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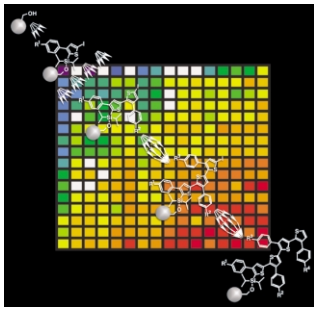

Cover
A 256-membered oligothiophene combinatorial library.

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FEATURE ARTICLE

COMMUNICATIONS

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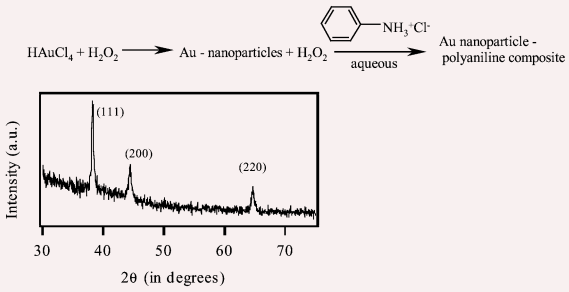

Synthesis of Au nanoparticle–conductive polyaniline composite using H_2O_2 as oxidising as well as reducing agent

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.

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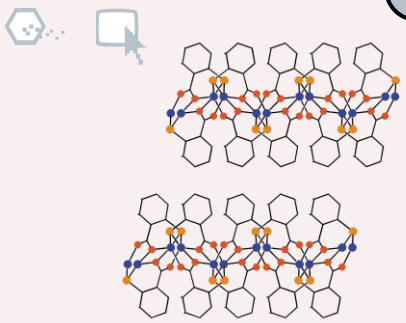
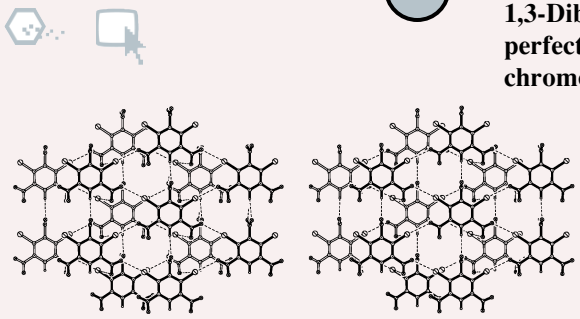


Layered metal organosulfides: hydrothermal synthesis, structure and magnetic behaviour of the spin-canted magnet Co(1,2-$(O_2C)(S)C_6H_4$)

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

The new layered thiolate/carboxylate material Co(1,2-$(O_2C)(S)C_6H_4$) has been prepared by hydrothermal synthesis. The sulfur bridges couple the spins of the trigonal bipyramidal Co(II) ions very strongly and spin canting produces a spontaneous magnetisation.

1052

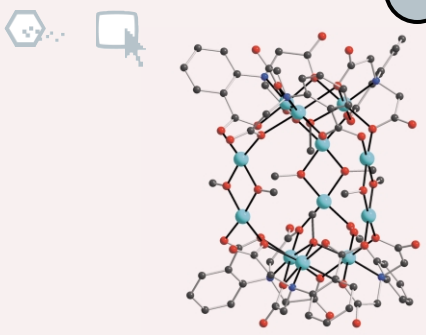


1,3-Dibromo-2,4,6-trinitrobenzene (DBTNB). Crystal engineering and perfect polar alignment of two-dimensional hyperpolarizable chromophores

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

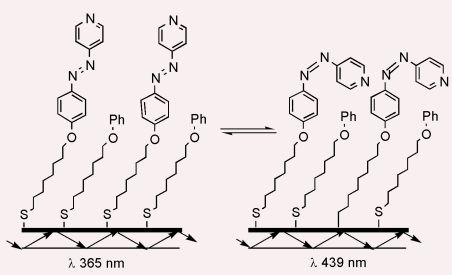


Engineering of ferrimagnetic Cu_{12}-cluster arrays through supramolecular interactions

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.

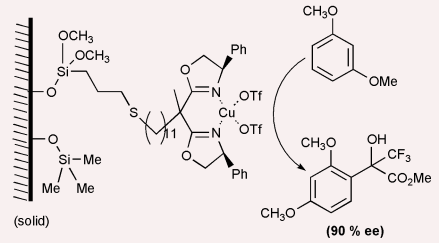
1056



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*

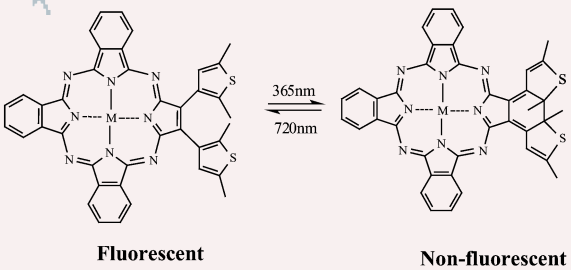
Photoswitching of 'on' and 'off' coordination sites in a self assembled monolayer containing the 4-(arylazo)pyridine chromophore has been achieved using waveguided light and illustrated through a coordination-release cycle involving zinc tetraphenylporphyrin.



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

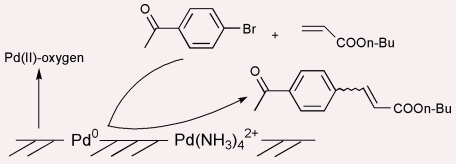
Chiral copper(II) diphenyl bisoxazoline covalently anchored on silica and MCM-41 exhibits a higher enantioselectivity (up to 92% ee) for the Friedel–Crafts hydroxyalkylation of 1,3-dimethoxybenzene with 3,3,3-trifluoropyruvate than does the same complex in solution.



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

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

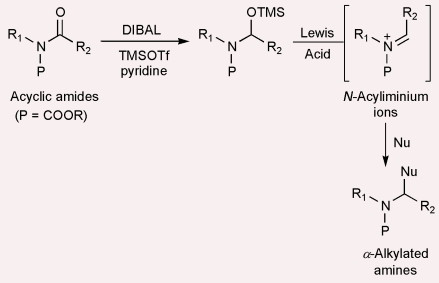
A novel family of photochromic hybrids, 2,3-bis(2,5-dimethyl-3-thienyl) unsymmetrical-phthalocyanines (BTE-uPcs), which show a photoregulating fluorescence switch in the near-infrared spectral region.



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

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

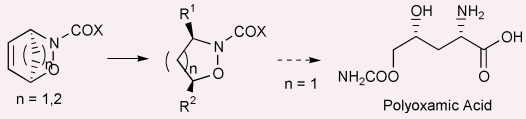
Pd^0 and $Pd(NH_3)_4^{2+}$ on mordenite are truly heterogeneous catalysts in Heck chemistry, while Pd^{2+} in an all oxygen environment leaches and should be prevented.



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.

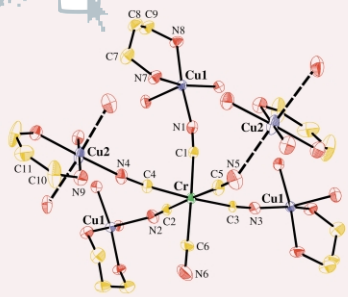


Stereoselective cycloadditions of chiral acyl-nitroso compounds; selective reactions of ring-cleaved cycloadducts leading to a new approach to polyoxamic acid

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.

1078

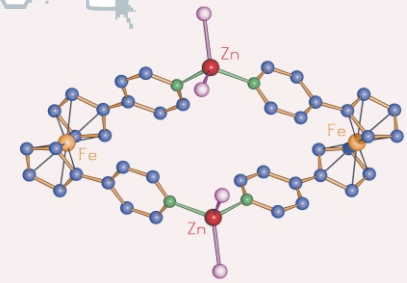


$[Cu(tn)]_3[Cr(CN)_6]_2{\cdot}3H_2O$: a unique two-dimensional Cu–Cr cyano-bridged ferromagnet (tn = 1,3-diaminopropane)

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 μ_3- and μ_4-bridging $[Cu(tn)]^{2+}$ units.

1080



Novel hetero-bimetallic metalla-macrocycles based on the bis-1-pyridyl ferrocene $[Fe(\eta^5\text{-}C_5H_4\text{-}1\text{-}C_5H_4N)_2]$ ligand. Design, synthesis and structural characterization of the complexes $[Fe(\eta^5\text{-}C_5H_4\text{-}1\text{-}C_5H_4N)_2](Ag^{I})_2^{2+}/(Cu^{II})_2^{4+}/(Zn^{II})_2^{4+}$

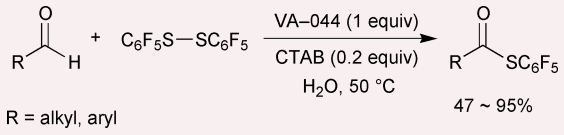
Dario Braga,* Marco Polito, Marco Bracaccini, Daniela D'Addario, Emilio Tagliavini,* Davide M. Proserpio and Fabrizia Grepioni*

The bidentate sandwich ligand $[Fe(\eta^5\text{-}C_5H_4\text{-}1\text{-}C_5H_4N)_2]$ has been prepared, structurally characterized and employed in the preparation of novel supramolecular heterobimetallic metalla-macrocycles.

1082

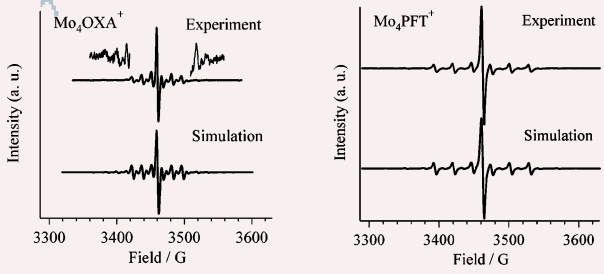
The direct synthesis of thioesters using an intermolecular radical reaction of aldehydes with dipentafluorophenyl disulfide in water

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

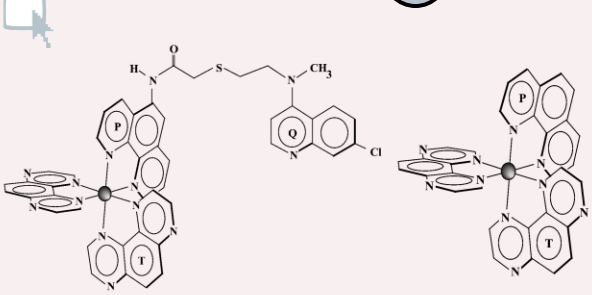


On the electron delocalization in the radical cations formed by oxidation of MM quadruple bonds linked by oxalate and perfluoroterephthalate bridges

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 electon delocalized for W, but valence trapped for Mo.

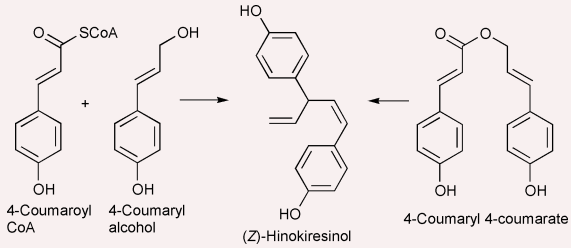
1086



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

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

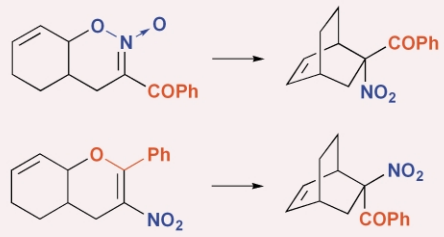
Ru(II) complexes that exhibit a type I photo-oxidation of DNA, are able to inhibit the *in vitro* transcription of a plasmid DNA template.



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

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

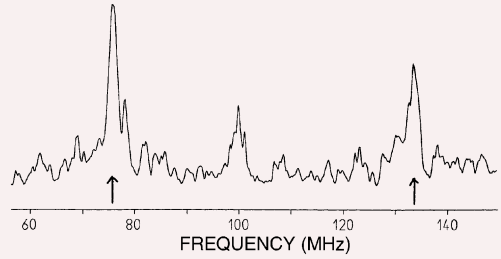
The first report of the enzymatic formation of (*Z*)-hinokiresinol from two non-identical phenylpropanoid monomers, 4-coumaryl alcohol and 4-coumaroyl CoA, and from a dimer, 4-coumaryl 4-coumarate.



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

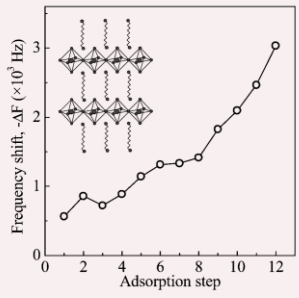
Diels–Alder reaction of CH_2=$CXNO_2$ with cyclohexa-1,3-diene gave bicyclo[2.2.2]octenes, nitronic esters, and an enol ether (X = COPh). The nitronic esters and enol ether rearranged to single diastereomers of the bicyclo[2.2.2]octenes.



Muonium addition to DMPO and PBN sorbed in silica-gel

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

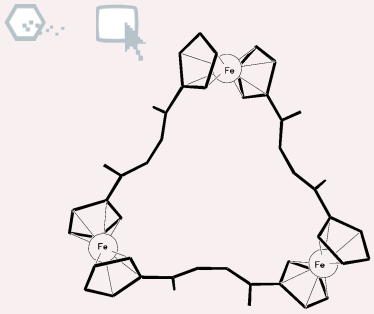
Radiolabelled nitroxides were formed by muonium addition to the spin-traps PBN and DMPO, sorbed in silica-gel: these were investigated using a combination of transverse-field, avoided-level-crossing, and longitudinal-field muon spin relaxation methods.



Fabrication of two-dimensional layered perovskite $[NH_3(CH_2)_{12}NH_3]PbX_4$ thin films using a self-assembly method

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

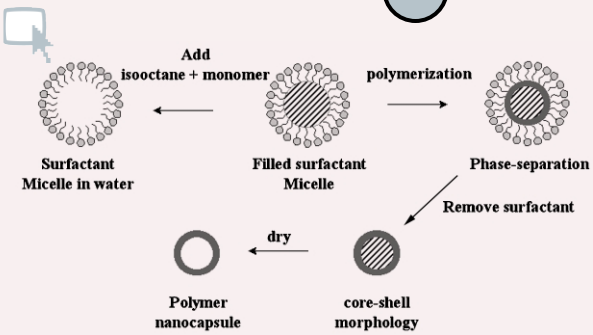
High-quality thin films of two-dimensional layered perovskites have been fabricated by a self-assembly method. The organic and inorganic perovskite films are uniform and smooth, and the thickness can be controlled at the nano-meter level.



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*

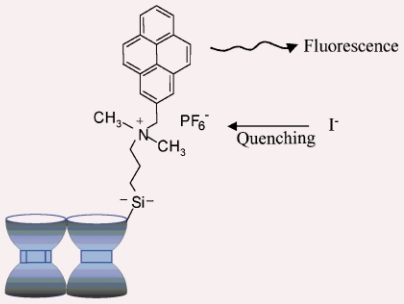
A novel ferrocene-containing helical triangular macrocyclic compound has been constructed through an exchange reaction of hydrazone groups in which Co(II) ions acts as both template and catalyst.



Facile fabrication of hollow polystyrene nanocapsules by microemulsion polymerization

Jyongsik Jang* and Keonsuk Lee

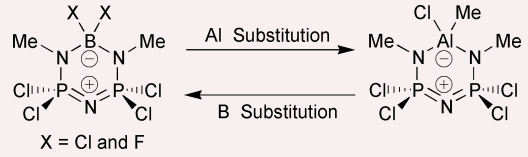
The fabrication of polymer nanocapsules with tailored dimensions has been accomplished by microemulsion polymerization using different surfactants.



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

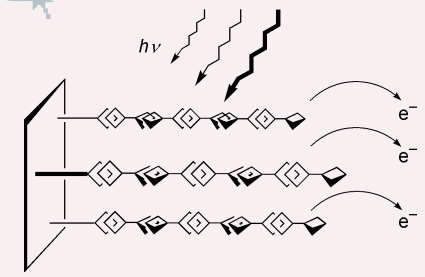
A fluorescent solid whose emission is selectively quenched by I^- in aqueous solutions has been prepared by tethering a pyrene fluorophore to a ITQ-2 zeolite with a very large surface area.



Reversible skeletal substitution reactions involving group 13 heterophosphazenes

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

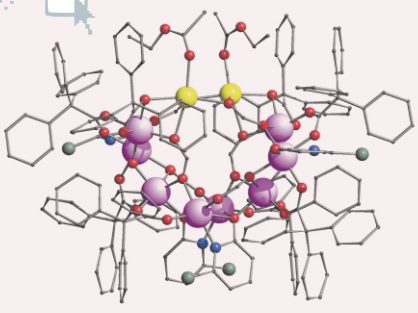
A highly efficient and reversible skeletal atom replacement reaction involving boron- and aluminium-containing perhalogenated heterophosphazenes is reported.



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 therfore photocurrents.

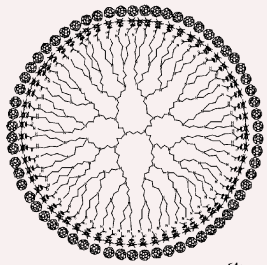


Octanuclear cobalt and nickel cages featuring formate ligands

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



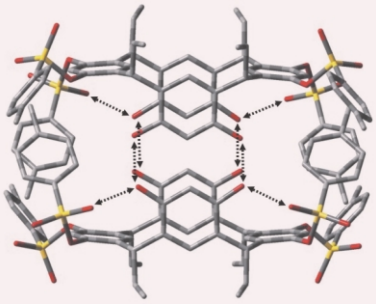
[Dendr-64-NHCOCpFe(C_6Me_6)]$^{64+}$, 64 $C_{60}^{\cdot-}$

Molecular batteries: synthesis and characterization of a dendritic 19-electron Fe^{I} complex that reduces C_{60} to its mono-anion

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

The metallodendrimer [dendr-64-NHCOCpFe^{II}(η^6-C_6Me_6)]$^{64+/0}$, that contains 64 redox centers, has been synthesized and characterized, and the 19-electron form reduces C_{60} to [dendr-64-NHCOCpFe^{II}(η^6-C_6Me_6)]$^{64+}$($C_{60}^{\cdot-}$)$_{64}$.

1110

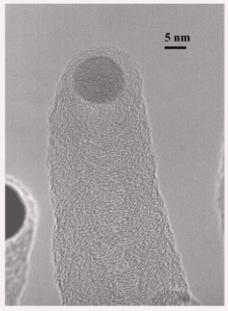


ESI-FTICR investigation of triethylammonium ion-driven resorcin[4]arene dimer formation and structure

Elina Ventola,* Kari Rissanen and Pirjo Vainiotalo

Novel gas-phase dimer structure of tosylium 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

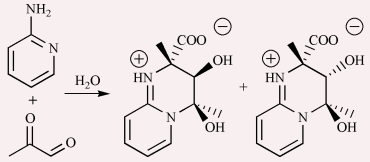


Carbon nanohorns grown from ruthenium nanoparticles

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.

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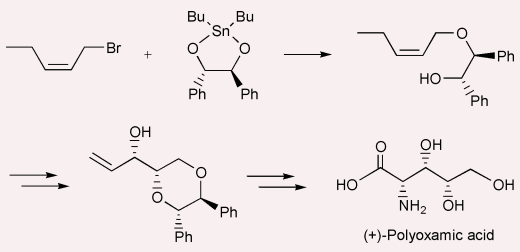
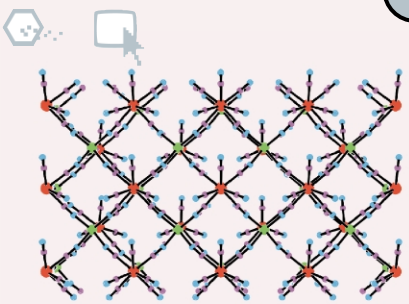


Synthesis of (+)-polyoxamic acid and D-sorbitol from simple achiral allylic halides employing (*S*,*S*)-hydrobenzoin as a chiral source

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

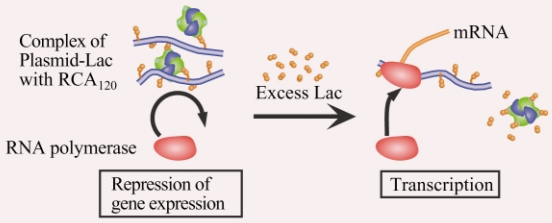
Coupling of *cis*-1-bromo-2-pentene and (*S*,*S*)-hydrobenzoin stannylene acetal followed by regio- and stereoselective transformations of the resulting allylic ether gave (+)-polyoxamic acid and a similar procedure was applied to the synthesis of D-sorbitol from *trans*-1-iodo-2-hexene.



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

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

Self-assembly of $[Cu(tetren)]^{2+}$ and $[W(CN)_8]^{3-}$ in acidic aqueous solution yields the double-layered square grid polymer $\{(tetrenH_5)_{0.8}Cu^{II}_4[W^{V}(CN)_8]_4{\cdot}7.2H_2O\}_n$ with Cu(II) centres coordinatively saturated solely by CN bridges, and exhibiting soft ferromagnetic behaviour with a T_c of 34 K.



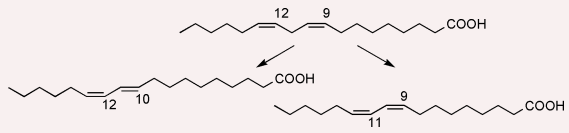
Artificial regulation of transcription applying carbohydrate–lectin interaction

Kazunori Matsuura, Katsuhiro 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.

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

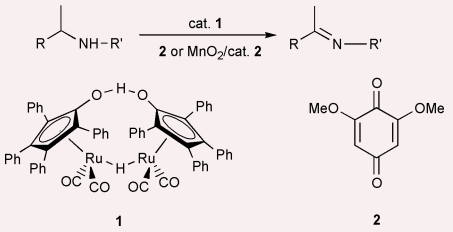
Andreas Bernas, Narendra Kumar, Päivi Mäki-Arvela, Ensio Laine, Bjarne Holmbom, Tapio Salmi and Dmitry Yu. Murzin*



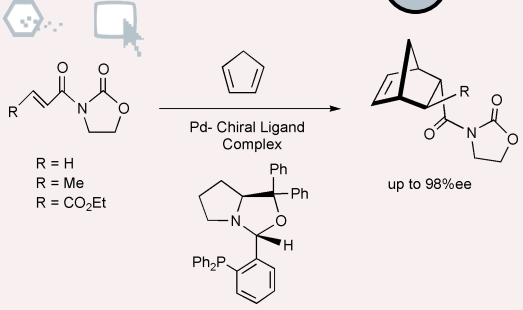
Development of a new heterogeneous catalytic pathway for isomerization of linoleic acid to conjugated linoleic acids at mild reaction conditions over Ni/H-MCM-41 in a soluted system.

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.

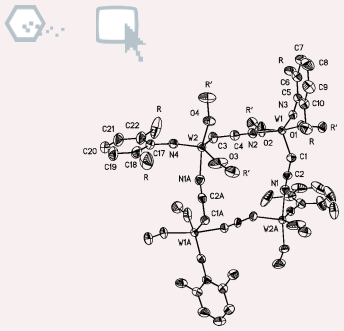


A novel and efficient chiral palladium–phosphinooxazolidine catalyst for the enantioselective Diels–Alder reaction

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

Chiral cationic palladium(II)–phosphinooxazolidine 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

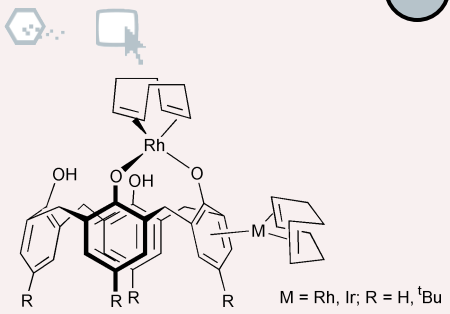


Structure and reactivity studies of the first tungsten cyanoalkylidene complex

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

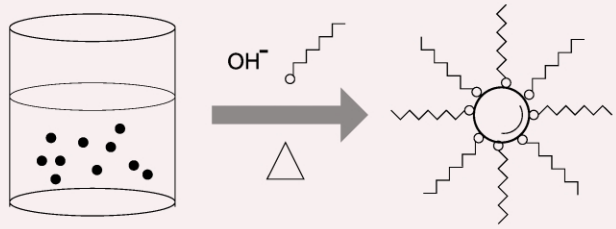


Site-selective and stepwise complexation of two M(cod)$^+$ (M = Rh, Ir) fragments with calix[4]arene

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(cod)$^+$ (M = Rh, Ir) fragments to calix[4]arenes was observed.

1152



Hydrolysis and amine-capping in a glycol solvent as a route to soluble maghemite γ-Fe_2O_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.

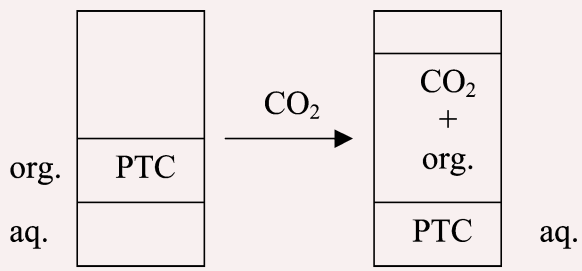
1154

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

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