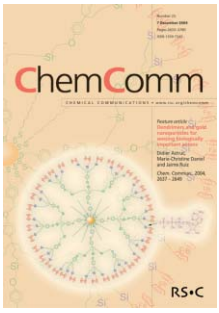
ISSN 1359-7345 · CHCOFS (23)2633–2780 (2004)

ChemComm

CHEMICAL COMMUNICATIONS • www.rsc.org/chemcomm



Cover (far left)
Gold nanoparticle dendronized with polyferrocenyl thiols applied to ATP^{2-} 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**

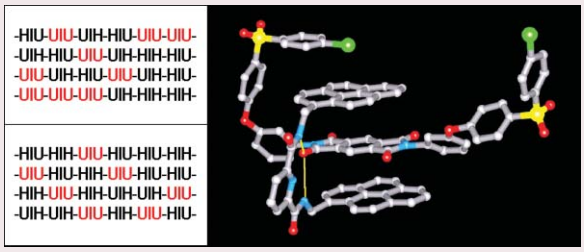
contents

Chemical Communications
http://www.rsc.org/chemcomm

Chemical Communications (print: ISSN 1359-7345; electronic: ISSN1364-548X) is published 24 times a year by the Royal Society ofChemistry, Thomas Graham House, Science Park, Milton Road,Cambridge, UK CB4 0WF. All orders accompanied by payment should be sent directly to Extenza-Turpin Distribution Services Ltd, Pegasus Drive, Biggleswade, Beds, UK SG18 8QB. 2004 Annual(print + electronic) subscription price: £1045; US$1725. 2004 Annual (electronic) subscription price: £940; US$1552. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT. If you take an institutional subscription to any RSC journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip. Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank. Periodicals postage paid at Rahway, NJ, USA and at additional mailing offices. Airfreight and mailing in the USA by Mercury Airfreight International Ltd., 365 Blair Road, Avenel, NJ 07001, USA. US Postmaster: send address changes to *Chemical Communications*, c/o Mercury Airfreight International Ltd., 365 Blair Road, Avenel, NJ 07001. All despatches outside the UK by Consolidated Airfreight.
PRINTED IN THE UK.

Advertisement sales: Tel +44 (0)1223 432153; Fax +44 (0)1223 426017; E-mail advertising@rsc.org

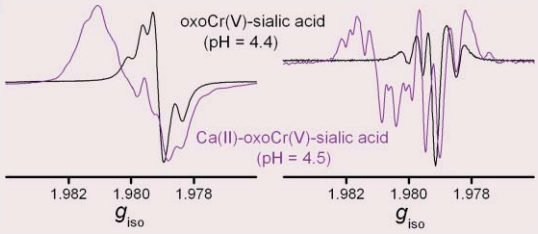
♾ The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper). Royal Society of Chemistry: Registered Charity No. 207890.



Principles of sequence-recognition in aromatic polyimides

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

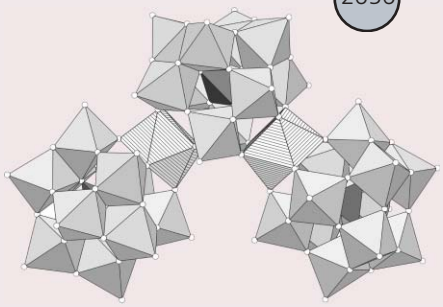
Studies of tweezer-type complexes with aromatic co-polyimides having different sequence-restrictions show that extended co-monomer sequences can be "read" by the tweezer, through sequence-selective complexation, and "reported" *via* differential aromatic ring-current shifts in ^{1}H NMR resonances associated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



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

Rachel Codd

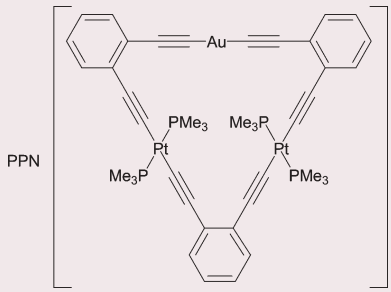
Electron paramagnetic resonance (EPR) spectra of solutions of oxoCr(v) complexes with *N*-acetylneuraminic (sialic) acid (naH_6) show striking signal modulation in the presence of excess Ca(II), indicating the formation of ternary Ca(II)–oxoCr(v)–naH_6 complexes that have electronic structures and equilibrium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



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*

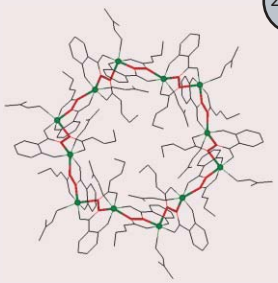
A novel V-shaped polyoxotungstate is formed when Ce^{IV} metal centres bridge monolacunary $[PW_{11}O_{39}]^{7-}$ anions to an unusual 1,4-bilacunary $[PW_{10}O_{38}]^{11-}$ anion which appears with an unprecedented bridging structural motif.



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*

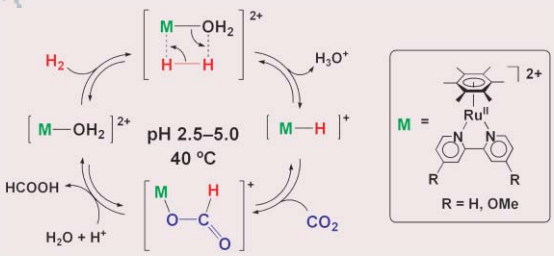
The synthesis of the first metallamacrocyclic triangle being (i) anionic, (ii) heteronuclear or (iii) a carbametallacycle containing gold or platinum is reported.



Novel 36-membered dodecanuclear manganese metalladiazamacrocycle

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

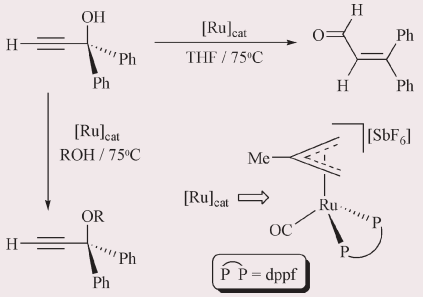
A novel dodecanuclear manganese metalladiazamacrocycle has been prepared. The metal-organic assembly contains a backbone of a 36-membered cyclic structure. The unique arrangement of manganese centers result in a highly puckered metalladiazamacrocycle with an S_6-point group symmetry.



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

Hideki Hayashi, Seiji Ogo* and Shunichi Fukuzumi*

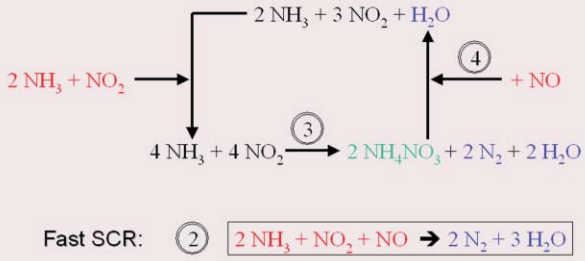
Hydrogenation of carbon dioxide ($P(H_2/CO_2)$ = 5.5/2.5 MPa) into formic acid (HCOOH) under acidic conditions (pH 2.5–5.0) in water has been achieved by using water-soluble ruthenium aqua catalysts $[(\eta^6\text{-}C_6Me_6)Ru^{II}(L)(OH_2)]SO_4$ (L = 2,2′-bipyridine or 4,4′-dimethoxy-2,2′-bipyridine).



$[Ru(\eta^3\text{-}2\text{-}C_3H_4Me)(CO)(dppf)][SbF_6]$: a mononuclear 16e$^-$ ruthenium(II) catalyst for propargylic substitution and isomerization of $HC{\equiv}CCPh_2(OH)$

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

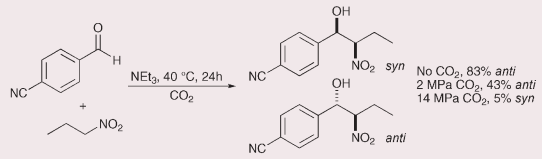
The 16e$^-$ (η^3-allyl)-ruthenium(II) derivative $[Ru(\eta^3\text{-}2\text{-}C_3H_4Me)(CO)(dppf)][SbF_6]$ catalyzes: (*i*) the propargylic substitution reaction of 1,1-diphenyl-2-propyn-1-ol with alcohols to produce the corresponding propargylic ethers, and (*ii*) the formal isomerization of 1,1-diphenyl-2-propyn-1-ol into 3,3-diphenyl-2-propenal.



A "Nitrate Route" for the low temperature "Fast SCR" reaction over a V_2O_5–WO_3/TiO_2 commercial catalyst

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

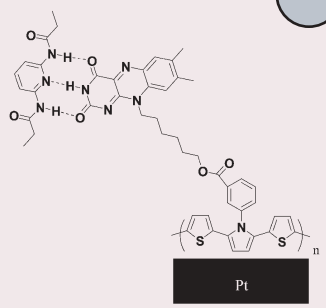
A novel mechanism is proposed for the "Fast SCR" reaction at low temperature involving the formation of ammonium nitrate from NH_3 and NO_2 as intermediate, and its subsequent reaction with NO.



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*

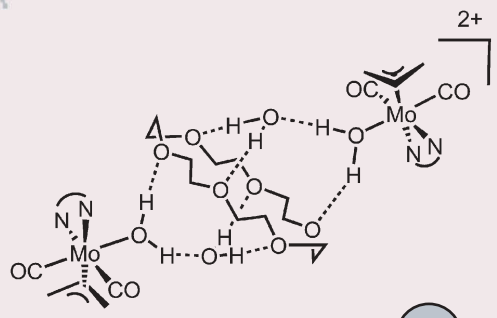
The rate and stereocontrol of the Henry reaction in the presence of CO_2 can be controlled simply by manipulation of CO_2 pressure, and can be understood on the basis of kinetic and thermodynamic aspects of the reaction.



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.



A $(H_2O)_4$/crown ether network spanned between organometallic complex metal fragments

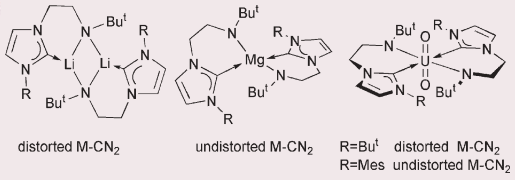
Cristina Wippert Rodrigues, Christian Limberg* and Hans Pritzkow

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 $[Mo(\eta^3\text{-}C_3H_5)(CO)_2(bipy^*)Cl]$.

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

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

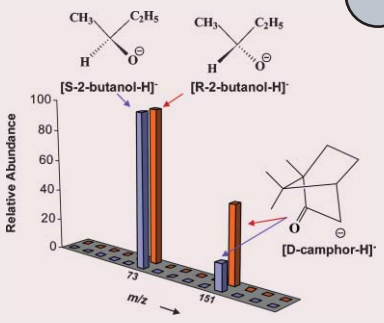
The reaction of localised C=C bonds on the surface of activated carbons has been shown to be an effective method of chemical modification especially using microwave-assisted reactions.



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*

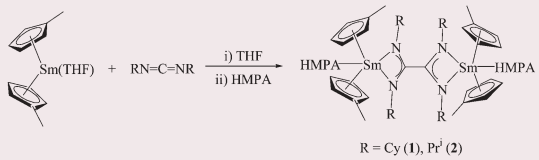
Lithium(I) and uranium(VI) amido-tethered Bu^t-substituted *N*-heterocyclic carbene (NHC) complexes are reported that exhibit very distorted metal–carbene bonds. However, the corresponding magnesium(II) and mesityl-substituted NHC uranium(VI) complexes are undistorted. Structural and spectroscopic comparisons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



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

Habib Bagheri, Hao Chen and R. Graham Cooks*

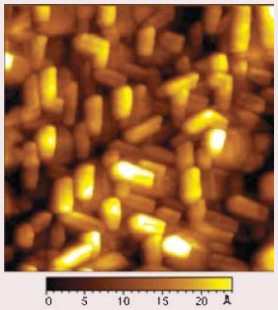
Proton transfer reactions with chiral reagents allow chiral recognition as shown by deprotonation of D- and L-camphor ions $[M + H]^+$ with chiral amines or deprotonation of neutral camphor by chiral alkoxide anions.



A first oxalamidino complex of samarium *via* reduction-coupling of carbodiimine: synthesis and molecular structure of $[\eta^4\text{-}C_2(NR)_4][(MeC_5H_4)_2Sm(HMPA)]_2{\cdot}2THF$ (R = Pr^i, Cy)

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

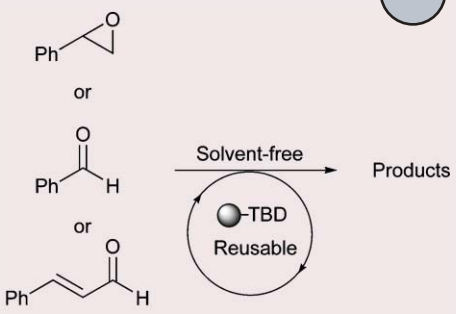
Reaction of $(MeC_5H_4)_2Sm(THF)$ with an equivalent of carbodiimine [RN=C=NR] (R = Pr^i or Cy; Cy = cyclohexyl) in the presence of an equivalent of hexamethylphosphoric triamide (HMPA) gives, *via* a reduction-coupling reaction, the bimetallic oxalamidino complex of samarium $[(MeC_5H_4)_2Sm(HMPA)(RN)C(NR)\text{–}]_2$.



Electrodeposition of monodispersed Fe nanocrystals from an ionic liquid

C. L. Aravinda and W. Freyland*

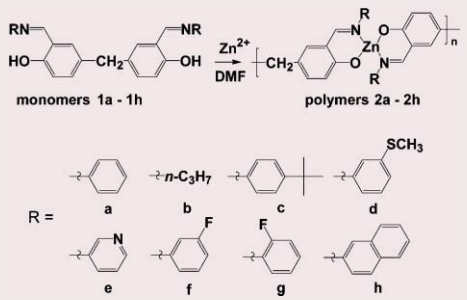
Monodispersed Fe nanocrystals up to ~2 nm thick have been electrodeposited from an ionic liquid {$AlCl_3$–$[MBIm]^+Cl^-$} at room temperature on Au(111) and have been characterized *in-situ* by electrochemical scanning tunneling microscopy for the first time.



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

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

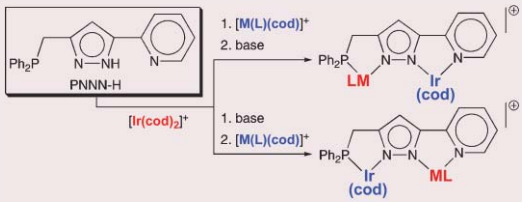
Polystyryl supported-TBD (PSTBD) is an efficient and reusable heterogeneous basic catalyst under solvent-free conditions for a variety of organic transformations such as 1,2-epoxide ring-opening, aldol-type condensation and Michael addition.



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*

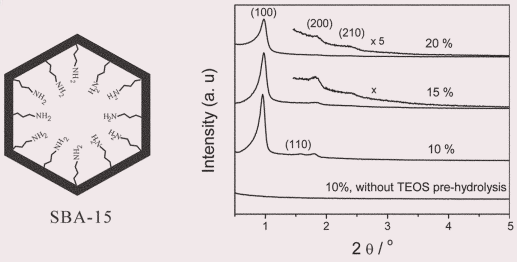
The recent development of self-assembled metal coordination polymers has been extended to the synthesis of Zn(II) Schiff base polymers that are thermally stable, structurally diverse and easily synthesized; these polymers also possess tunable electroluminescent emissions for PLEDs.



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

Christian Dubs, Akiko Inagaki and Munetaka Akita*

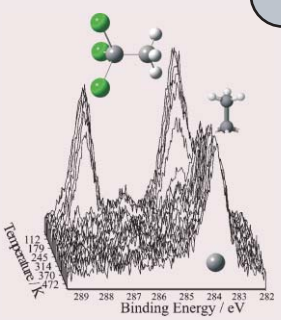
Pairs of isomeric heterodinuclear complexes, [(cod)Ir(μ-PNNN)M(L)]BF_4 and [(L)M(μ-PNNN)Ir(cod)]BF_4, with switched metal arrangements are prepared in a specific manner by simply reversing the addition order of the reagents.



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*

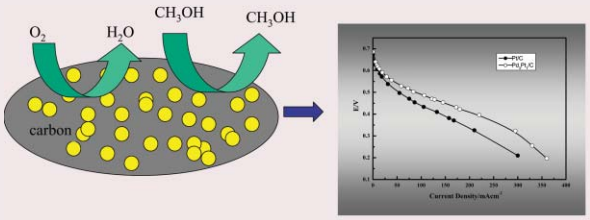
Highly ordered large pore SBA-15 silica functionalized with up to 16% aminopropyl groups, which showed high efficiencies as a base-catalyst in aldol condensation and Michael addition, was synthesized for the first time *via* co-condensation of tetraethylorthosilicate (TEOS) and 3-aminopropyl triethoxysilane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



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

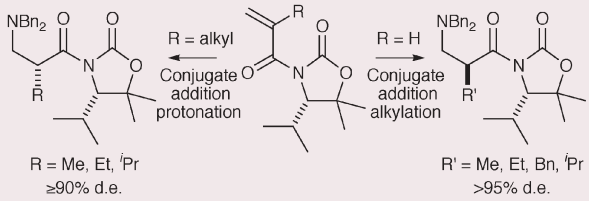
Spectroscopic and kinetic studies on model and dispersed Pt catalysts reveal they are efficient for the direct, low temperature dehydrochlorination of 1,1,1-trichloroethane to HCl and ethane.



An improved palladium-based DMFCs cathode catalyst

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

Pd-based Pd_3Pt_1/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.



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

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

Conjugate addition of lithium amides 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.

COPIES OF CITED ARTICLES

The Library and Information Centre (LIC) of the RSC offers a first class Document Delivery Service for items in Chemistry and related subjects. Contact the LIC, The Royal Society of Chemistry, Burlington House, Piccadilly, London W1V 0BN, UK.

This service is only available from the LIC in London and not the RSC in Cambridge.

Tel: +44 (0) 20 7437 8656; Fax: +44 (0) 20 7287 9798; E-mail: library@rsc.org

FREE E-MAIL ALERTING SERVICE

Contents lists in advance of publication are available on the web via www.rsc.org/chemcomm — or take advantage of our free e-mail alerting service (www.rsc.org/ej_alert) to receive notification each time a new list becomes available.

ADVANCE ARTICLES AND ELECTRONIC JOURNAL

Free site-wide access to Advance Articles and electronic form of this journal is provided with a full-rate institutional subscription. See www.rsc.org/ejs for more information.

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

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