymerised flavin derivative and 2,6-diethylamidopyridine are reported.

2724

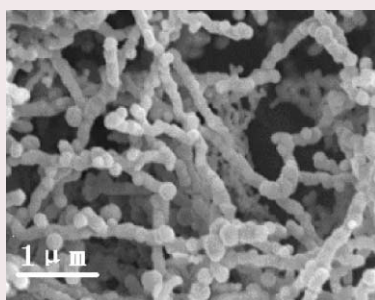


A facile chemical route to semiconductor metal sulfide nanocrystal superlattices

Zhaoping Liu, Jianbo Liang, Dan Xu, Jun Lu and Yitai Qian*

Monodisperse nanocrystals of various metal sulfides can be formed directly by a reaction between metal thiolate and thioacetamide in dodecanethiol, and they can be further self-assembled into nanocrystal superlattices *via* a precipitation process.

2726

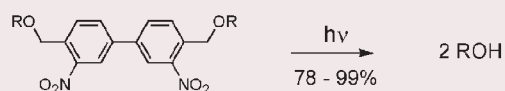


Magnetic nanochains of metal formed by assembly of small nanoparticles

Chen-Min Liu, Lin Guo,* Rong-Ming Wang,* Yuan Deng, Hui-Bin Xu and Shihe Yang*

Nickel nanochains are synthesized with diameters of 150–250 nm and lengths of 0.5–2 μm by assembly of small nanoparticles, which exhibit a magnetic coercivity over two orders of magnitude larger than that of bulk Ni.

2728

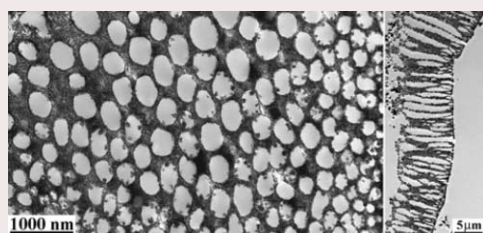


Synthesis and photocleavage of a new dimeric bis(*o*-nitrobenzyl) diether tether

Nandita Madhavan and Mary S. Gin*

A rigid photocleavable linker is described that releases two alcohols upon irradiation at $\lambda_{\text{max}} = 350$ nm. These reactions are significantly cleaner and higher yielding than the photolyses of the corresponding monomeric ethers.

2730

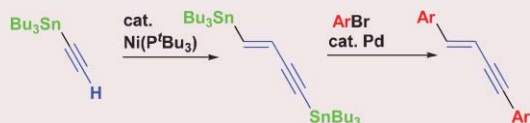


Thermally stable macroporous zirconium phosphates with supermicroporous walls: a self-formation phenomenon of hierarchy

Tie-Zhen Ren, Zhong-Yong Yuan and Bao-Lian Su*

A self-formation phenomenon leading to a hierarchical structure of thermally stable macroporous zirconium phosphates with amorphous supermicroporous walls.

2732



Dimerization of terminal alkynes catalyzed by a nickel complex having a bulky phosphine ligand

Sensuke Ogoshi,* Mizu Ueta, Masa-aki Oka and Hideo Kurosawa*

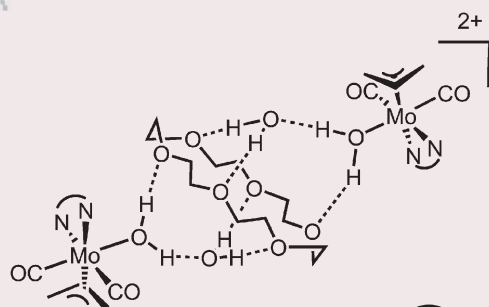
Ni(cod)₂/P^tBu₃ system catalyzed the dimerization of terminal alkynes, in which the stannylacetylene dimer could be applied to a one-pot synthesis of a conjugated enyne, when combined with Migita-Stille coupling.

2734

A $(\text{H}_2\text{O})_4$ /crown ether network spanned between organometallic complex metal fragments

Cristina Wippert Rodrigues, Christian Limberg* and Hans Pritzkow

A hydrogen bonded arrangement of water and crown ether molecules is clamped between two organometallic moieties in a dication, which was obtained on deliberate addition of water to a corresponding precursor generated from $[\text{Mo}(\eta^3\text{-C}_3\text{H}_5)(\text{CO})_2(\text{bipy}^*)\text{Cl}]$.



2736

Chemical reactions of double bonds in activated carbon: microwave and bromination methods

Vitaliy L. Budarin, James H. Clark, Stewart J. Tavener* and Karen Wilson

The reaction of localised C=C bonds on the surface of activated carbons has been shown to be an effective method of chemical modification especially using microwave-assisted reactions.

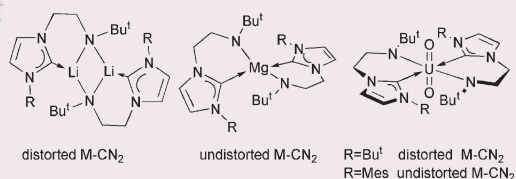


2738

Bent metal carbene geometries in amido *N*-heterocyclic carbene complexes

Shaheed A. Mungur, Stephen T. Liddle, Claire Wilson, Mark J. Sarsfield and Polly L. Arnold*

Lithium(i) and uranium(vi) amido-tethered Bu^t -substituted *N*-heterocyclic carbene (NHC) amides are reported that exhibit very distorted metal-carbene bonds. However, the corresponding magnesium(ii) and mesityl-substituted NHC uranium(vi) complexes are undistorted. Structural and spectroscopic comparisons show that the distortion does not affect the ligand binding strength.

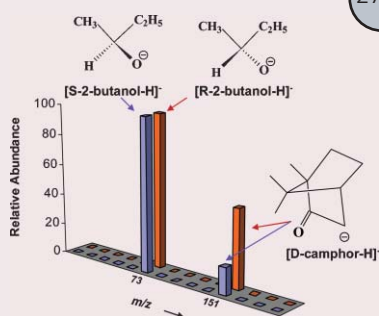


2740

Chiral recognition by proton transfer reactions with optically active amines and alcohols

Habib Bagheri, Hao Chen and R. Graham Cooks*

Proton transfer reactions with chiral reagents allow chiral recognition as shown by deprotonation of D- and L-camphor ions $[\text{M} + \text{H}]^+$ with chiral amines or deprotonation of neutral camphor by chiral alkoxide anions.

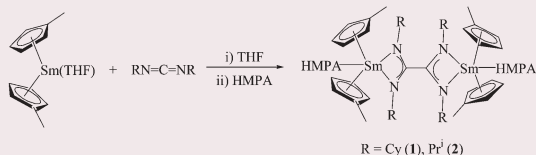


2742

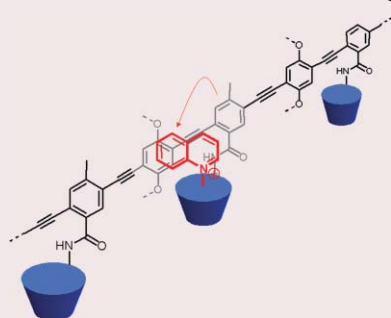
A first oxalamidino complex of samarium *via* reduction-coupling of carbodiimine: synthesis and molecular structure of $[\eta^4\text{-C}_2(\text{NR})_4][(\text{MeC}_5\text{H}_4)_2\text{Sm}(\text{HMPA})_2 \cdot 2\text{THF}$ ($\text{R} = \text{Pr}^i, \text{Cy}$)

Mingyu Deng, Yingmin Yao, Yong Zhang and Qi Shen*

Reaction of $(\text{MeC}_5\text{H}_4)_2\text{Sm}(\text{THF})$ with an equivalent of carbodiimine $[\text{RN}=\text{C}=\text{NR}]$ ($\text{R} = \text{Pr}^i$ or Cy ; $\text{Cy} = \text{cyclohexyl}$) in the presence of an equivalent of hexamethylphosphoric triamide (HMPA) gives, *via* a reduction-coupling reaction, the bimetallic oxalamidino complex of samarium $[(\text{MeC}_5\text{H}_4)_2\text{Sm}(\text{HMPA})(\text{RN})\text{C}(\text{NR})_2]$.



2744



Enhanced fluorescence quenching in receptor-containing conjugated polymers: a calix[4]arene-containing poly(phenylene ethynylene)

Jordan H. Wosnick and Timothy M. Swager*

A fluorescent poly(phenylene ethynylene) containing calix[4]arene-based receptor units has a sensitivity to quenching by the *N*-methylquinolinium ion that is over three times larger than that seen in a control polymer lacking calix[4]arenes.

2746

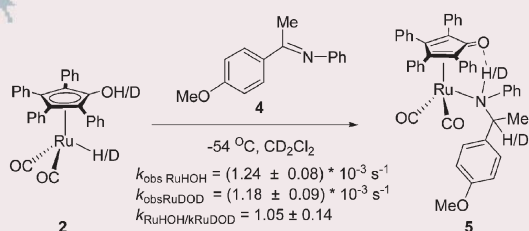


Biomimetic thermo-responsive star diblock gelators

Yuting Li, Ravin Narain, Yinghua Ma, Andrew L. Lewis and Steven P. Armes*

We report the synthesis of novel biomimetic gelators with star diblock copolymer architectures by sequential monomer addition *via* alcoholic ATRP at 20 °C; free-standing gels can be formed from 5% aqueous star diblock copolymer solutions at 37 °C.

2748

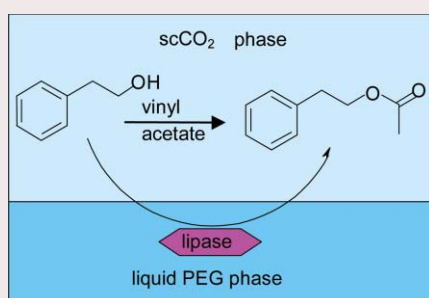


Mechanism of hydrogen transfer to imines from a hydroxycyclopentadienyl ruthenium hydride. Support for a stepwise mechanism

Joseph S. M. Samec, Alida H. Éll and Jan-E. Bäckvall*

The low kinetic isotope effect observed in the hydrogen transfer from complex **2** to ketimine **4** supports a stepwise mechanism where the imine may coordinate to ruthenium prior to hydrogen transfer.

2750

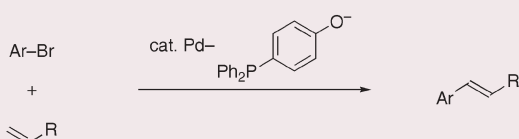


Liquid poly(ethylene glycol) and supercritical carbon dioxide as a biphasic solvent system for lipase-catalyzed esterification

Manfred T. Reetz* and Wolfgang Wiesenhöfer

The biphasic solvent system composed of poly(ethylene glycol) (PEG) and supercritical carbon dioxide (scCO₂) is ideally suited for the lipase-catalyzed acylation of alcohols; batch or continuous flow acylations are possible, scCO₂ being used to extract the products.

2752

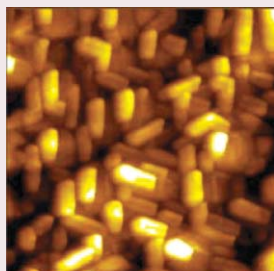


A *p*-phosphinophenolate ligand for the palladium-catalysed arylation of alkenes

Eiji Shirakawa,* Keiji Ishii and Teruhisa Tsuchimoto

A triarylphosphine ligand having strong σ -donicity derived from an oxyanion on a benzene ring was found to show much higher efficiency compared with other structurally related triarylphosphines in the palladium-catalysed arylation of alkenes.

2754

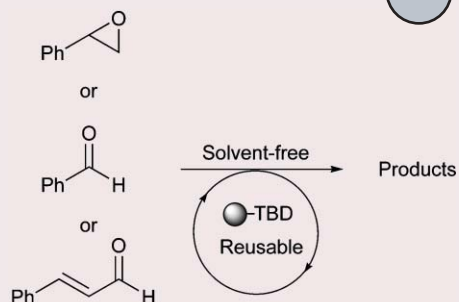


Electrodeposition of monodispersed Fe nanocrystals from an ionic liquid

C. L. Aravinda and W. Freyland*

Monodispersed Fe nanocrystals up to ~ 2 nm thick have been electrodeposited from an ionic liquid $\{\text{AlCl}_3\text{-[MBIm]}^+\text{Cl}^-\}$ at room temperature on Au(111) and have been characterized *in-situ* by electrochemical scanning tunneling microscopy for the first time.

2756

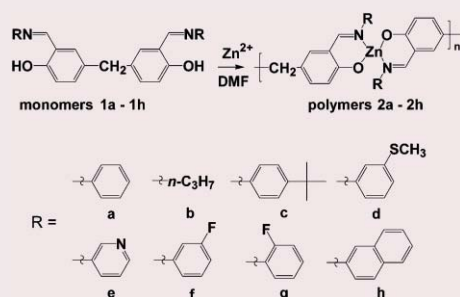


Polystyryl-supported TBD as an efficient and reusable catalyst under solvent-free conditions

Francesco Fringuelli,* Ferdinando Pizzo,* Carla Vittoriani and Luigi Vaccaro

Polystyryl supported-TBD (PSTBD) is an efficient and reusable heterogeneous basic catalyst under solvent-free conditions for a variety of organic transformations such as 1,2-epoxide ring-opening, aldol-type condensation and Michael addition.

2758

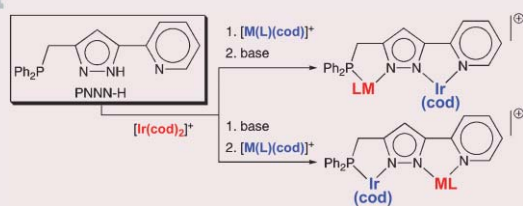


Self-assembled zinc(II) Schiff base polymers for applications in polymer light-emitting devices

Chi-Chung Kwok, Sze-Chit Yu, Iona H. T. Sham and Chi-Ming Che*

The recent development of self-assembled metal coordination polymers has been extended to the synthesis of Zn(II) Schiff base polymers that are thermally stable, structurally diverse and easily synthesized; these polymers also possess tunable electroluminescent emissions for PLEDs.

2760

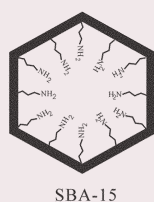


Selective synthesis of isomeric heterodinuclear complexes with switched metal arrangements *via* proton-induced reversible metal migration

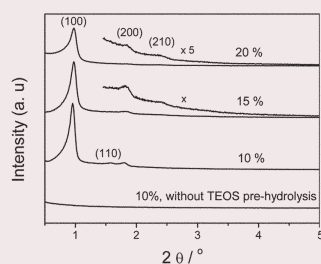
Christian Dubs, Akiko Inagaki and Munetaka Akita*

Pairs of isomeric heterodinuclear complexes, $[(\text{cod})\text{Ir}(\mu\text{-PNNN})\text{M}(\text{L})]\text{BF}_4$ and $[(\text{L})\text{M}(\mu\text{-PNNN})\text{Ir}(\text{cod})]\text{BF}_4$, with switched metal arrangements are prepared in a specific manner by simply reversing the addition order of the reagents.

2762



SBA-15

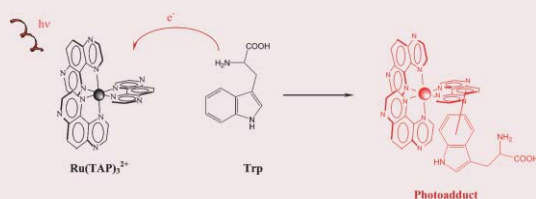


Preparation of ordered large pore SBA-15 silica functionalized with aminopropyl groups through one-pot synthesis

Xueguang Wang, Kyle S. K. Lin, Jerry C. C. Chan and Soofin Cheng*

Highly ordered large pore SBA-15 silica functionalized with up to 16% aminopropyl groups, which showed high efficiencies as a base-catalyst in aldol condensation and Michael addition, was synthesized for the first time *via* co-condensation of tetraethylorthosilicate (TEOS) and 3-aminopropyl triethoxysilane (APTES) using an amphiphilic block copolymer as the structure-directing agent.

2764

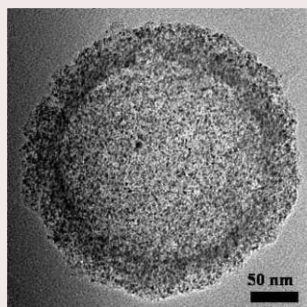


Adduct formation by photo-induced electron transfer between photo-oxidising Ru(II) complexes and tryptophan

Etienne Gicquel, Arnaud Boisdenghien, Eric Defrancq, Cécile Moucheron and Andrée Kirsch-De Mesmaeker*

A covalent photo-adduct between a photo-oxidising Ru(II) complex and tryptophan is formed by a photo-induced electron transfer.

2766

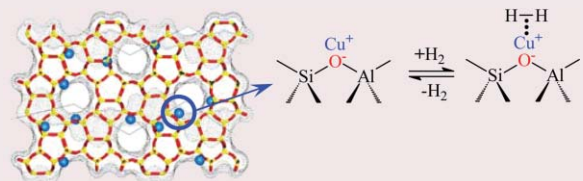


Spherical carbon capsules with hollow macroporous core and mesoporous shell structures as a highly efficient catalyst support in the direct methanol fuel cell

Geun Seok Chai, Suk Bon Yoon, Jung Ho Kim and Jong-Sung Yu*

Carbon capsules with hollow core and mesoporous shell (HCMS) structures were used as a support material for Pt₅₀-Ru₅₀ catalyst. The HCMS carbon supported catalysts exhibited high specific activity for methanol oxidation, proving that the HCMS carbon capsules are an excellent support for electrode catalysts in DMFC.

2768

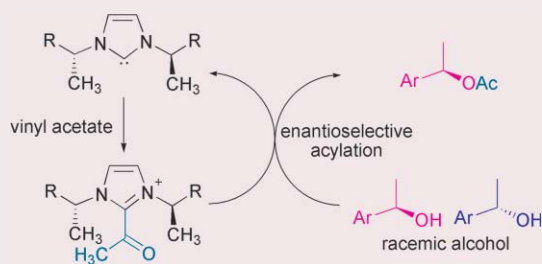


Cu⁺(H₂) and Na⁺(H₂) adducts in exchanged ZSM-5 zeolites

Giuseppe Spoto,* Evgueni Gribov, Silvia Bordiga, Carlo Lamberti, Gabriele Ricchiardi, Domenica Scarano and Adriano Zecchina*

Cu(I) in Cu-ZSM-5 forms Cu⁺(H₂) complexes stable at 300 K and sub-atmospheric H₂ pressure.

2770

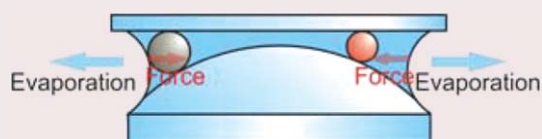


First example of chiral *N*-heterocyclic carbenes as catalysts for kinetic resolution

Yumiko Suzuki,* Kaori Yamauchi, Kazuyuki Muramatsu and Masayuki Sato

A use of chiral carbenes as chiral nucleophilic acylation catalysts is reported. C₂-Symmetric *N*-heterocyclic carbenes derived from 3-bis(1-arylethyl)imidazolium salts catalyze enantioselective acylation of racemic secondary alcohols.

2772

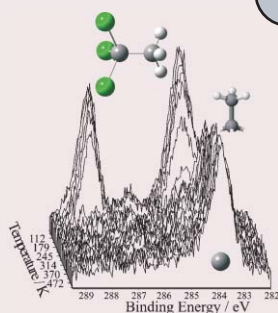


Micro-particle sorting by Newton-ring device

Masahiro Hatta, Hideaki Monjushiro and Hitoshi Watarai

A Newton-ring micro-particle sorter with a sub-micrometer gap was constructed from a small convex lens and a flat glass, and utilized for the fractionation of very small amounts of micro-particles and bio-particles in liquid.

2774

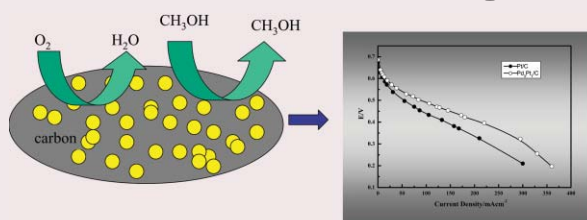


Low temperature 1,1,1-trichloroethane dehydrochlorination over Pt catalysts: from model surfaces to the real world

Adam F. Lee,* Paul A. Carr and Karen Wilson

Spectroscopic and kinetic studies on model and dispersed Pt catalysts reveal they are efficient for the direct, low temperature dehydrochlorination of 1,1,1-trichloroethane to HCl and ethane.

2776

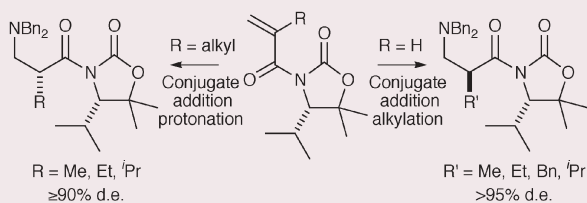


An improved palladium-based DMFCs cathode catalyst

Huanqiao Li, Qin Xin, Wenzhen Li, Zhenhua Zhou, Luhua Jiang, Shaohua Yang and Gongquan Sun*

Pd-based Pd₃Pt₁/C exhibited good direct methanol fuel cells performance as compared with Pt-based catalyst for its good selectivity against methanol oxidation and high oxygen reduction activity.

2778



Asymmetric synthesis of 2-alkyl- and 2-aryl-3-aminopropionic acids (β^2 -amino acids) from (*S*)-*N*-acryloyl-5,5-dimethyl-2-oxazolidin-2-one SuperQuat derivatives

James E. Beddow, Stephen G. Davies,* Andrew D. Smith and Angela J. Russell

Conjugate addition of lithiamides to (*S*)-*N*-acryloyl- or (*S*)-*N*-2'-alkylacryloyloxazolidinones and alkylation or protonation of the resulting enolates with 2-pyridone respectively provides a highly stereoselective route to a range of (*R*)- and (*S*)-2-alkyl-3-aminopropionic acids in high ee.

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