

Cover
A 256-membered oligothiophene combinatorial library.

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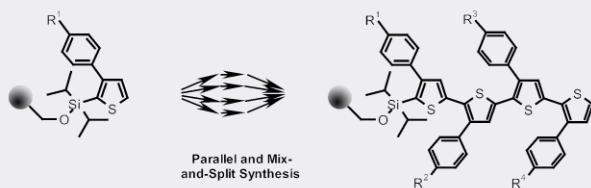
FEATURE ARTICLE

1015

From solid-phase synthesis of π -conjugated oligomers to combinatorial library construction and screening

Christoph A. Briehn and Peter Bäuerle*

A feature article describing concepts for the solid-phase synthesis of π -conjugated oligomers as material-related structures and the translation of the synthetic routes into combinatorial protocols.



256 Oligothiophene Library

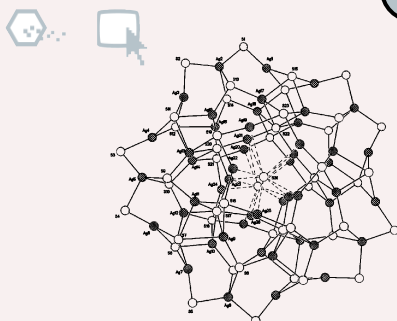
COMMUNICATIONS

1024

Synthesis and crystal structure of a novel pentaconta-nuclear silver anionic cluster complex $[\text{HNEt}_3]_4[\text{Ag}_{50}\text{S}_7(\text{SC}_6\text{H}_4\text{Bu}^t-4)_{40}]\cdot 2\text{CS}_2\cdot 6\text{C}_3\text{H}_6\text{O}$

Kaluo Tang, Xiangjin Xie, Yaohua Zhang, Xia Zhao and Xianglin Jin*

A silver 4-*tert*-butylthiophenolate complex generated *in situ* reacted with CS_2 in acetone to give an anionic cluster $[\text{Ag}_{50}\text{S}_7(\text{SC}_6\text{H}_4\text{Bu}^t-4)_{40}]^{4-}$, the core of which consists of fifty silver atoms and forty-seven sulfur atoms, shaped like a discus with a diameter of *ca.* 2.0 nm.

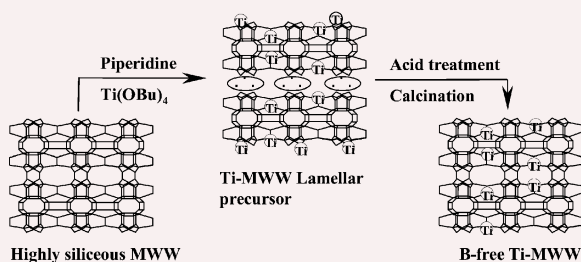


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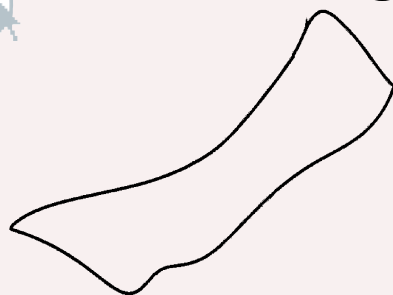
Preparation of B-free Ti-MWW through reversible structural conversion

Peng Wu and Takashi Tatsumi*

Three-dimensional MWW silicate is converted reversibly into its lamellar precursor in the presence of piperidine solution, allowing a uniform Ti incorporation to result in a highly active B-free Ti-MWW catalyst.



1028

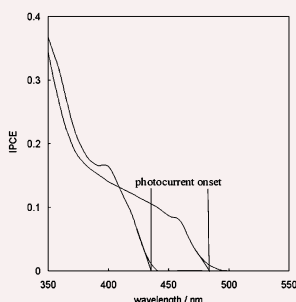


Carbon–epoxy electrodes: unambiguous identification of authentic triple-phase (insulator/solution/electrode) processes

Nathan S. Lawrence, Mary Thompson, James Davis, Li Jiang, Timothy G. J. Jones and Richard G. Compton

The communication reports a new methodology which unequivocally *proves* the three-phase junction mechanism for the electro-oxidation of an organic crystal imbedded in a carbon electrode by the introduction of insonation to the electrode surface.

1030

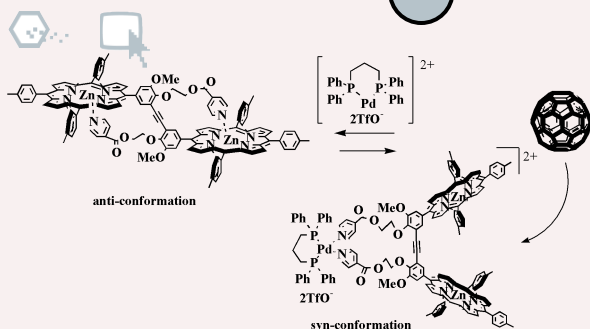


Photosensitization of nanocrystalline TiO₂ by self-assembled layers of CdS quantum dots

Laurence M. Peter,* D. Jason Riley, Elizabeth J. Tull and K. G. Upul Wijayantha

We report the preparation and characterization of CdS photosensitized TiO₂ electrodes. Photocurrent spectroscopy indicate that the size of CdS Q-dots formed can be controlled *via* the concentration of stabilizer present during deposition.

1032

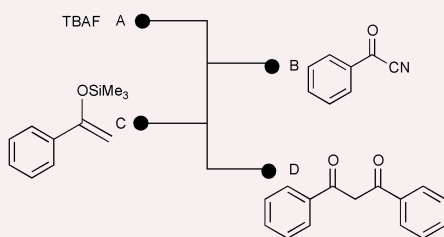


A novel [60]fullerene receptor with a Pd(II)-switched bisporphyrin cleft

Masatsugu Ayabe, Atsushi Ikeda, Seiji Shinkai,* Shigeru Sakamoto and Kentaro Yamaguchi

Porphyrin dimer **1**, which does not have an inside cavity and cannot interact with [60]fullerene (C₆₀), becomes an excellent C₆₀-acceptor with a large cavity in the presence of a Pd(II) complex.

1034



The regioselective preparation of 1,3-diketones within a micro reactor

Charlotte Wiles, Paul Watts, Stephen J. Haswell* and Esteban Pombo-Villar

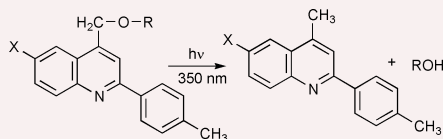
We have developed a simple, room temperature route to the regioselective formation of uncontaminated 1,3-diketones or *O*-acylated products within a micro reactor.

1036

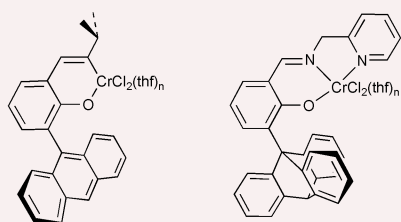
Approaches to a photocleavable protecting group for alcohols

Gary A. Epling and Anthony A. Provatas*

A new protecting group for the alcohol functionality was devised and shown to be removed photochemically under ultraviolet light in the presence of a radical scavenger in high yields.



1038



Discovery of a new family of chromium ethylene polymerisation catalysts using high throughput screening methodology

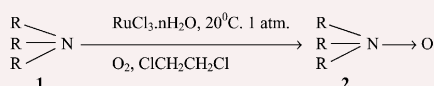
David J. Jones, Vernon C. Gibson,* Simon M. Green and Peter J. Maddox

High Throughput Screening (HTS) methodology has been employed to facilitate the discovery of an exceptionally active ethylene polymerisation catalyst family based on tridentate salicylaldehyde ligands bearing bulky tryptycenyl substituents.

1040

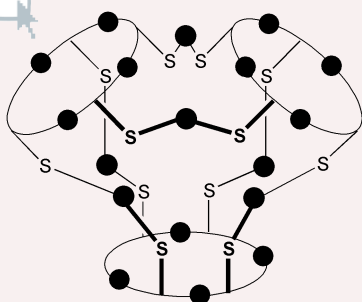
Ruthenium catalyzed oxidation of tertiary nitrogen compounds with molecular oxygen: an easy access to *N*-oxides under mild conditions

Suman L. Jain and Bir Sain*



Ruthenium catalyzed oxidation of tertiary nitrogen compounds with molecular oxygen: an easy access to *N*-oxides under mild conditions.

1042

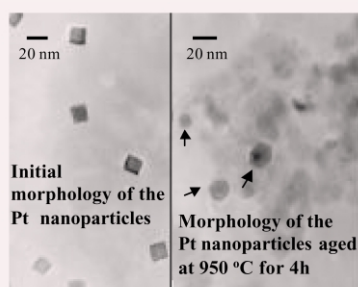


Koilands from thiophiles: mercury(II) clusters from thiacalixarenes

Hurley Akdas, Ernest Graf, Mir Wais Hosseini,* André De Cian, Alex Bilyk, Brian W. Skelton, George A. Koutsantonis, Ian Murray, Jack M. Harrowfield* and Allan H. White

Tetra- and hexa-nuclear mercury(II) clusters encapsulated by S_4 and S_8 thiacalix[4]arenes provide new digonal and trigonal koilands.

1044



Investigation of the morphology–catalytic reactivity relationship for Pt nanoparticles supported on alumina by using the reduction of NO with CH_4 as a model reaction

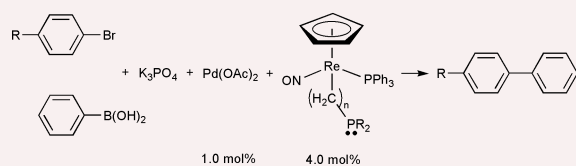
Ioan Balint,* Akane Miyazaki and Ken-ichi Aika

The relationship between the morphology of Pt nanoparticles supported on alumina and the catalytic reactivity for the NO/ CH_4 reaction is examined. The conversion of the low index facets of the well-structured Pt nanoparticles to higher index planes is associated with the decrease in reaction selectivity to N_2O and CO, and with the prevention of NH_3 formation.

1046

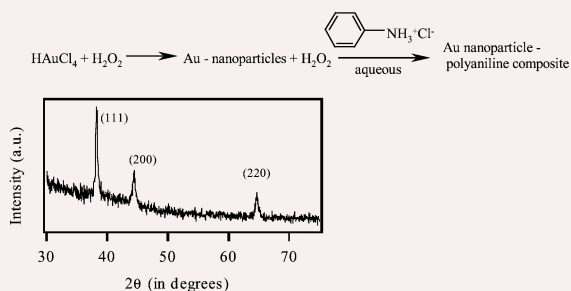
New approaches to high-activity transition-metal catalysts for carbon–carbon bond forming reactions. Rhenium-containing phosphorus donor ligands for palladium-catalyzed Suzuki cross-couplings

Sandra Eichenseher, Klemenz Kromm, Olivier Delacroix and J. A. Gladysz*



The rhenium complexes $(\eta^5-C_5H_5)Re(NO)(PPh_3)((CH_2)_nPR_2)$ ($n/R = 0/Ph, 0/t-Bu, 0/Me, 1/Ph, 1/t-Bu$), which contain electron-rich and sterically congested phosphido moieties, give active catalysts for the title reaction.

1048

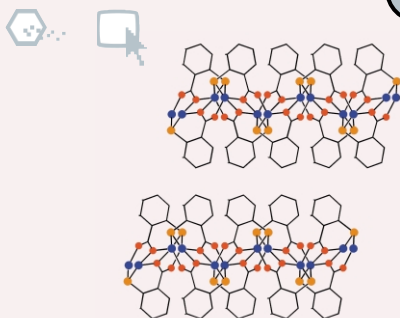


Synthesis of Au nanoparticle–conductive polyaniline composite using H_2O_2 as oxidising as well as reducing agent

Tridib Kumar Sarma, Devasish Chowdhury, Anumita Paul and Arun Chattopadhyay*

This communication reports the generation of an Au–nanoparticle polyaniline composite with H_2O_2 used as both oxidising and reducing agent; the composite thus generated has enhanced electrical conductivity.

1050

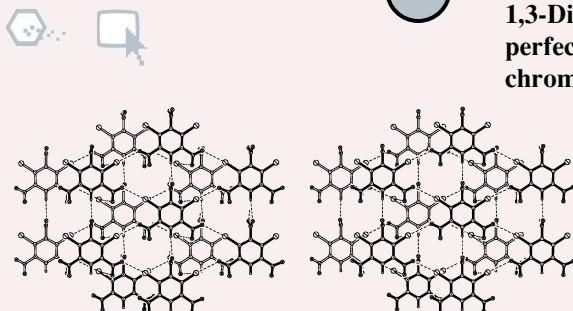


Layered metal organosulfides: hydrothermal synthesis, structure and magnetic behaviour of the spin-canted magnet $\text{Co}(1,2-(\text{O}_2\text{C})(\text{S})\text{C}_6\text{H}_4)$

Dale Cave, José-Miguel Gascon, Andrew D. Bond, Simon J. Teat and Paul T. Wood*

The new layered thiolate/carboxylate material $\text{Co}(1,2-(\text{O}_2\text{C})(\text{S})\text{C}_6\text{H}_4)$ has been prepared by hydrothermal synthesis. The sulfur bridges couple the spins of the trigonal bipyramidal $\text{Co}(\text{II})$ ions very strongly and spin canting produces a spontaneous magnetisation.

1052

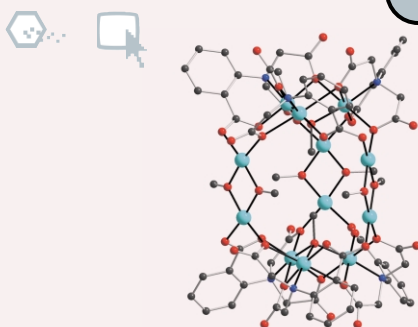


1,3-Dibromo-2,4,6-trinitrobenzene (DBTNB). Crystal engineering and perfect polar alignment of two-dimensional hyperpolarizable chromophores

Praveen K. Thallapally, Gautam R. Desiraju,* Muriel Bagieu-Beucher, René Masse,* Cyril Bourgogne and Jean-François Nicoud*

1,3-Dibromo-2,4,6-trinitrobenzene, a new NLO organic crystal built with 2D hyperpolarisable chromophores, crystallises in a perfect polar order leading to an intense powder SHG signal.

1054

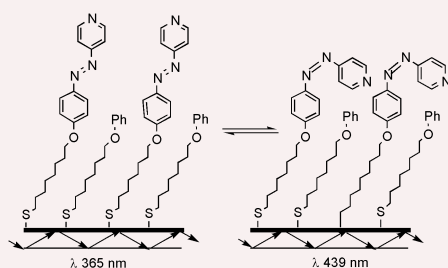


Engineering of ferrimagnetic Cu_{12} -cluster arrays through supramolecular interactions

Muralee Murugesu, Christopher E. Anson and Annie K. Powell*

Zero-dimensional Cu_{12} aggregates with non-zero ground state spins can be engineered *via* counter ions and solvent molecules into 1, 2 and 3-D arrays.

1056



An evanescent field driven mono-molecular layer photoswitch: coordination and release of metallated macrocycles

Michael J. Cook,* Anne-Mette Nygård, Zhenxin Wang and David A. Russell*

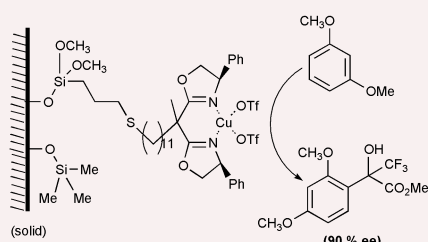
Photoswitching of 'on' and 'off' coordination sites in a self assembled monolayer containing the 4-(aryloxy)pyridine chromophore has been achieved using waveguided light and illustrated through a coordination-release cycle involving zinc tetraphenylporphyrin.

1058

Chiral copper(II) bisoxazoline covalently anchored to silica and mesoporous MCM-41 as a heterogeneous catalyst for the enantioselective Friedel–Crafts hydroxyalkylation

Avelino Corma,* Hermenegildo García,* Ahmed Moussaif, María J. Sabater, Rachid Zniber and Achour Redouane

Chiral copper(II) diphenyl bisoxazoline covalently anchored on silica and MCM-41 exhibits a higher enantioselectivity (up to 92% ee) for the Friedel–Crafts hydroxyalkylation of 1,3-dimethoxybenzene with 3,3,3-trifluoropyruvate than does the same complex in solution.

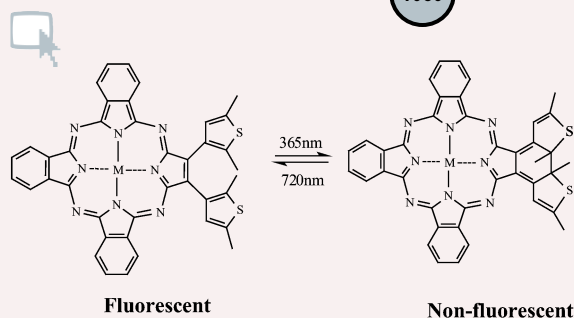


1060

Reversible near-infrared fluorescence switch by novel photochromic unsymmetrical-phthalocyanine hybrids based on bisthienylethene

Bingzhi Chen, Mingzhong Wang, Yingqi Wu and He Tian*

A novel family of photochromic hybrids, 2,3-bis(2,5-dimethyl-3-thienyl) unsymmetrical-phthalocyanines (BTE-uPcs), which show a photoregulating fluorescence switch in the near-infrared spectral region.

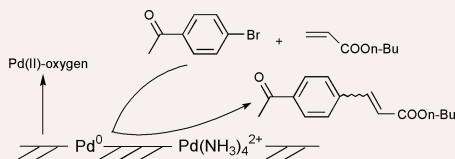


1062

Impact of Pd-mordenite pretreatment on the heterogeneity of Heck catalysis

M. Dams, L. Drijkoningen, D. De Vos and P. Jacobs*

Pd^0 and $\text{Pd}(\text{NH}_3)_4^{2+}$ on mordenite are truly heterogeneous catalysts in Heck chemistry, while Pd^{2+} in an all oxygen environment leaches and should be prevented.

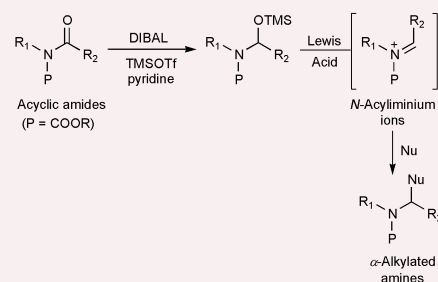


1064

The versatile conversion of acyclic amides to α -alkylated amines

Young-Ger Suh,* Dong-Yun Shin, Jae-Kyung Jung and Seok-Ho Kim

A general and efficient method for the versatile functionalization of acyclic amide *via* *N,O*-acetal TMS ether, an excellent precursor for the *N*-acyliminium ion, has been developed.

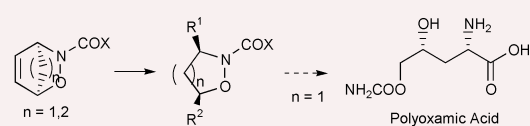


1066

Stereoselective cycloadditions of chiral acyl-nitroso compounds; selective reactions of ring-cleaved cycloadducts leading to a new approach to polyoxamic acid

Adrian G. Pepper, Garry Procter and Martyn Voyle

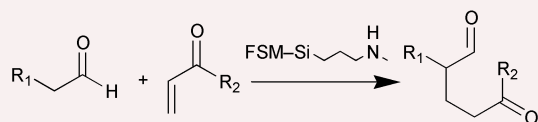
The chemistry of stereoselective acyl-nitroso cycloadditions, and the regioselective differentiation of resulting diesters is explored, leading to a new approach to a polyoxamic acid from the polyoxin series of antibiotics.



1068

Catalytic direct 1,4-conjugate addition of aldehydes to vinylketones on secondary-amines immobilised in FSM-16 silica

Ken-ichi Shimizu,* Hiromasa Suzuki, Eidai Hayashi, Tatsuya Kodama, Yoshimi Tsuchiya, Hisahiro Hagiwara and Yoshie Kitayama

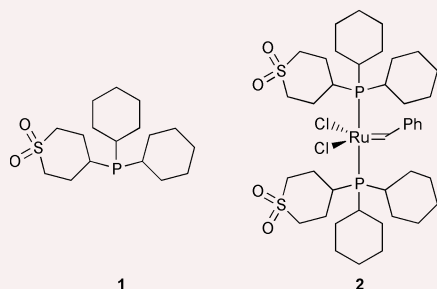


Direct 1,4-conjugate addition of naked aldehydes to vinylketones is catalysed effectively by *N*-methyl-3-aminopropylated FSM-16 mesoporous silica, which can be regarded as a novel heterogeneous catalysis for a practical C–C bond formation reaction.

1070

Ring closing metathesis in protic media by means of a neutral and polar ruthenium benzylidene complex

Thomas Rölle* and Robert H. Grubbs

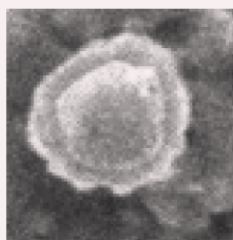


The ring closing olefine metathesis in protic solvents using a new ruthenium benzylidene complex is described.

1072

Using a liquid emulsion membrane system for the encapsulation of organic and inorganic substrates within inorganic microcapsules

Julie A. Thomas,* Linda Seton, Roger J. Davey and Christine E. DeWolf

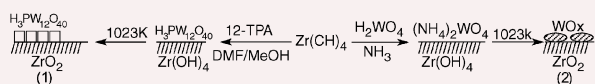


Scanning electron microscope image of a polystyrene latex bead encapsulated inside a vaterite shell that has been produced *via* a biomimetic double emulsion templating system.

1074

12-Tungstophosphoric acid/zirconia—a highly active stable solid acid—comparison with a tungstated zirconia catalyst

Biju M. Devassy, S. B. Halligudi,* S. G. Hegde, A. B. Halgeri and F. Lefebvre

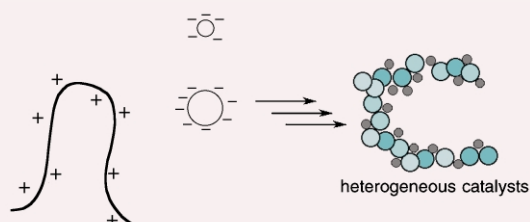


A highly active and stable zirconia supported 12-tungstophosphoric acid catalyst (1) is found to be 2–3 times more active than a tungstated zirconia catalyst (2) in benzylation and acylation reactions.

1076

Highly reactive heterogeneous Heck and hydrogenation catalysts constructed through ‘bottom-up’ nanoparticle self-assembly

Trent H. Galow, Ulf Drechsler, Jarrod A. Hanson and Vincent M. Rotello*



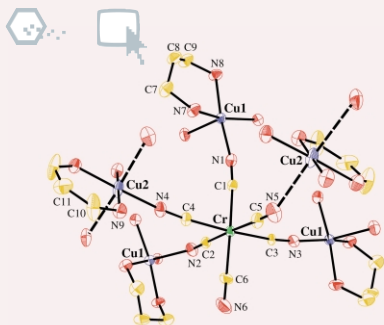
The polymer-mediated electrostatic self-assembly of functionalized silica and palladium nanoparticles provides porous aggregates. After calcination, these aggregates exhibit high catalytic activities in hydrogenation and Heck coupling reactions.

1078

[Cu(tn)₃][Cr(CN)₆]₂·3H₂O: a unique two-dimensional Cu–Cr cyano-bridged ferromagnet (tn = 1,3-diaminopropane)

Franck Thétiot, Smaïl Triki,* Jean Sala Pala, Carlos J. Gómez-García and Stéphane Golhen

Reaction of the cationic connecting block [Cu(tn)]²⁺ (tn = 1,3-diaminopropane) with the anionic building block [Cr(CN)₆]³⁻ leads to the first two-dimensional cyano-bridged ferromagnet (*T_c* = 9.5 K) involving Cu^{II} ions; the structure displays unusual μ₃- and μ₄-bridging [Cu(tn)]²⁺ units.

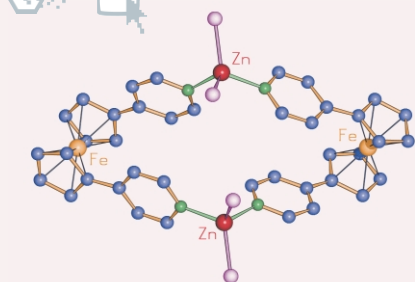


1080

Novel hetero-bimetallic metalla-macrocycles based on the bis-1-pyridyl ferrocene [Fe(η⁵-C₅H₄-1-C₃H₄N)₂] ligand. Design, synthesis and structural characterization of the complexes [Fe(η⁵-C₅H₄-1-C₃H₄N)₂](Ag^I)₂²⁺/(Cu^{II})₄⁴⁺/(Zn^{II})₄⁴⁺

Dario Braga,* Marco Polito, Marco Braccacini, Daniela D'Addario, Emilio Tagliavini,* Davide M. Proserpio and Fabrizia Grepioni*

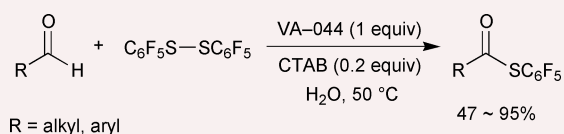
The bidentate sandwich ligand [Fe(η⁵-C₅H₄-1-C₃H₄N)₂] has been prepared, structurally characterized and employed in the preparation of novel supramolecular heterobimetallic metalla-macrocycles.



1082

The direct synthesis of thioesters using an intermolecular radical reaction of aldehydes with dipentafluorophenyl disulfide in water

Hisanori Nambu, Kayoko Hata, Masato Matsugi and Yasuyuki Kita*



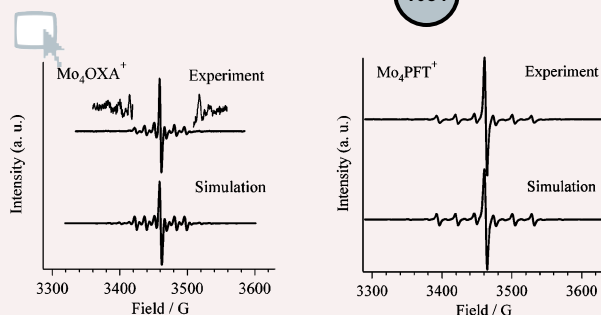
The combination of the water-soluble radical initiator, 2,2'-azobis[2-(2-imidazolin-2-yl)propane] dihydrochloride (VA-044), and surfactant, cetyltrimethylammonium bromide (CTAB), was found to be the most suitable condition for the effective direct synthesis of useful active thioesters (pentafluorophenyl thioesters) in water.

1084

On the electron delocalization in the radical cations formed by oxidation of MM quadruple bonds linked by oxalate and perfluoroterephthalate bridges

Malcolm H. Chisholm,* Brian D. Pate, Paul J. Wilson and Jeffrey M. Zaleski*

The oxalate-bridged compounds are electron delocalized over 4 metal centres, but the perfluoroterephthalate-bridged species are electron delocalized for W, but valence trapped for Mo.

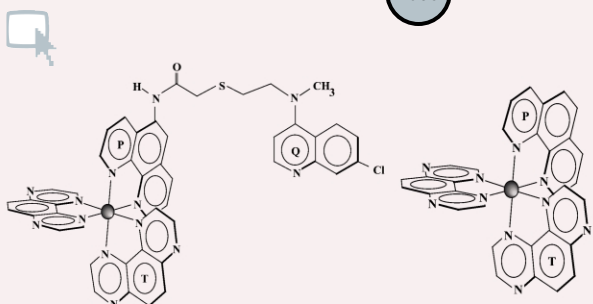


1086

***In vitro* inhibition of gene transcription by novel photo-activated polyazaaromatic ruthenium(II) complexes**

Marc Pauly, Isabelle Kayser, Martine Schmitz, Mario Dicato, André Del Guerso, Isabelle Kolber, Cécile Moucheron and Andrée Kirsch-De Mesmaeker*

Ru(II) complexes that exhibit a type I photo-oxidation of DNA, are able to inhibit the *in vitro* transcription of a plasmid DNA template.

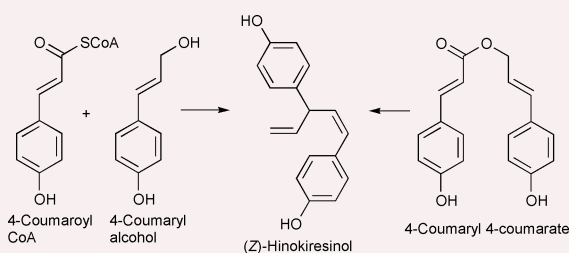


1088

First *in vitro* norlignan formation with *Asparagus officinalis* enzyme preparation

Shiro Suzuki, Tomoyuki Nakatsubo, Toshiaki Umezawa* and Mikio Shimada

The first report of the enzymatic formation of (*Z*)-hinokiresinol from two non-identical phenylpropanoid monomers, 4-coumaryl alcohol and 4-coumaroyl CoA, and from a dimer, 4-coumaryl 4-coumarate.

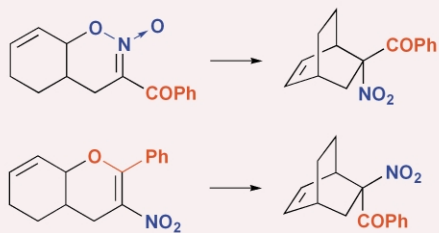


1090

Competing Diels–Alder reactions of activated nitroethylene derivatives and [3,3]-sigmatropic rearrangements of the cycloadducts

Peter A. Wade,* James K. Murray Jr., Sharmila Shah-Patel and Hung T. Le

Diels–Alder reaction of $\text{CH}_2=\text{CXNO}_2$ with cyclohexa-1,3-diene gave bicyclo[2.2.2]octenes, nitronic esters, and an enol ether ($X = \text{COPh}$). The nitronic esters and enol ether rearranged to single diastereomers of the bicyclo[2.2.2]octenes.

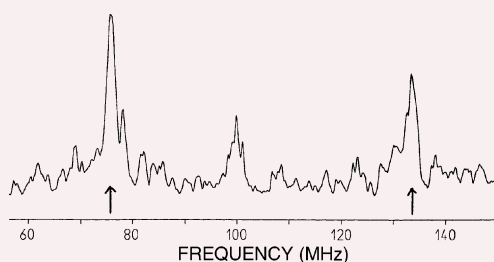


1092

Muonium addition to DMPO and PBN sorbed in silica-gel

Christopher J. Rhodes,* Ivan D. Reid and Ulrich Zimmermann

Radiolabelled nitroxides were formed by muonium addition to the spin-traps PBN and DMPO, sorbed in silica-gel: these were investigated using a combination of transverse-field, avoided-level-crossing, and longitudinal-field muon spin relaxation methods.

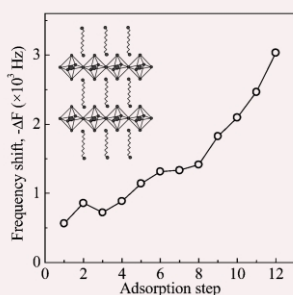


1094

Fabrication of two-dimensional layered perovskite $[\text{NH}_3(\text{CH}_2)_{12}\text{NH}_3]\text{PbX}_4$ thin films using a self-assembly method

Takashi Matsui, Akane Yamaguchi, Yuko Takeoka, Masahiro Rikukawa* and Kohei Sanui

High-quality thin films of two-dimensional layered perovskites have been fabricated by a self-assembly method. The organic and inorganic perovskite films are uniform and smooth, and the thickness can be controlled at the nano-meter level.

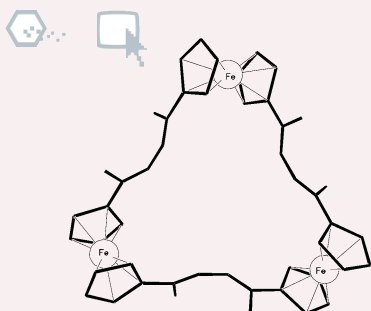


1096

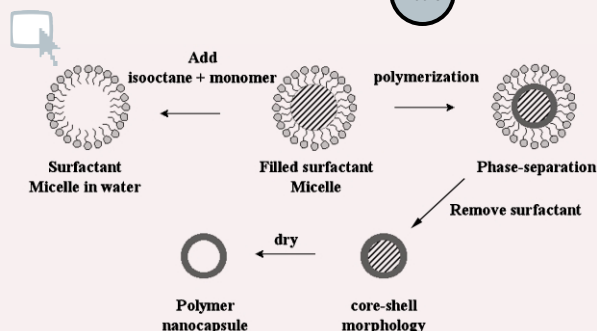
Novel ferrocene-containing helical triangular macrocycle achieved *via* an exchange reaction

Guo Dong, Han Gang, Duan Chun-ying,* Pang Ke-liang and Meng Qing-jin*

A novel ferrocene-containing helical triangular macrocyclic compound has been constructed through an exchange reaction of hydrazone groups in which Co(II) ions acts as both template and catalyst.



1098

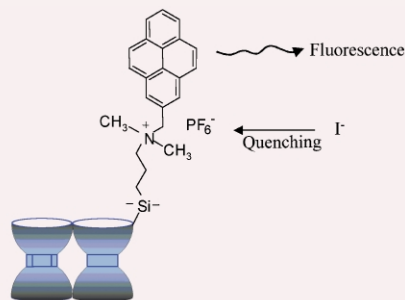


Facile fabrication of hollow polystyrene nanocapsules by microemulsion polymerization

Jyongsik Jang* and Keonsuk Lee

The fabrication of polymer nanocapsules with tailored dimensions has been accomplished by microemulsion polymerization using different surfactants.

1100



Pyrene covalently anchored on a large external surface area zeolite as a selective heterogeneous sensor for iodide

Avelino Corma,* María S. Galletero, Hermenegildo García,* Emilio Palomares and Fernando Rey

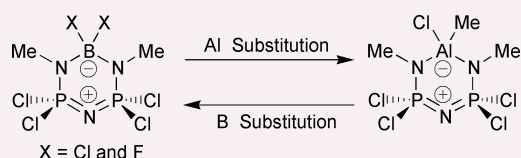
A fluorescent solid whose emission is selectively quenched by I^- in aqueous solutions has been prepared by tethering a pyrene fluorophore to a ITQ-2 zeolite with a very large surface area.

1102



Reversible skeletal substitution reactions involving group 13 heterophosphazenes

Andrew R. McWilliams, Eric Rivard, Alan J. Lough and Ian Manners*



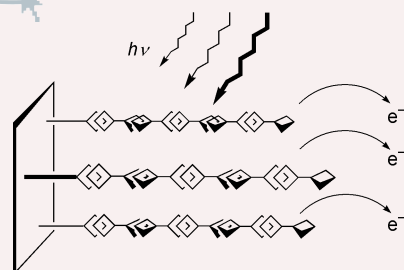
A highly efficient and reversible skeletal atom replacement reaction involving boron- and aluminium-containing perhalogenated heterophosphazenes is reported.

1104



Photocurrent generation system incorporated with antenna function

Akihiro Nomoto and Yoshiaki Kobuke*



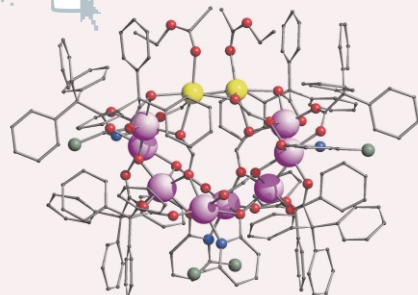
Porphyrin accumulation onto a self-assembled monolayer (SAM) of imidazole-substituted porphyrins by a supramolecular method to form a chain structure leads to significant increase of light absorption in the visible light region and therefore photocurrents.

1106



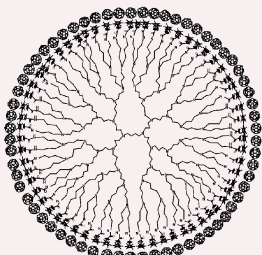
Octanuclear cobalt and nickel cages featuring formate ligands

Cyril Cadiou, Robert A. Coxall, Alasdair Graham, Andrew Harrison, Madeleine Helliwell, Simon Parsons and Richard E. P. Winpenny*



Two new octanuclear cages have been made where inclusion of formate, formed by *in situ* decomposition of triphenylacetate, leads to an unusual, C-shaped array of nickel or cobalt centres.

1108

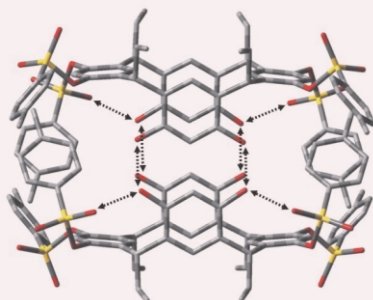
[Dendr-64-NHCOCpFe(C₆Me₆)]⁶⁴⁺, 64 C₆₀

Molecular batteries: synthesis and characterization of a dendritic 19-electron Fe^I complex that reduces C₆₀ to its mono-anion

Jaime Ruiz, Charlotte Pradet, François Varret and Didier Astruc*

The metallodendrimer [dendr-64-NHCOCpFe^{II}(η⁶-C₆Me₆)]^{64+/0}, that contains 64 redox centers, has been synthesized and characterized, and the 19-electron form reduces C₆₀ to [dendr-64-NHCOCpFe^{II}(η⁶-C₆Me₆)]⁶⁴⁺(C₆₀⁻)₆₄.

1110

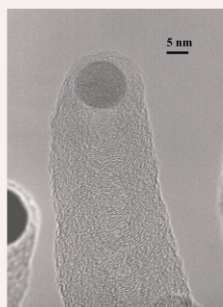


ESI-FTICR investigation of triethylammonium ion-driven resorcin[4]arene dimer formation and structure

Elina Ventola,* Kari Rissanen and Pirjo Vainiotalo

Novel gas-phase dimer structure of tosylum substituted resorcin[4]arene with a triethylammonium ion as a charge carrying guest has been obtained from an ESI-FTICR measurement and *ab initio* geometry optimization calculations.

1112

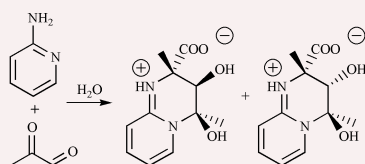


Carbon nanohorns grown from ruthenium nanoparticles

Junfeng Geng, Caterina Ducati, Douglas S. Shephard, Manish Chhowalla, Brian F. G. Johnson* and John Robertson

A nanoscale ruthenium/gold bimetallic cluster of clusters has been used as a molecular precursor to produce pure ruthenium nanoparticles (seeds) as catalysts for the growth of carbon nanohorns.

1114

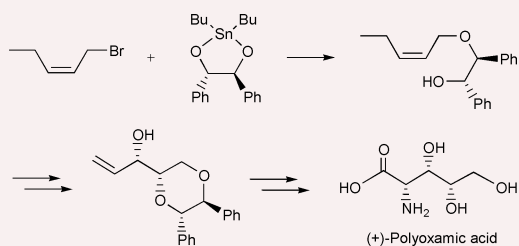


New stereoselective reaction of methylglyoxal with 2-aminopyridine and adenine derivatives: Formation of imino acid-nucleic base derivatives in water under mild conditions

Christel Routaboul, Lionel Dumas, Isabelle Gautier-Luneau, Jacques Vergne, Marie-Christine Maurel and Jean-Luc Décout*

A remarkable stereoselective reaction of methylglyoxal with 2-aminopyridine, the nucleic base adenine and adenine nucleosides leads in good yield to heterocycles of a new family in water under mild conditions and should be of interest in the understanding of the biological effects of methylglyoxal.

1116

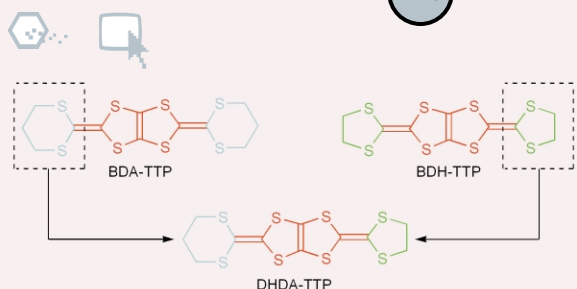


Synthesis of (+)-polyoxamic acid and D-sorbitol from simple achiral allylic halides employing (S,S)-hydrobenzoin as a chiral source

Kwan Soo Kim,* Yong Joo Lee, Jin Hwan Kim and Da Kyung Sung

Coupling of *cis*-1-bromo-2-pentene and (S,S)-hydrobenzoin stannylene acetal followed by regio- and stereoselective transformations of the resulting allylic ether gave (+)-polyoxamic acid and a similar procedure was applied to the synthesis of D-sorbitol from *trans*-1-iodo-2-hexene.

1118

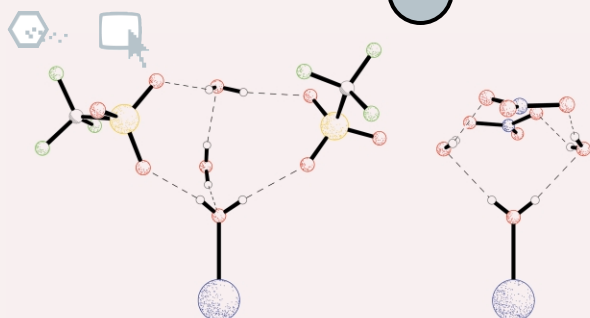


2-(1,3-Dithiolan-2-ylidene)-5-(1,3-dithian-2-ylidene)-1,3,4,6-tetrathiapentalene (DHDA-TTP), a hybrid of BDH-TTP and BDA-TTP, and its metallic cation-radical salts

Jun-ichi Yamada,* Maki Watanabe, Takashi Toita, Hiroki Akutsu, Shin'ichi Nakatsuji, Hiroyuki Nishikawa, Isao Ikemoto and Koichi Kikuchi*

The synthesis of the unsymmetrical donor molecule DHDA-TTP and its ability to produce metallic cation-radical salts is described.

1120

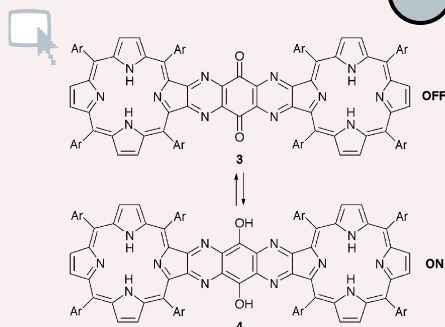


Controlling the variation of axial water exchange rates in macrocyclic lanthanide(III) complexes

Silvio Aime,* Alessandro Barge, Andrei S. Batsanov, Mauro Botta, Daniela Delli Castelli, Franco Fedeli, Armando Mortillaro, David Parker* and Horst Puschmann

Axial water exchange rates in well-defined series of cationic lanthanide complexes have revealed the importance of the second sphere of hydration whose structure is controlled by the choice of anion and the nature of the substituents on the ligand.

1122

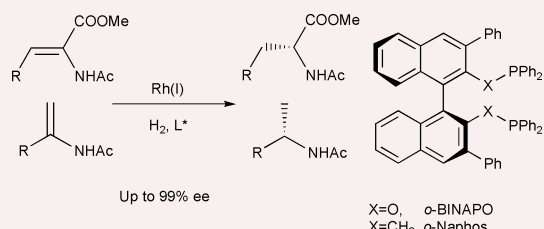


Laterally-extended porphyrin systems incorporating a switchable unit

Maxwell J. Crossley* and Lesley A. Johnston

p-Quinone units incorporated into the central portion of rigid π -systems can function as a chemically and electrochemically controllable switch, thereby acting as a means of modulating electronic communication between the two end groups.

1124

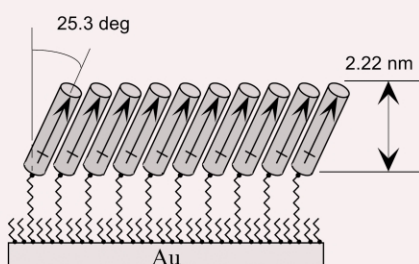


Synthesis of novel BINOL-derived chiral bisphosphorus ligands and their application in catalytic asymmetric hydrogenation

Yong-Gui Zhou and Xumu Zhang*

Some novel *ortho*-substituted BINOL-derived bisphosphorus ligands (*o*-BINAPO and *o*-NAPHOS) were synthesized from (*S*)-BINOL; these ligands showed excellent ee in Rh(I)-catalyzed asymmetric hydrogenation.

1126



Fabrication of vertically and unidirectionally oriented polypeptide assemblies on self-assembled monolayers by stepwise polymerization

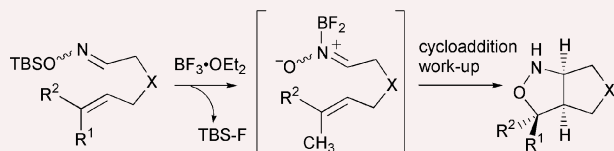
Masahiro Higuchi,* Tomoyuki Koga, Kazuhiro Taguchi and Takatoshi Kinoshita

A polypeptide assembly prepared by stepwise polymerization on a self-assembled monolayer consisting of amino-alkanethiol and dialkyl disulfide oriented vertically and unidirectionally to the surface.

1128

BF₃·OEt₂-mediated cycloaddition of *O*-*tert*-butyldimethylsilyloximes having olefin moieties: intramolecular cycloaddition of *N*-borano-nitrones

Osamu Tamura,* Takahiro Mitsuya and Hiroyuki Ishibashi*

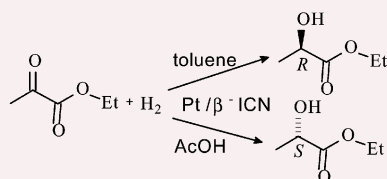


Treatment of *O*-*tert*-butyldimethylsilyloximes having olefin moieties in the molecules with BF₃·OEt₂ results in efficient generation of *N*-borano-nitrones, which undergo intramolecular cycloaddition at room temperature to afford *N*-nonsubstituted cycloadducts after work-up.

1130

Unexpected change of the sense of the enantioselective hydrogenation of ethyl pyruvate catalyzed by a Pt–alumina–cinchona alkaloid system

M. Bartók,* M. Sutyinszki, K. Felföldi and Gy. Szöllősi

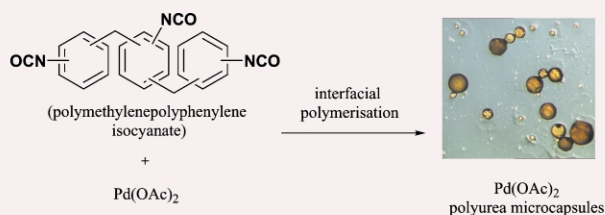


In the enantioselective hydrogenation of ethyl pyruvate (EtPy) over β-isocinchonine (β-ICN) modified Pt–alumina catalysts, the major enantiomer was (*R*)-ethyl lactate ((*R*)-EtLt (ee 50%)) in toluene, while in AcOH (*S*)-EtLt (ee 60%) was formed.

1132

Encapsulation of palladium in polyurea microcapsules

Chandrashekar Ramarao, Steven V. Ley,* Stephen C. Smith, Ian M. Shirley and Nathalie DeAlmeida

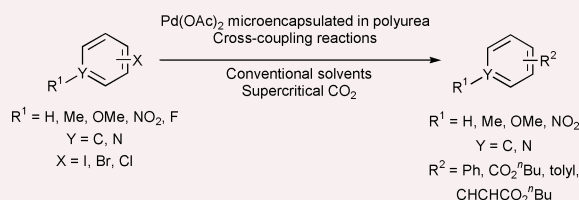


An interfacial polymerisation approach is adopted to encapsulate palladium(II) acetate and palladium nanoparticles in polyurea microcapsules for use in catalysis.

1134

Polyurea-encapsulated palladium(II) acetate: a robust and recyclable catalyst for use in conventional and supercritical media

Steven V. Ley,* Chandrashekar Ramarao, Richard S. Gordon, Andrew B. Holmes,* Angus J. Morrison, Ian. F. McConvey, Ian M. Shirley, Stephen C. Smith and Martin D. Smith

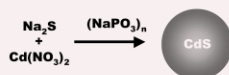


Palladium(II) acetate microencapsulated in polyurea (MC-[Pd]) is an economical and versatile heterogeneous catalyst for a range of phosphine-free cross-coupling reactions in both conventional solvents and supercritical carbon dioxide (scCO₂).

1136

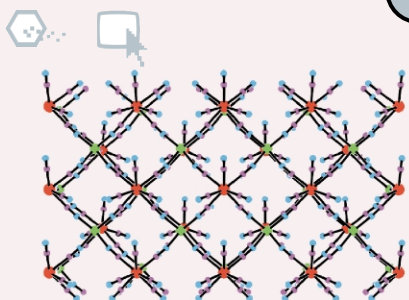
Microfluidic routes to the controlled production of nanoparticles

Joshua B. Edel, Robin Fortt, John C. deMello* and Andrew J. deMello*



We demonstrate a continuous-flow microfluidic approach for the controlled synthesis of cadmium sulfide nanoparticles, offering distinct advantages over conventional bulk methods.

1138

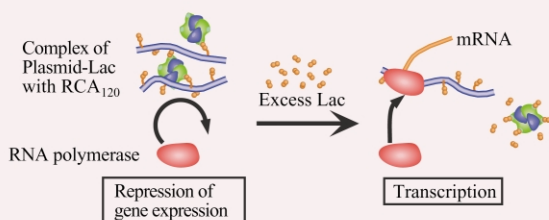


2-D soft ferromagnet based on $[\text{W}^{\text{V}}(\text{CN})_8]^{3-}$ and Cu^{II} with a T_c of 34 K

Robert Podgajny, Tomasz Korzeniak, Maria Balanda, Tadeusz Wasitynski, William Errington, Terence J. Kemp, Nathaniel W. Alcock and Barbara Sieklucka*

Self-assembly of $[\text{Cu}(\text{tetren})]^{2+}$ and $[\text{W}^{\text{V}}(\text{CN})_8]^{3-}$ in acidic aqueous solution yields the double-layered square grid polymer $\{(\text{tetrenH}_5)_{0.8}\text{Cu}^{\text{II}}_4[\text{W}^{\text{V}}(\text{CN})_8]_{14} \cdot 7.2\text{H}_2\text{O}\}_n$ with Cu(II) centres coordinatively saturated solely by CN bridges, and exhibiting soft ferromagnetic behaviour with a T_c of 34 K.

1140



Artificial regulation of transcription applying carbohydrate–lectin interaction

Kazunori Matsuura, Katsuhiko Hayashi and Kazukiyo Kobayashi*

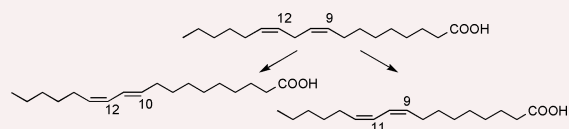
The *in vitro* transcription of plasmid DNA–lactose conjugate with T7 RNA polymerase was repressed in the presence of RCA_{120} , and then recovered by adding excess lactose.

1142



Conjugation of linoleic acid over a hydrogen pre-activated heterogeneous catalyst

Andreas Bernas, Narendra Kumar, Päivi Mäki-Arvela, Ensio Laine, Bjarne Holmbom, Tapio Salmi and Dmitry Yu. Murzin*

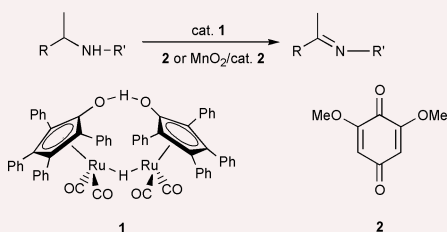


Development of a new heterogeneous catalytic pathway for isomerization of linoleic acid to conjugated linoleic acids at mild reaction conditions over Ni/H-MCM-41 in a soluted system.

1144

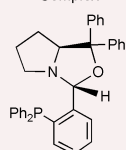
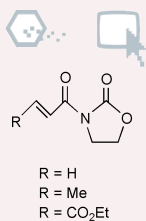
Dehydrogenation of aromatic amines to imines *via* ruthenium-catalyzed hydrogen transfer

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



An efficient ruthenium-catalyzed transfer dehydrogenation of amines to imines was achieved under mild conditions using 2,6-dimethoxy benzoquinone (**2**) or cat. **2**/ MnO_2 as oxidant.

1146

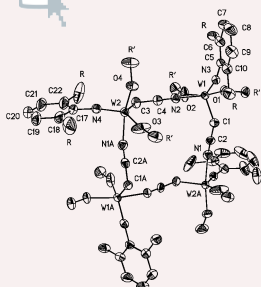


A novel and efficient chiral palladium–phosphino-oxazolidinone catalyst for the enantioselective Diels–Alder reaction

Hiroto Nakano,* Yuko Okuyama, Yuichiro Suzuki, Reiko Fujita and Chizuko Kabuto*

Chiral cationic palladium(II)–phosphino-oxazolidinone complexes are described which give excellent enantioselectivity (up to 98% ee) in the Diels–Alder reaction of cyclopentadiene with a range of acyl-1,3-oxazolidin-2-one dienophiles.

1148

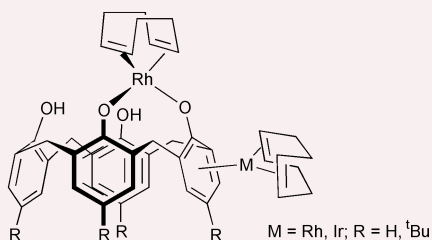


Structure and reactivity studies of the first tungsten cyanoalkylidene complex

Thomas M. Cameron, A. Scott Gamble, Khalil A. Abboud and James M. Boncella*

The solid-state structure and reactivity studies of the first tungsten cyanoalkylidene complex are reported.

1150

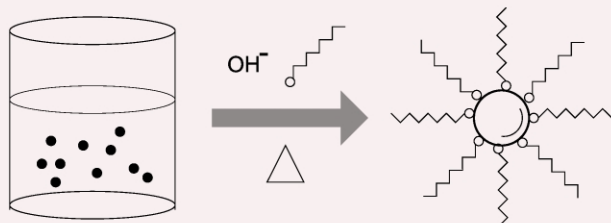


Site-selective and stepwise complexation of two $M(\text{cod})^+$ ($M = \text{Rh}, \text{Ir}$) fragments with calix[4]arene

Youichi Ishii,* Ken-ichi Onaka, Hidehiko Hirakawa and Kohei Shiramizu

Mono- and di-nuclear Rh and Ir complexes of calix[4]arenes were synthesized, where site-selective and stepwise incorporation of $M(\text{cod})^+$ ($M = \text{Rh}, \text{Ir}$) fragments to calix[4]arenes was observed.

1152



Hydrolysis and amine-capping in a glycol solvent as a route to soluble maghemite $\gamma\text{-Fe}_2\text{O}_3$ nanoparticles

Michael Rajamathi, Moumita Ghosh and Ram Seshadri

Hydrolysis of a ferric salt in the presence of a capping agent yields maghemite nanomagnets that display a tendency to self-assemble into ordered arrays.

1154

The design, synthesis and characterisation of channel-forming peptides

John M. Sanderson* and Sarah Yazdani

Novel backbone-cyclic peptides with 2-fold symmetry exhibit high β -structure content and assemble in membranes at low peptide:lipid ratios to form channels at least 1 nm in diameter.

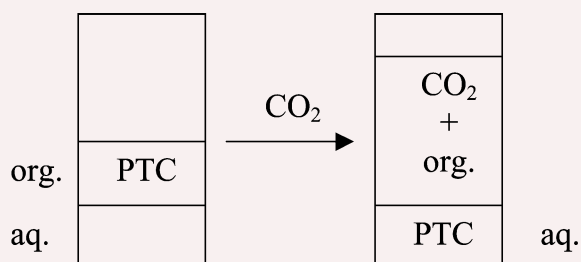


1156

Phase-transfer catalyst separation by CO_2 enhanced aqueous extraction

Xiaofeng Xie, James S. Brown, Paul J. Joseph, Charles L. Liotta and Charles A. Eckert*

Carbon dioxide is used to facilitate the distribution of phase transfer catalysts (PTC) into the aqueous phase in liquid-liquid extraction systems by 'swelling' the organic phase.



ADDITIONS AND CORRECTIONS

1158

S. Aldridge, C. Bresner, I. A. Fallis,
S. J. Coles and M. B. Hursthouse

Multidentate Lewis acids: synthesis, structure and mode of action of a redox-based fluoride ion sensor

1158

J. Matthew Wood, Paul S.
Hinchliffe, Andy M. Davis, Rupert
P. Austin and Michael I. Page

Hydrolysis of a sulfonamide by a novel elimination mechanism generated by carbanion formation in the leaving group

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* Indicates the author for correspondence: see article for contact details.



Supplementary crystallographic data are available: see article for further information.



Electronic supplementary information is available on <http://www.rsc.org/esi>: see article for further information.

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