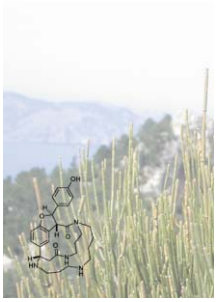
ISSN 1359-7345 • CHCOFS (4)353-476 (2004)

ChemComm

CHEMICAL COMMUNICATIONS • www.rsc.org/chemcomm



Cover
Ephedra, from which ephredradine A is isolated. The macrocyclic polyamine ring in (–)-ephedradine A was synthesised using the Ns-strategy. Image by Thomas Schoepke (http://www.plant-pictures.com) (pp. 353–359).

contents

FEATURE ARTICLE

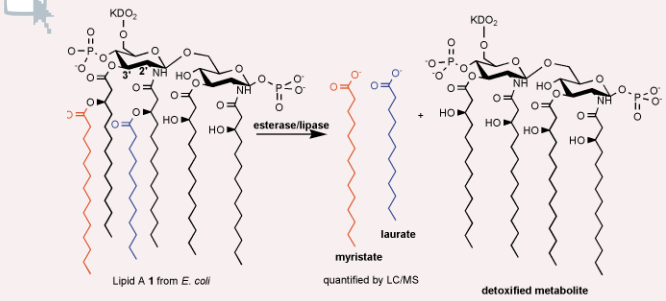
COMMUNICATIONS

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

Chemical Communications (print: ISSN 1359-7345; electronic: ISSN 1364-548X) is published 24 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF. All orders accompanied by payment should be sent directly to Turpin Distribution Services Ltd, Blackhorse Road, Letchworth, Herts, UK SG6 1HN. 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 432243; Fax +44 (0)1223 426017; E-mail advertising@rsc.org

364



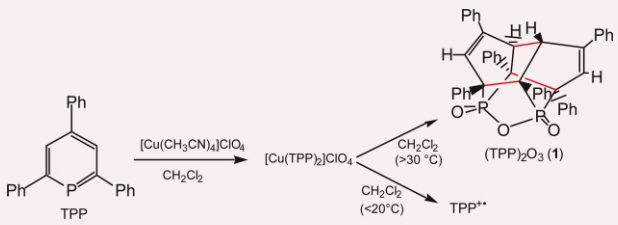
Probing lipase/esterase libraries for lipid A hydrolases—discovery of biocatalysts for the detoxification of bacterially-expressed recombinant protein

Jung-Mo Ahn, Paul Wentworth, Jr.* and Kim D. Janda*

Members of a small library of esterase/lipase enzymes have been analyzed for an ability to inactivate lipid A **1**. One member of this library, ESL-004, was a potent inactivator of bacterial endotoxin activitity, and efficiently detoxified an *E. coli* expressed scFv.

366

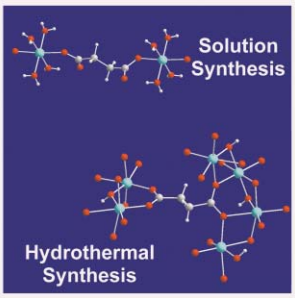
Novel cofacial oxidative coupling reaction of phosphinine in the presence of Cu(I) and ClO_4^-



Takahiko Kojima,* Yoshitaka Ishioka and Yoshihisa Matsuda*

A phophinine derivative underwent a novel cofacial oxidative coupling to form a C_2-symmetric chiral cage compound containing extremely long C–C bonds of 1.650(5) and 1.611(5) Å.

368

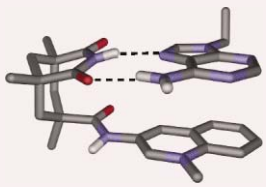


The role of temperature in the synthesis of hybrid inorganic–organic materials: the example of cobalt succinates

Paul M. Forster, Andrea R. Burbank, Carine Livage, Gérard Férey and Anthony K. Cheetham*

Five unique structures of cobalt succinate may be prepared from one starting mixture simply by varying the synthesis temperature. The changes in bonding and composition for structures illustrate the important role of temperature in hybrid materials synthesis.

370

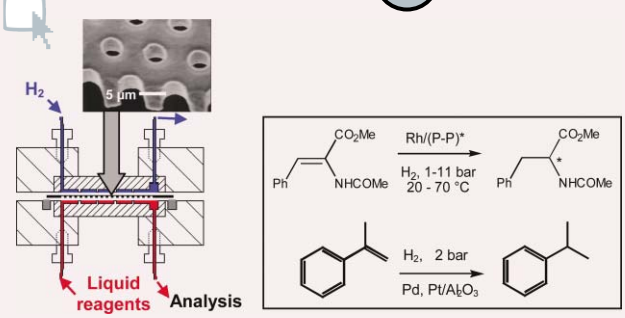


H-Bonded complexes of adenine with Rebek imide receptors are stabilised by cation–π interactions and destabilised by stacking with perfluoroaromatics

Raffaella Faraoni, Ronald K. Castellano, Volker Gramlich and François Diederich*

The π–π stacking interaction preferences of adenine bound *via* Hoogsteen hydrogen-bonding to Rebek imide receptors were investigated by ^{1}H NMR binding titrations and X-ray structural analysis and the preference for stacking on a cationic heterocycle was quantified.

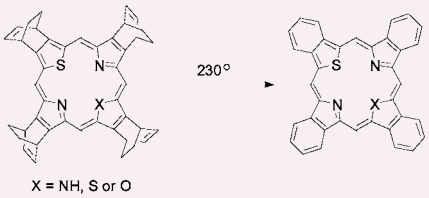
372

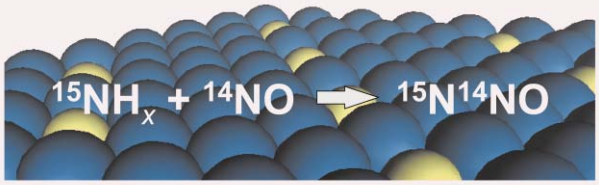


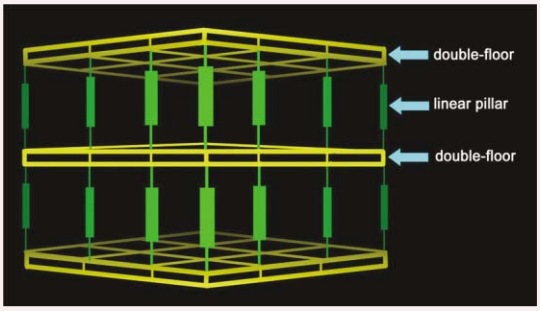
Gas–liquid and gas–liquid–solid catalysis in a mesh microreactor

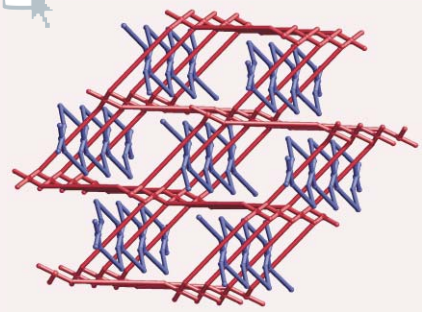
Radwan Abdallah, Valérie Meille, John Shaw, David Wenn and Claude de Bellefon*

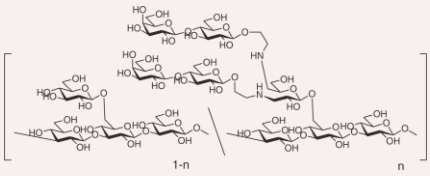
Residence time of more than minutes can now be achieved using a microstructured mesh contactor. Applications such as catalyst/chiral inductor screening and kinetic data determination are demonstrated for gas–liquid–(solid) hydrogenations using only 100 µl of liquid reagents.





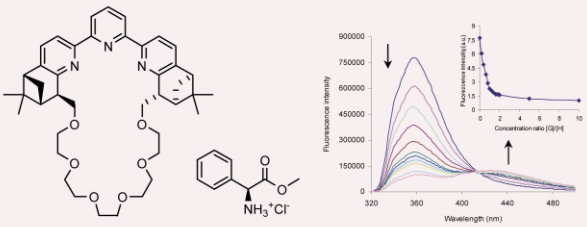






A novel chiral terpyridine macrocycle as a fluorescent sensor for enantioselective recognition of amino acid derivatives

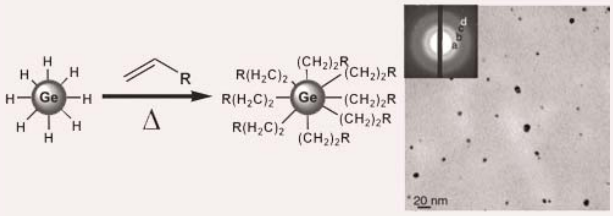
Wing-Leung Wong, Ka-Hung Huang, Pang-Fei Teng, Chi-Sing Lee and Hoi-Lun Kwong*



A novel chiral terpyridine macrocycle is shown to be a strong chelating agent for amino acid derivatives and a selective fluorescent sensor for α-phenylglycine methyl ester hydrochloride (K_{obs} (*S*)/K_{obs} (*R*) = 3.8).

Preparation of alkyl-surface functionalized germanium quantum dots *via* thermally initiated hydrogermylation

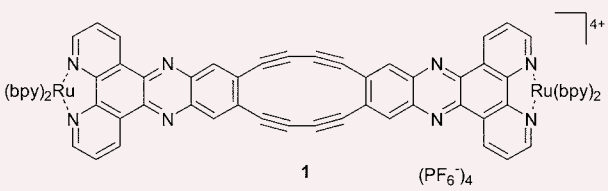
Enrico Fok, Meiling Shih, Al Meldrum and Jonathan G. C. Veinot*



A new, thermally initiated hydrogermylation-based method for the synthesis and surface functionalization of air- and moisture-stable germanium quantum dots is reported.

A $(bpy)_2Ru$-coordinated dehydro[12]annulene with exotopically fused diimine binding sites

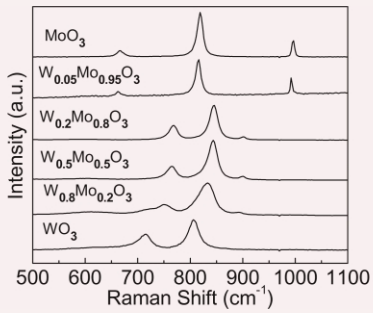
Sascha Ott and Rüdiger Faust*



A dinuclear $(bpy)_2Ru^{II}$ polypyridyl complex is described in which the bridging ligand consists of two dipyridophenazines fused to a formally antiaromatic dehydro[12]annulene. The electronic properties of the complex are markedly influenced by the cyclic all-carbon core.

Parallel synthesis and characterization of photoelectrochemically and electrochromically active tungsten–molybdenum oxides

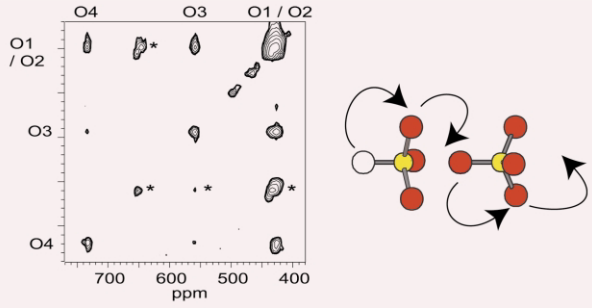
Sung-Hyeon Baeck, Thomas F. Jaramillo, Dae Hong Jeong and Eric W. McFarland*



Single phase tungsten–molybdenum mixed oxide films ($W_{1-x}Mo_xO_3$) were successfully synthesized by automated parallel electrodeposition, and distinct changes in structure, photoelectrochemical properties, and electrochromic behavior were observed as a function of composition.

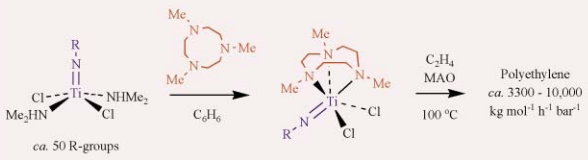
The nature of oxygen exchange in ZrW_2O_8 revealed by two-dimensional solid-state ^{17}O NMR

Matthew R. Hampson, Paul Hodgkinson,* John S. O. Evans,* Robin K. Harris, Ian J. King, Simon Allen and Franck Fayon



Variable temperature and 2D EXSY ^{17}O NMR have been used to determine the nature of exchange in ZrW_2O_8. It has been shown that all oxygen sites undergo mutual exchange, even in the ordered low temperature phase.

434

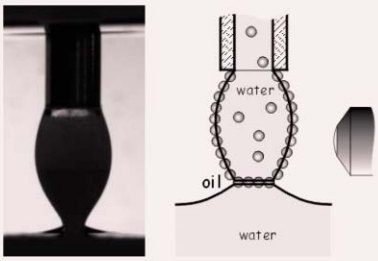


Discovery and evaluation of highly active imidotitanium ethylene polymerisation catalysts using high throughput catalyst screening

Nico Adams, Henricus J. Arts, Paul D. Bolton, Dan Cowell, Stuart R. Dubberley, Nic. Friederichs, Craig M. Grant, Mirko Kranenburg, Andrew J. Sealey, Bing Wang, Paul J. Wilson, Andrew R. Cowley, Philip Mountford* and Martin Schröder

A family of *ca.* 50 imidotitanium precatalysts [Ti(NR)(Me_3[9]aneN_3)Cl_2] (R = alkyl or aryl; Me_3[9]aneN_3 = 1,4,7-trimethyltriazacyclononane) were prepared in good yields using semi-automated procedures.

436

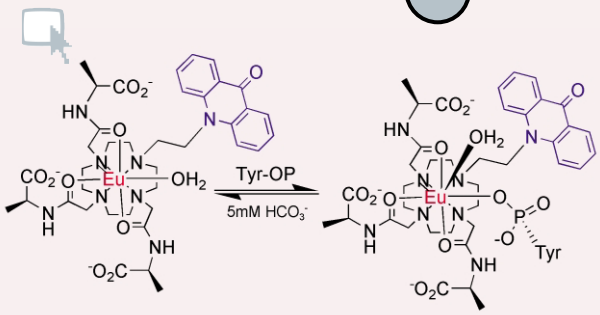


Bridging interaction between a water drop stabilised by solid particles and a planar oil/water interface

Neil P. Ashby, Bernard P. Binks and Vesselin N. Paunov*

The particle mediated interaction between a pendant water drop, covered by a latex particle monolayer, and a planar decane/water interface leads to bridging and allows the particle contact angle to be estimated from the shape of the liquid meniscus.

438



Chemoselective signalling of selected phospho-anions using lanthanide luminescence

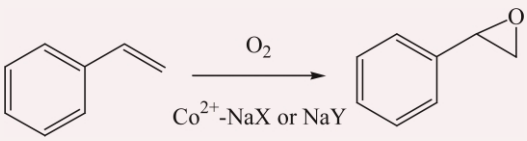
Paul Atkinson, Yann Bretonniere and David Parker

Selectivity in the binding of phosphorylated tyrosine residues to aqua–lanthanide complexes is signalled by shift and ratiometric intensity changes in ^{1}H NMR and luminescence emission spectra

440

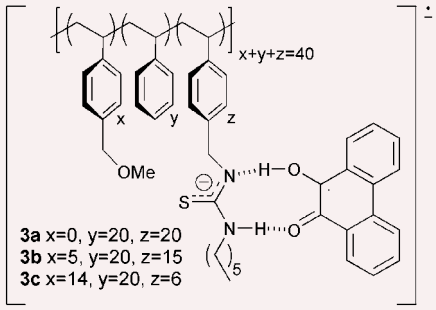
Co^{2+}-Exchanged faujasite zeolites as efficient heterogeneous catalysts for epoxidation of styrene with molecular oxygen

Qinghu Tang, Ye Wang,* Jun Liang, Ping Wang, Qinghong Zhang and Huilin Wan



Co^{2+}-Exchanged faujasite zeolites can catalyze the epoxidation of styrene with O_2, and the Co^{2+} ions located in supercages account for the activation of O_2 for the epoxidation of styrene.

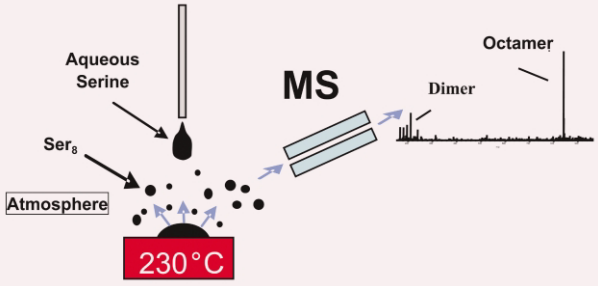
442



Proton transfer *versus* redox modulation in thiourea-phenanthrenequinone molecular and polymeric complexes

Joseph B. Carroll, Mark Gray, Graeme Cooke and Vincent M. Rotello*

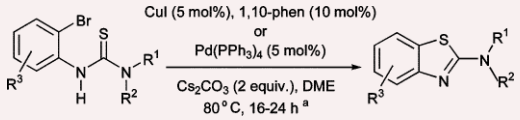
Phenanthrenequinone undergoes rapid proton transfer processes in the presence of thiourea-substituted random styrene copolymer, while interactions with a similar benzyl-thiourea monomer in different dielectric environments demonstrate strong redox modulation of the quinone without proton transfer.



Thermal formation of serine octamer ions

Zoltán Takáts and R. Graham Cooks*

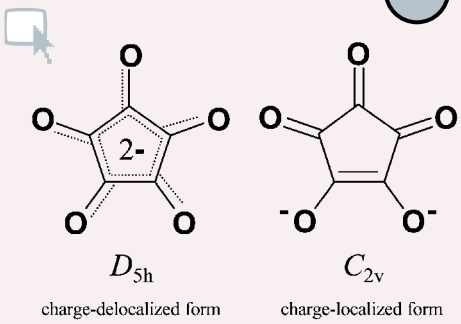
Serine octamers are produced by simply heating an aqueous solution of the amino acid. The results add to the evidence that this cluster might have played a role in prebiotic homochirogenesis.



Copper- and palladium-catalyzed intramolecular C–S bond formation: a convenient synthesis of 2-aminobenzothiazoles

Laurie L. Joyce, Ghotas Evindar and Robert A. Batey*

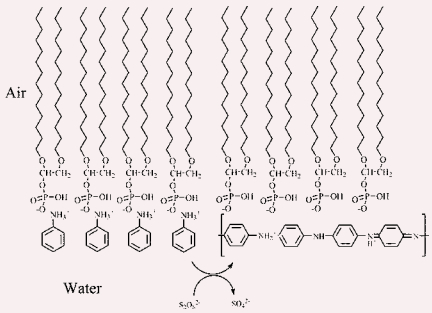
Cu- and Pd-catalyzed formation of 2-aminobenzothiazoles was achieved by intramolecular C–S bond formation between an aryl halide and a thiourea functionality.



Stabilization of D_{5h} and C_{2v} valence tautomers of the croconate dianion

Chi-Keung Lam, Mei-Fun Cheng, Chi-Lun Li, Jie-Peng Zhang, Xiao-Ming Chen, Wai-Kee Li and Thomas C. W. Mak*

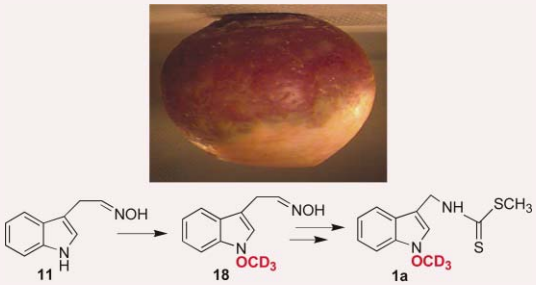
The non-benzenoid aromatic D_{5h} and enediolate C_{2v} form of $C_5O_5^{2-}$ have been stabilized by hydrogen bonding with urea and 1,3-dimethylurea, respectively, in the host lattices of two novel crystalline inclusion compounds.



Interfacial polymerisation of anilinium at Langmuir monolayers

Jie Zhang, Daniel Mandler* and Patrick R. Unwin*

Anilinium is strongly adsorbed at monolayers of the phospholipid L-α-dimyristoylphosphatidic acid (DMPA) and hexadecanesulfonic acid (HDSA) at the air–water interface, and undergoes chemical polymerisation under conditions where bulk polymerisation does not occur.



The biosynthesis of crucifer phytoalexins: unprecedented incorporation of a 1-methoxyindolyl precursor

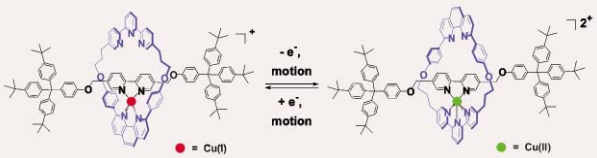
M. Soledade C. Pedras* and Sabine Montaut

The first biosynthetic studies using rutabaga tubers revealed that 1-methoxy-3-indolylacetaldehyde oxime (**18**) is an early precursor of 1-methoxyindole containing phytoalexins.

COMMUNICATIONS

474

A copper-complexed rotaxane in motion: pirouetting of the ring on the millisecond timescale



Ingo Poleschak, Jean-Marc Kern and Jean-Pierre Sauvage

A novel rotaxane was prepared where the ring performs an electrochemically triggered rotation around the axle. In comparison to similar systems some structural changes speed up the pirouetting motion by several orders of magnitude into the millisecond range.

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

CHEMICAL SCIENCE

Drawing together the news and research highlights from all RSC publications, providing a ‘snapshot’ of the latest developments across the chemical sciences.

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 the 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 contact details.

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

AUTHOR INDEX

NOTE: An asterisk in the heading of each paper indicates the author who is to receive any correspondence.