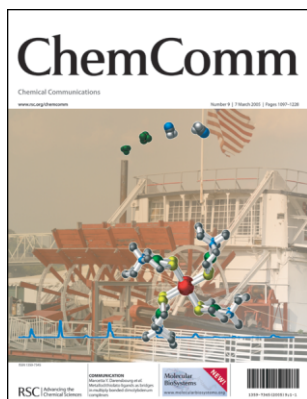


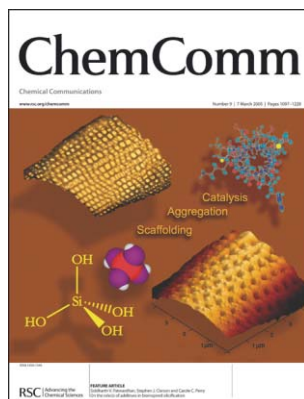
## IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS (9) 1097-1228 (2005)



### Cover

Full steam ahead with a hexametallic molecular paddlewheel. See p. 1122. Image reproduced by permission of Stephen P. Jeffery, Jonghyuk Lee and Marcetta Y. Darensbourg



### Inside cover

Additives in bioinspired silicification regulate three key aspects - catalysis, aggregation and scaffolding. See p. 1113. Artwork kindly prepared by Jay Yocis, Photographic Services, University of Cincinnati. Image reproduced by permission of Siddharth V. Patwardhan, Stephen J. Clarson and Carole C. Perry

## CHEMICAL SCIENCE

C17

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

## Chemical Science

March 2005/Volume 2/Issue 3

[www.rsc.org/chemicalscience](http://www.rsc.org/chemicalscience)

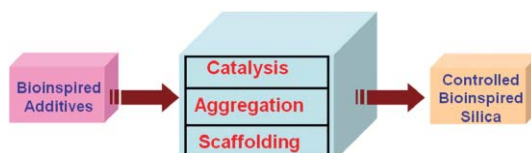
## FEATURE ARTICLE

1113

### On the role(s) of additives in bioinspired silicification

Siddharth V. Patwardhan,\* Stephen J. Clarson and Carole C. Perry

The results obtained from bioinspired silicification investigations are hypothesised to arise from specific modes of action of the organic additives—additives act as catalysts, aggregation promoting agents or structure-directing agents or typically, exhibit a combination of these behaviours.



## EDITORIAL STAFF

### Managing editor

Sarah Thomas

### Deputy editor

Sula Armstrong

### Assistant editors

Rachel Hopper, Lorna Jack, Nicola Nugent,  
Alison Stoddart, Katherine Vickers

### Publishing assistants

Jayne Drake, Jayne Gough, Lois Kershaw,

### Crystallographic data editor

Kirsty Anderson

### Team leader, serials production

Helen Saxton

### Technical editors

Celia Clarke, Sandra Jones, Caroline Moore,  
Elinor Richards, Michael Smith, Ken Wilkinson

### Editorial secretaries

Sonya Spring, Julie Thompson, Rebecca Gotobed

### Publisher, journals and reviews

Adrian Kybett

Chemical Communications (print: ISSN 1359-7345; electronic: ISSN 1364-548X) is published 48 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 Portland Customer Services, Commerce Way, Colchester, Essex, UK CO2 8HP. Tel +44 (0)1206 226050; E-mail sales@rscdistribution.org

2005 Annual (print + electronic) subscription price: £1595; US\$2635. 2005 Annual (electronic) subscription price: £1435; US\$2370. 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](http://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.

© The Royal Society of Chemistry, 2005. Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulations 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publisher or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA. The Royal Society of Chemistry takes reasonable care in the preparation of this publication but does not accept liability for the consequences of any errors or omissions. Inclusion of an item in this publication does not imply endorsement by The Royal Society of Chemistry of the content of the original documents to which that item refers.

# ChemComm

Chemical Communications

[www.rsc.org/chemcomm](http://www.rsc.org/chemcomm)

## EDITORIAL BOARD

### Chairman

Roeland J. M. Nolte, Nijmegen, The Netherlands  
nolte@sci.kun.nl

Jerry L. Atwood, Columbia, USA

[rsc.chemcomm@missouri.edu](mailto:rsc.chemcomm@missouri.edu)

Shankar Balasubramanian, Cambridge, UK  
sb10031@cam.ac.uk

Hans-Ulrich Blaser, Solvias AG, Switzerland

[hans-ulrich.blaser@SOLVIAS.com](mailto:hans-ulrich.blaser@SOLVIAS.com)

P. Andrew Evans, Bloomington, USA

[chemcomm@indiana.edu](mailto:chemcomm@indiana.edu)

Makoto Fujita, Tokyo, Japan

[mfujita@appchem.tu-tokyo.ac.jp](mailto:mfujita@appchem.tu-tokyo.ac.jp)

Alois Fürstner, Mülheim, Germany

[fuerstner@mpi-muelheim.mpg.de](mailto:fuerstner@mpi-muelheim.mpg.de)

David Haddleton, Warwick, UK

[D.M.Haddleton@warwick.ac.uk](mailto:D.M.Haddleton@warwick.ac.uk)

Donald Hilvert, Zurich, Switzerland

[hilvert@org.chem.ethz.ch](mailto:hilvert@org.chem.ethz.ch)

Mir Wais Hosseini, Strasbourg, France

[hosseini@chimie.u-strasbg.fr](mailto:hosseini@chimie.u-strasbg.fr)

Barbara Imperiali, Cambridge, USA

[chemcomm@mit.edu](mailto:chemcomm@mit.edu)

Dermot O'Hare, Oxford, UK

[chemcomm@chem.ox.ac.uk](mailto:chemcomm@chem.ox.ac.uk)

Colin Raston, Perth, Australia

[clraston@chem.uwa.edu.au](mailto:clraston@chem.uwa.edu.au)

Ferdi Schüth, Mülheim, Germany

[schueth@mpi-muelheim.mpg.de](mailto:schueth@mpi-muelheim.mpg.de)

T. Don Tilley, Berkeley, USA

[chemcomm@berkeley.edu](mailto:chemcomm@berkeley.edu)

### Scientific editors

The Scientific Editors welcome enquiries from potential authors regarding the submission and scientific content of papers. For more information please see <http://www.rsc.org/authors>

Dermot O'Hare

Donald Hilvert

Mir Wais Hosseini

Alois Fürstner

### Associate editors

Manuscripts can be submitted online at

[www.rsc.org/resource](http://www.rsc.org/resource)

Manuscripts from the Americas should be submitted

to the appropriate Associate Editor.

### Chemical biology

Barbara Imperiali

### Inorganic, Organometallic and Materials

T. Don Tilley

Manuscripts from other regions should be submitted to the Managing Editor Dr Sarah Thomas ([chemcomm@rsc.org](mailto:chemcomm@rsc.org))

For information on how to submit your manuscript see <http://www.rsc.org/authors>

### Supramolecular

Jerry L. Atwood

### Organic

P. Andrew Evans

### Editorial advisory board

Varinder Aggarwal, Bristol, UK

Takuzo Aida, Tokyo, Japan

Frank Allen, CCDC, Cambridge, UK

Dario Braga, Bologna, Italy

Jillian M. Buriak, Alberta, Canada

Derrick Clive, Alberta, Canada

Marcetta Darensbourg, College Station, USA

Gregory C. Fu, Cambridge, USA

Tohru Fukuyama, Tokyo, Japan

Lutz Gade, Heidelberg, Germany

Phillip Gale, Southampton, UK

George W. Gokel, St Louis, USA

Craig Hawker, Santa Barbara, USA

Andrew B. Holmes, Melbourne, Australia

Amir Hoveyda, Boston, USA

Kazuyuki Kuroda, Tokyo, Japan

Jérôme Lacour, Geneva, Switzerland

David MacMillan, Pasadena, USA

E. W. 'Bert' Meijer, Eindhoven, The Netherlands

Jason Micklefield, Manchester, UK

Achim Müller, Bielefeld, Germany

Catherine Murphy, South Carolina, USA

Atsuhiko Osuka, Kyoto, Japan

Ian Paterson, Cambridge, UK

Maurizio Prato, Trieste, Italy

Christopher A. Reed, Riverside, USA

Robin Rogers, Alabama, USA

Michael Sailor, San Diego, USA

Jonathan Sessler, Austin, USA

Jonathan W. Steed, Durham, UK

Carsten Tschierske, Halle, Germany

Herbert Waldmann, Dortmund, Germany

Henry N. C. Wong, Hong Kong, PR China

**Advertisement sales:** Tel +44 (0)1223 432243

Fax +44 (0)1223 426017; E-mail [advertising@rsc.org](mailto:advertising@rsc.org)

⊗ The paper used in this publication meets the requirements of ANSI/NISO

Royal Society of Chemistry: Registered Charity No. 207890.

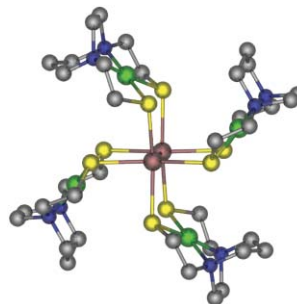
Authors may reproduce/republish portions of their published contribution without seeking permission from the RSC, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of The Royal Society of Chemistry.

1122

### Metallodithiolato ligands as bridges in multiply bonded dimolybdenum complexes

Stephen P. Jeffery, Jonghyuk Lee and Marcetta Y. Darensbourg\*

For the first time, a NiN<sub>2</sub>S<sub>2</sub> metallodithiolato ligand is used as a bidentate bridging ligand for a multiply bonded dimetal unit.



1125

### A family of heterometallic wheels containing potentially fourteen hundred siblings

Rebecca H. Laye, Finn K. Larsen, Jacob Overgaard, Christopher A. Muryn, Eric J. L. McInnes,\* Eva Rentschler,\* Veronica Sanchez, Simon J. Teat, Hans U. Güdel, Oliver Waldmann, Grigore A. Timco\* and Richard E. P. Winpenny\*

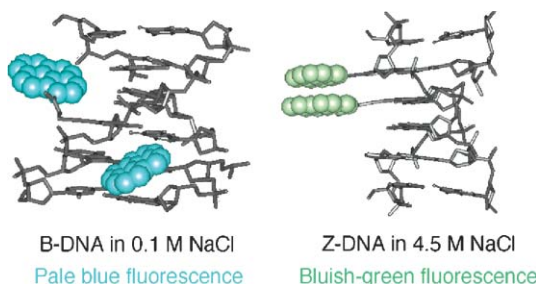
An extensive series of octanuclear heterometallic wheels has been made of the general formula [NR<sub>2</sub>H<sub>2</sub>][M<sub>7</sub>M'F<sub>8</sub>(O<sub>2</sub>CR')<sub>16</sub>], where M = Cr<sup>III</sup>, Fe<sup>III</sup> or V<sup>III</sup>; M' = Ni<sup>II</sup>, Zn<sup>II</sup>, Cd<sup>II</sup>, Co<sup>II</sup>, Fe<sup>II</sup>; R = a linear alkyl; R' = various. This is the largest family of isostructural polymetallic complexes known since the oxo-centered triangles were first reported.

1128

### Fluorometric sensing of the salt-induced B–Z DNA transition by combination of two pyrene-labeled nucleobases

Akimitsu Okamoto,\* Yuji Ochi and Isao Saito\*

We have developed a new fluorescent DNA probe containing two pyrene-labeled nucleobases, <sup>Pet</sup>G and <sup>Py</sup>C, and the fluorescence color was altered by the salt-induced B–Z DNA transition.

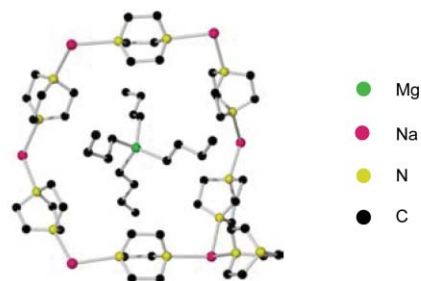


1131

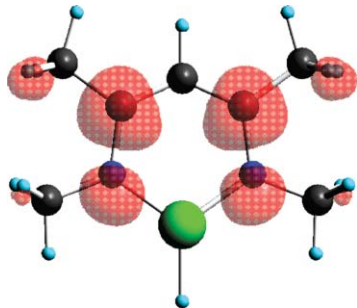
### Stoichiometrically-controlled reactivity and supramolecular storage of butylmagnesiato anions

Prokopis C. Andrikopoulos, David R. Armstrong, Eva Hevia,\* Alan R. Kennedy, Robert E. Mulvey\* and Charles T. O'Hara

Unlike its stoichiometric compatriot Na<sub>2</sub>MgBu<sub>4</sub>, DABCO-activated NaMgBu<sub>3</sub> surprisingly fails to metallate toluene, though both 'ates yield the same coproduct, which has a remarkable polycationic network structure with interstices filled by discrete (MgBu<sub>4</sub>)<sup>2-</sup> dianions.



1134

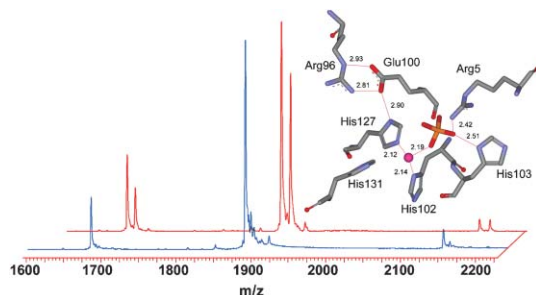


### A computational study of the reactions of a $\beta$ -diketiminatoaluminium(III) complex with the hydrogen atom and the electron

Iain McKenzie, Paul W. Percival and Jason A. C. Clyburne\*

The  $\beta$ -diketiminatoaluminium(III) complex reacts with the hydrogen atom to produce a radical. The spin density in the resulting radical resides entirely on the  $\beta$ -diketiminato ligand.

1137

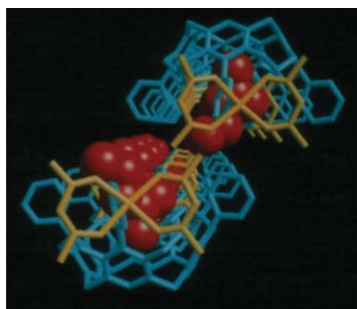


### Metal induced selectivity in phosphate ion binding in E9 DNase

Ewald T. J. van den Bremer, Anthony H. Keeble, Colin Kleanthous and Albert J. R. Heck\*

Insights into fine-tuning mechanisms of endonuclease colicins are investigated by native ESI mass spectrometry. Both  $\text{Ni}^{2+}$  and  $\text{Zn}^{2+}$  bind to these colicins but only  $\text{Zn}^{2+}$  induces subsequent specific phosphate ligation.

1140

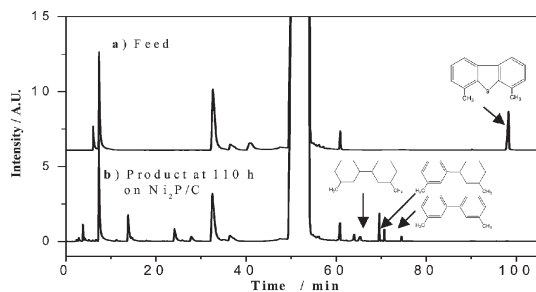


### One-dimensional void-space arrays constructed from a coordination polymer with bowl-like frameworks of cavitations

Makoto Tadokoro,\* Shin Mizugaki, Masatoshi Kozaki and Keiji Okada

A one-dimensional coordination polymer of  $[\text{Mn}^{\text{II}}(\text{hfac})_2]$  bridged by new bowl-like ligands of cavitations was prepared and the crystal structure was determined by X-ray crystal analysis.

1143



### A new type of nonsulfide hydrotreating catalyst: nickel phosphide on carbon

Yuying Shu and S. Ted Oyama\*

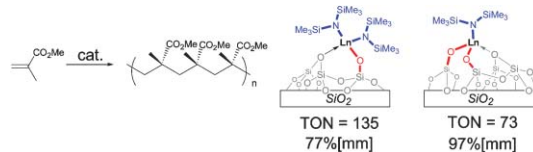
The carbon-supported nickel phosphide ( $\text{Ni}_2\text{P}/\text{C}$ ) is a new promising hydrotreating catalyst and exhibits superior activity, selectivity, and stability for sulfur removal from the refractory compound 4,6-dimethyldibenzothiophene (4,6-DMDBT).

1146

### Silica-supported lanthanide silylamides for methyl methacrylate polymerisation: controlled grafting induces controlled reactivity

Régis M. Gauvin\* and André Mortreux

Controlled grafting of lanthanide silylamides onto dehydroxylated silica affords isotactic MMA polymerisation catalysts. Combined analyses allow us to assess the correlation between surface species structure and polymerisation activity and selectivity.

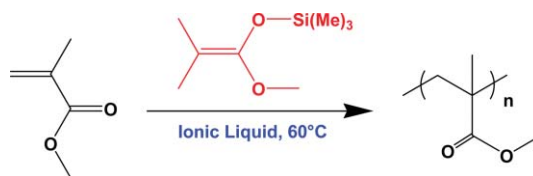


1149

### Group transfer polymerisation in hydrophobic ionic liquids

Ranganathan Vijayaraghavan and Douglas R. MacFarlane\*

Polymethylmethacrylate is prepared in high yield by group transfer polymerisation in a hydrophobic ionic liquid. The ionic liquid provides an ideal low water content environment for this type of polymerisation of acrylates.

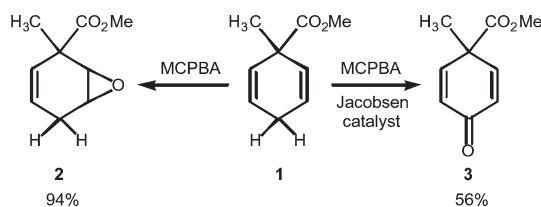


1152

### 1,4-Cyclohexadienes as mechanistic probes for the Jacobsen epoxidation: evidence for radical pathways

Ulrike Engelhardt and Torsten Linker\*

Two completely different reaction pathways are followed during the oxidation of 1,4-cyclohexadienes **1**. *m*-Chloroperoxybenzoic acid (MCPBA) affords exclusively epoxides **2**, whereas cyclohexadienones **3** are formed in the presence of the Jacobsen catalyst, which gives evidence for radical intermediates.

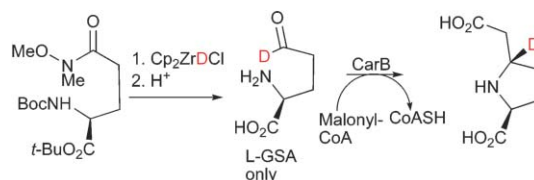


1155

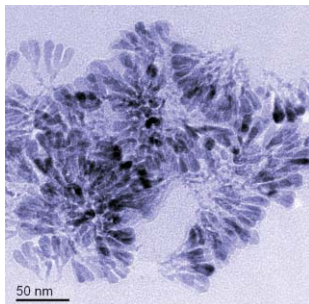
### Synthesis of deuterium labelled L- and D-glutamate semialdehydes and their evaluation as substrates for carboxymethylproline synthase (CarB)—implications for carbapenem biosynthesis

John L. Sorensen, Mark C. Sleeman and Christopher J. Schofield\*

Syntheses of deuterium labelled L- and D-glutamate semialdehydes is reported. Incubation studies reveal that carboxymethylproline synthase (CarB) condenses L-, but not D-glutamate semialdehyde in the committed step of carbapenem biosynthesis.



1158

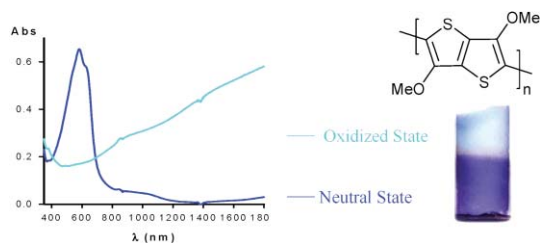


### Morphology-controlled large-scale synthesis of ZnO nanocrystals from bulk ZnO

Xinhua Zhong\* and Wolfgang Knoll\*

Gram-scale, teardrop-like, monodisperse ZnO nanocrystals with a well-resolved absorption onset and a strong sharp UV emission were prepared.

1161

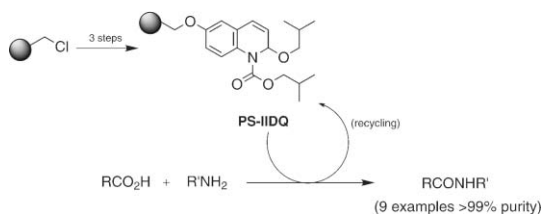


### Poly(3,6-dimethoxy-thieno[3,2-*b*]thiophene): a possible alternative to poly(3,4-ethylenedioxythiophene) (PEDOT)

Mathieu Turbiez, Pierre Frère,\* Philippe Leriche, Nicolas Mercier and Jean Roncali

Electropolymerisation of the 3,6-dimethoxy-thieno[3,2-*b*]thiophene leads to a conjugated polymer with low redox potential, band gap, optical transparency in the doped state and stability similar to those of PEDOT.

1164

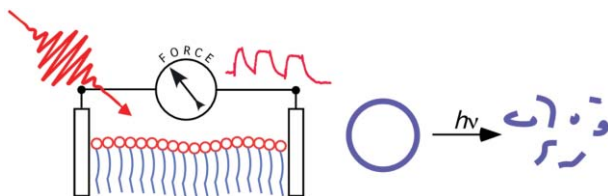


### PS-IIDQ: an efficient polymer-supported amide coupling reagent

Eric Valeur and Mark Bradley\*

Polystyrene-IIDQ is a polymer-supported coupling reagent that couples carboxylic acids to amines in good yields and high purity without the requirement of a pre-activation step.

1167



### Photoinduced morphism of gemini surfactant aggregates

Delphine Faure, Julien Gravier, Thomas Labrot, Bernard Desbat, Reiko Oda\* and Dario M. Bassani\*

The incorporation of a sturdy azobenzene chromophore in a gemini cationic surfactant leads to photoactive amphiphilic assemblies.

1170

### Low-melting sugar–urea–salt mixtures as solvents for Diels–Alder reactions

Giovanni Imperato, Ernst Eibler, Julia Niedermaier and Burkhard König\*

Using abundant bulk chemicals, such as sugar, urea and ammonium chloride, low-melting stable mixtures have been obtained, which are suitable as green solvents for organic reactions.

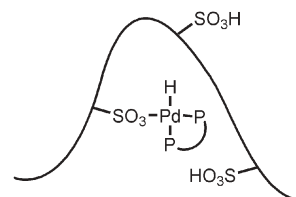


1173

### Highly active and selective palladium catalyst for hydroesterification of styrene and vinyl acetate promoted by polymeric sulfonic acids

Hirohito Ooka,\* Tsutomu Inoue, Shinichi Itsuno and Masato Tanaka\*

1,2-Bis(di-*tert*-butylphosphinomethyl)benzene–palladium species used in conjunction with polymeric sulfonic acids of limited SO<sub>3</sub>H loadings generate high performance catalyst systems in hydroesterification of styrene and vinyl acetate affording branched structured esters.

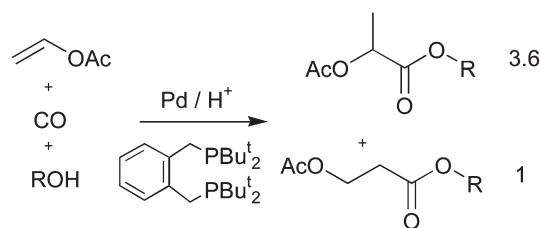


1176

### Methoxycarbonylation of vinyl acetate catalysed by palladium complexes of bis(ditertiarybutylphosphinomethyl)benzene and related ligands

Adam J. Rucklidge, George E. Morris and David J. Cole-Hamilton\*

Palladium complexes of bis(ditertiarybutylphosphinomethyl)benzene are active catalysts for the methoxycarbonylation of vinylacetate to give acetyl protected lactate esters with 78% branched selectivity and minimal side product formation.

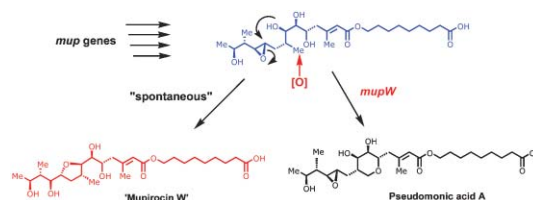


1179

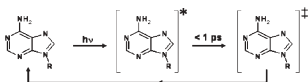
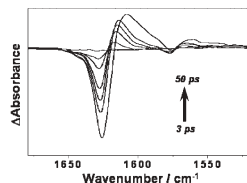
### Mupirocin W, a novel pseudomonic acid produced by targeted mutation of the mupirocin biosynthetic gene cluster

Sian M. Cooper, Russell J. Cox, John Crosby, Matthew P. Crump, Joanne Hothersall, Wanpen Laosripaiboon, Thomas J. Simpson\* and Christopher M. Thomas

Mutation of the *mupW* gene in the mupirocin biosynthetic gene cluster in *Pseudomonas fluorescens* results in efficient production of a novel pseudomonic acid metabolite, mupirocin W, which lacks the characteristic tetrahydropyran ring, and reveals the role of the *mupW* gene in pseudomonic acid biosynthesis.



1182

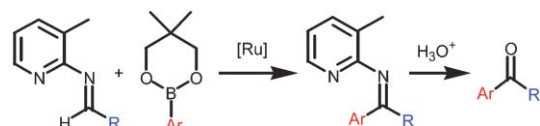


### Monitoring the effect of ultrafast deactivation of the electronic excited states of DNA bases and polynucleotides following 267 nm laser excitation using picosecond time-resolved infrared spectroscopy

Marina K. Kuimova, Joanne Dyer, Michael W. George,\* David C. Grills, John M. Kelly,\* Pavel Matousek, Anthony W. Parker,\* Xue Zhong Sun, Michael Towrie and Aine M. Whelan

A picosecond infrared spectroscopic study of DNA bases has demonstrated that electronic excitation creates vibrationally excited ground state molecules within the first picosecond.

1185



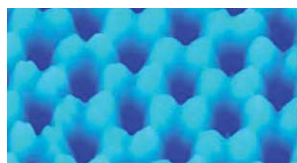
R = aryl or alkyl

### Ruthenium-catalyzed coupling of aldimines with arylboronates: new synthetic method for aromatic ketones

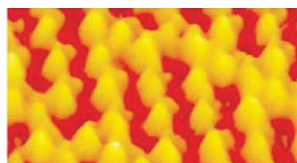
Young Jun Park, Eun-Ae Jo and Chul-Ho Jun\*

Using the chelation strategy, the reaction of aryl or alkyl aldimines bearing the 3-picolin-2-yl group with various arylboronates in the presence of ruthenium catalyst furnished the corresponding ketimines in high yields for a short reaction time. The resulting ketimines were readily converted to ketones by hydrolysis.

1188



C<sub>60</sub> on coronene adlayer



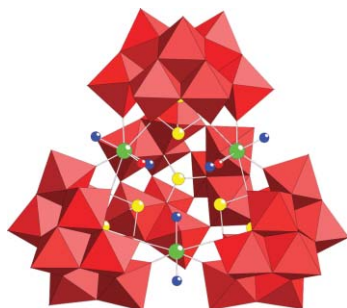
C<sub>60</sub> on perylene adlayer

### Effect of underlying coronene and perylene adlayers for [60]fullerene molecular assembly

Soichiro Yoshimoto, Eishi Tsutsumi, Oomi Fujii, Ryuji Narita and Kingo Itaya\*

Supramolecularly assembled layers of C<sub>60</sub> on coronene- and perylene-modified Au(111) surfaces were investigated and the structure of the C<sub>60</sub> adlayer was found to be strongly influenced by the underlying organic layers.

1191



### Polyoxoanions functionalized by diorganotin groups: the tetrameric, chiral tungstoarsenate(III), $[\{\text{Sn}(\text{CH}_3)_2(\text{H}_2\text{O})\}_2\{\text{Sn}(\text{CH}_3)_2\text{As}_3(\alpha\text{-AsW}_9\text{O}_{33})_4\}]^{21-}$

Firasat Hussain and Ulrich Kortz\*

The tetrameric, hybrid organic–inorganic tungstoarsenate(III)  $[\{\text{Sn}(\text{CH}_3)_2(\text{H}_2\text{O})\}_2\{\text{Sn}(\text{CH}_3)_2\text{As}_3(\alpha\text{-AsW}_9\text{O}_{33})_4\}]^{21-}$  is composed of four (B- $\alpha\text{-AsW}_9\text{O}_{33}$ ) fragments that are linked by three dimethyltin groups and three As(III) atoms resulting in an unprecedented, chiral polyoxoanion assembly with C<sub>1</sub> symmetry.

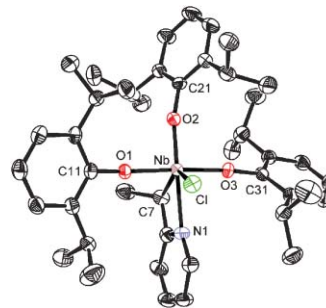


1194

**Regioselective insertion of 2-vinylpyridine in niobium and tantalum aryloxy complexes: an alternate route to pyridylalkyl metallacycles**

Rex A. Corbin,\* Brandon E. Dusick, Khamphée Phomphrai, Phillip E. Fanwick and Ian P. Rothwell

A series of niobium and tantalum aryloxy compounds containing  $\eta^2$  pyridylalkyl ligation have been synthesized *via* a regioselective insertion of 2-vinylpyridine into a metal–hydride bond. The latter originates from  $n\text{-BuSnH}$ .

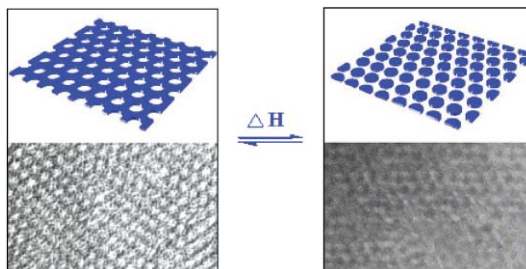


1197

**Structural inversion in 3-D hexagonal organization of coil–rod–coil molecule**

Long Yi Jin, Jinyoung Bae, Jong-Hyun Ahn and Myongsoo Lee\*

We report an unusual example of supramolecular structural inversion in coil–rod–coil molecules, from organized coil perforations in a rod layer to organized discrete rod-bundles in a coil matrix, while maintaining a 3-D hexagonal superlattice.



1200

**Fabrication of mesoporous polymer using soft template method**

Jyongsik Jang\* and Joonwon Bae

Nanoporous polymer materials (see image c) with tunable pore sizes were fabricated from micelle/polymer precursors (see image b) which were prepared by the micelle template method in reverse microemulsion systems (see image a) and the pore size could be tuned by varying the type and concentration of surfactant.

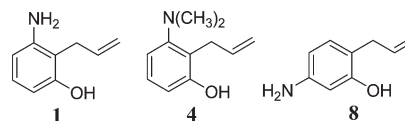


1203

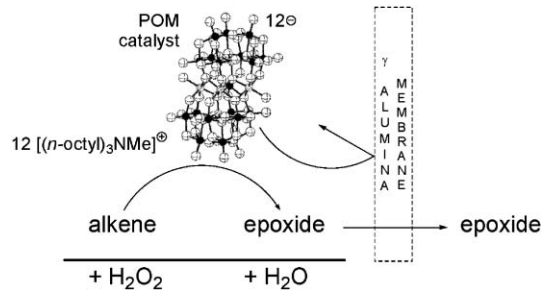
**Enhanced reactivity in OH/NH/ $\pi$  polyfunctional systems through coupled proton/electron transfer in the excited state: the photocyclisation of 2-allyl-3-aminophenol**

Edgar A. Leo, Rosa Tormos and Miguel A. Miranda\*

The photocyclisation rate of 2-allyl-3-(or 5-)aminophenols (**1**, **4** and **8**) is dramatically enhanced, when compared with reference compounds, as a consequence of a coupled proton/electron transfer process.



1206

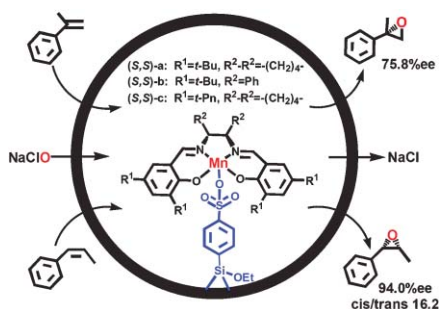


### Highly efficient recycling of a “sandwich” type polyoxometalate oxidation catalyst using solvent resistant nanofiltration

Peter T. Witte, Sankhanilay Roy Chowdhury, Johan E. ten Elshof,\* Dorit Sloboda-Rozner, Ronny Neumann and Paul L. Alsters\*

A “sandwich” type polyoxometalate catalyst ( $[\text{MeN}(n\text{-C}_8\text{H}_{17})_3]_{12}[\text{WZn}_3(\text{ZnW}_9\text{O}_{34})_2]$ ) was very efficiently recycled by nanofiltration with almost quantitative retention, using an  $\alpha$ -alumina supported mesoporous  $\gamma$ -alumina membrane.

1209

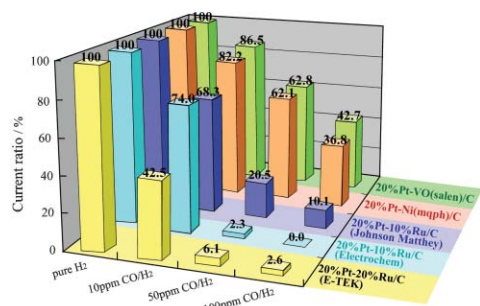


### Enantioselective epoxidation of unfunctionalised olefins catalyzed by Mn(salen) complexes immobilized in porous materials via phenyl sulfonic group

Huidong Zhang, Song Xiang and Can Li\*

New heterogeneous chiral Mn(salen) catalysts axially immobilized on mesoporous materials via phenyl sulfonic groups result in remarkably higher ee values (75.8 vs. 55.0% and 94.0 vs. 54.8%) and ratio of *cis/trans* (16.2 vs. 0.38) for asymmetric epoxidation of unfunctionalised olefins than their analogous homogeneous counterparts.

1212

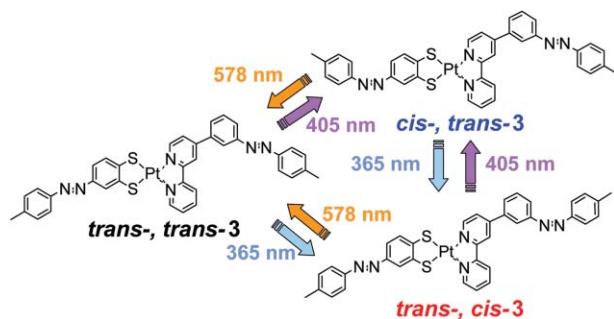


### New CO tolerant electro-catalysts exceeding Pt–Ru for the anode of fuel cells

Hiroshi Yano, Chisato Ono, Hidenobu Shiroishi and Tatsuhiro Okada\*

Novel types of CO tolerant electro-catalysts have been developed from Pt and organic metal complexes that are far superior to Pt–Ru as anode catalysts in reformat gas fuel cells.

1215



### Photo-controllable tristability of a dithiolato-bipyridine-Pt(II) complex molecule containing two azobenzene moieties

Ryota Sakamoto, Masaki Murata, Shoko Kume, Hidekazu Sampei, Manabu Sugimoto\* and Hiroshi Nishihara\*

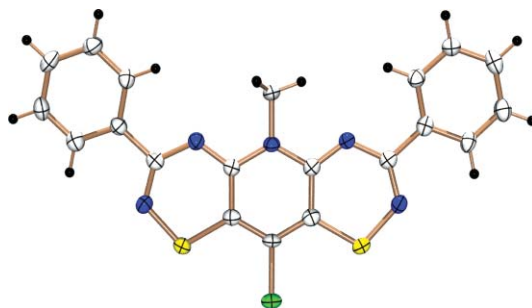
A new platinum complex with both an azo-bound dithiolato ligand and an azobenzene-bound bipyridine ligand exhibits tristability reversibly controllable using different energy lights.

1218

**Resonance stabilized *bis*-thiadiazinyl radicals**

Leanne Beer, Robert C. Haddon, Mikhail E. Itkis, Alicea A. Leitch, Richard T. Oakley,\* Robert W. Reed, John F. Richardson and Donald G. VanderVeer

The resonance stabilized *bis*-thiadiazinyl framework holds potential as a stable and versatile building block for the design of radical-based conductors and magnetic materials.

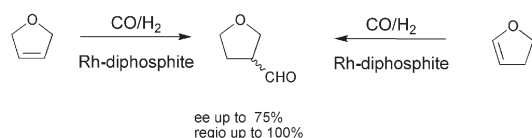


1221

**First successful application of diphosphite ligands in the asymmetric hydroformylation of dihydrofurans**

Montserrat Diéguez,\* Oscar Pamies and Carmen Claver\*

Good enantioselectivities and excellent regioselectivities are achieved in the Rh-catalyzed asymmetric hydroformylation of 2,5- and 2,3-dihydrofuran using diphosphite ligands; whereby the backbone of the ligand is crucial to suppressing isomerization and obtaining high ee's.



## ADDITIONS AND CORRECTIONS

1224

**An ultrasensitive nucleic acid biosensor based on the catalytic oxidation of guanine by a novel redox threading intercalator**

Natalia C. Tansil, Fang Xie, Hong Xie and Zhiqiang Gao

**A new approach to construct full-length glycosylphosphatidylinositols of parasitic protozoa and [4-deoxy-Man-III]-GPI analogues**

Asif Ali, D. Channe Gowda and Ram A. Vishwakarma

**Methoxycarbonylation of vinyl acetate catalysed by palladium complexes of bis(ditertiarybutylphosphino-methyl)benzene and related ligands**

Adam J. Rucklidge, George E. Morris and David J. Cole-Hamilton

**Rh(II) catalysed intramolecular C-H insertion of diazo substrates in water: a simple and efficient approach to catalyst reuse**

Nuno R. Candeias, Pedro M. P. Gois Carlos and A. M. Afonso


## AUTHOR INDEX

- Ahn, Jong-Hyun, 1197  
 Alsters, Paul L., 1206  
 Andrikopoulos, Prokopis C., 1131  
 Armstrong, David R., 1131  
 Bae, Jinyoung, 1197  
 Bae, Joonwon, 1200  
 Bassani, Dario M., 1167  
 Beer, Leanne, 1218  
 Bradley, Mark, 1164  
 Chowdhury, Sankhanilay Roy, 1206  
 Clarson, Stephen J., 1113  
 Claver, Carmen, 1221  
 Clyburne, Jason A. C., 1134  
 Cole-Hamilton, David J., 1176  
 Cooper, Sian M., 1179  
 Corbin, Rex A., 1194  
 Cox, Russell J., 1179  
 Crosby, John, 1179  
 Crump, Matthew P., 1179  
 Darensbourg, Marcetta Y., 1122  
 Desbat, Bernard, 1167  
 Diéguez, Montserrat, 1221  
 Dusick, Brandon E., 1194  
 Dyer, Joanne, 1182  
 Eibler, Ernst, 1170  
 Engelhardt, Ulrike, 1152  
 Fanwick, Phillip E., 1194  
 Faure, Delphine, 1167  
 Frère, Pierre, 1161  
 Fujii, Oomi, 1188  
 Gauvin, Régis M., 1146  
 George, Michael W., 1182  
 Gravier, Julien, 1167  
 Grills, David C., 1182  
 Güdel, Hans U., 1125  
 Haddon, Robert C., 1218  
 Heck, Albert J. R., 1137  
 Hevia, Eva, 1131  
 Hothersall, Joanne, 1179  
 Hussain, Firasat, 1191  
 Imperato, Giovanni, 1170  
 Inoue, Tsutomu, 1173  
 Itaya, Kingo, 1188  
 Itkis, Mikhail E., 1218  
 Itsuno, Shinichi, 1173  
 Jang, Jyongsik, 1200  
 Jeffery, Stephen P., 1122  
 Jin, Long Yi, 1197  
 Jo, Eun-Ae, 1185  
 Jun, Chul-Ho, 1185  
 Keeble, Anthony H., 1137  
 Kelly, John M., 1182  
 Kennedy, Alan R., 1131  
 Kleanthous, Colin, 1137  
 Knoll, Wolfgang, 1158  
 König, Burkhard, 1170  
 Kortz, Ulrich, 1191  
 Kozaki, Masatoshi, 1140  
 Kuimova, Marina K., 1182  
 Kume, Shoko, 1215  
 Labrot, Thomas, 1167  
 Laosripaiboon, Wanpen, 1179  
 Larsen, Finn K., 1125  
 Laye, Rebecca H., 1125  
 Lee, Jonghyuk, 1122  
 Lee, Myongsoo, 1197  
 Leitch, Alicea A., 1218  
 Leo, Edgar A., 1203  
 Leriche, Philippe, 1161  
 Li, Can, 1209  
 Linker, Torsten, 1152  
 MacFarlane, Douglas R., 1149  
 Matousek, Pavel, 1182  
 McInnes, Eric J. L., 1125  
 McKenzie, Iain, 1134  
 Mercier, Nicolas, 1161  
 Miranda, Miguel A., 1203  
 Mizugaki, Shin, 1140  
 Morris, George E., 1176  
 Mortreux, André, 1146  
 Mulvey, Robert E., 1131  
 Murata, Masaki, 1215  
 Murn, Christopher A., 1125  
 Narita, Ryuji, 1188  
 Neumann, Ronny, 1206  
 Niedermaier, Julia, 1170  
 Nishihara, Hiroshi, 1215  
 Oakley, Richard T., 1218  
 Ochi, Yuji, 1128  
 Oda, Reiko, 1167  
 O'Hara, Charles T., 1131  
 Okada, Keiji, 1140  
 Okada, Tatsuhiro, 1212  
 Okamoto, Akimitsu, 1128  
 Ono, Chisato, 1212  
 Ooka, Hirohito, 1173  
 Overgaard, Jacob, 1125  
 Oyama, S. Ted, 1143  
 Pamies, Oscar, 1221  
 Park, Young Jun, 1185  
 Parker, Anthony W., 1182  
 Patwardhan, Siddharth V., 1113  
 Percival, Paul W., 1134  
 Perry, Carole C., 1113  
 Phomphrai, Khamphée, 1194  
 Reed, Robert W., 1218  
 Rentschler, Eva, 1125  
 Richardson, John F., 1218  
 Roncali, Jean, 1161  
 Rothwell, Ian P., 1194  
 Rucklidge, Adam J., 1176  
 Saito, Isao, 1128  
 Sakamoto, Ryota, 1215  
 Sampei, Hidekazu, 1215  
 Sanchez, Veronica, 1125  
 Schofield, Christopher J., 1155  
 Shiroishi, Hidenobu, 1212  
 Shu, Yuying, 1143  
 Simpson, Thomas J., 1179  
 Sleeman, Mark C., 1155  
 Sloboda-Rozner, Dorit, 1206  
 Sorensen, John L., 1155  
 Sugimoto, Manabu, 1215  
 Sun, Xue Zhong, 1182  
 Tadokoro, Makoto, 1140  
 Tanaka, Masato, 1173  
 Teat, Simon J., 1125  
 ten Elshof, Johan E., 1206  
 Thomas, Christopher M., 1179  
 Timco, Grigore A., 1125  
 Tormos, Rosa, 1203  
 Towrie, Michael, 1182  
 Tsutsumi, Eishi, 1188  
 Turbiez, Mathieu, 1161  
 Valeur, Eric, 1164  
 van den Bremer, Ewald T. J., 1137  
 VanderVeer, Donald G., 1218  
 Vijayaraghavan, Ranganathan, 1149  
 Waldmann, Oliver, 1125  
 Whelan, Aine M., 1182  
 Winpenny, Richard E. P., 1125  
 Witte, Peter T., 1206  
 Xiang, Song, 1209  
 Yano, Hiroshi, 1212  
 Yoshimoto, Soichiro, 1188  
 Zhang, Huidong, 1209  
 Zhong, Xinhua, 1158

## FREE E-MAIL ALERTS

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

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

 Electronic supplementary information (ESI) is available *via* the online article (see <http://www.rsc.org/esi> for general information about ESI).

## 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](http://www.rsc.org/ejs) for more information.

# CrystEngComm

RS·C

*The electronic journal for crystal engineering*

*CrystEngComm* is an electronic journal providing a forum for the rapid publication of high impact articles in all aspects of crystal engineering. Its high quality is reflected in *CrystEngComm's* first impact factor - **an impressive 2.730!**

## Key features

**Fast publication** – typically 50 days

**Impact Factor** – 2.730

**Interactive Figures** – enhanced figures which can be rotated and enlarged

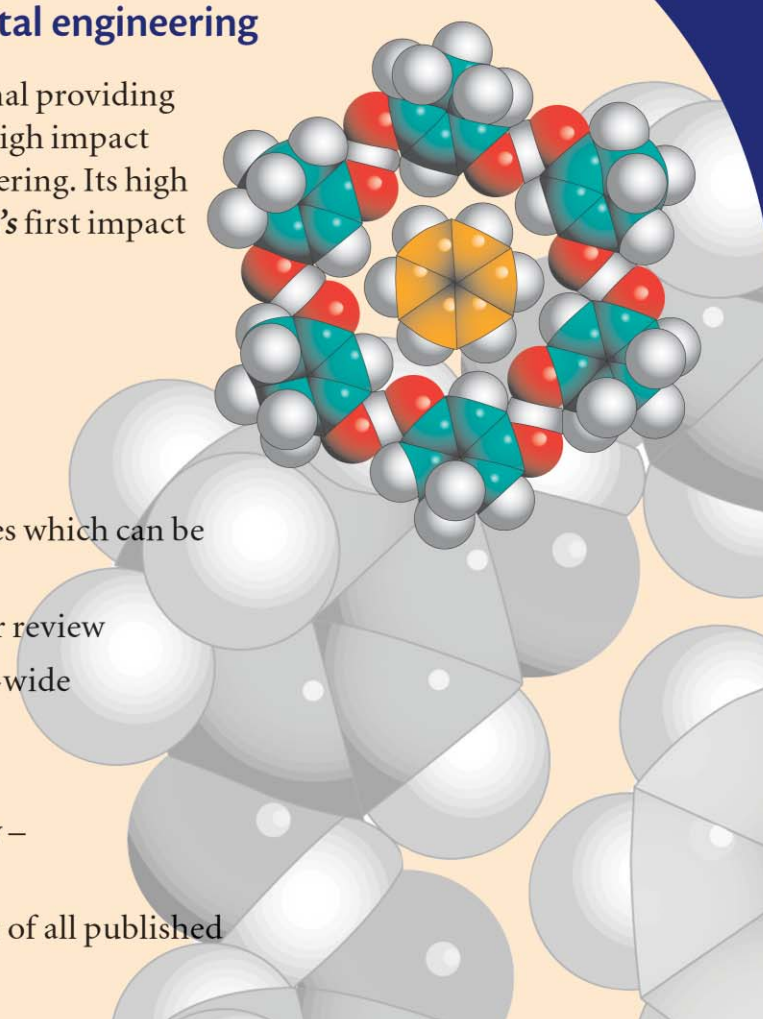
**High quality research** – rigorous peer review

**International authorship** and world-wide circulation

**Full reference linking**

**Web-based e-submission and review** – [www.rsc.org/submissions](http://www.rsc.org/submissions)

**Email update service** – receive details of all published articles (registration required)



*CrystEngComm* publishes an attractive mix of research, including:

***CrystEngComm Highlights*** – reports on topics in the field of crystal engineering that are either of general current interest or the subject of scientific controversy

***CrystEngComm Communications*** – preliminary accounts of original and significant work of such importance or novelty that rapid publication is justified

***CrystEngComm Full Papers*** – for reporting high impact original and significant contributions to further chemical knowledge

***CrystEngComm Letters*** – provide a medium for the expression of scientific opinions and views concerning crystal engineering

CEC26080413-colour

For further information, please visit:

[www.crystengcomm.org](http://www.crystengcomm.org)

Registered Charity No. 207890

advancing the chemical sciences

Leaders in Nanoscience

# Current Nanoscience

EDITOR-IN-CHIEF

Atta-ur-Rahman



[www.bentham.org/cnano](http://www.bentham.org/cnano)

Volume 1, 3 issues, 2005:  
Personal Subscription: \$ 110.00

New in 2005

publishes authoritative reviews and original research reports on all the most recent advances in nanoscience and nanotechnology. All aspects of the field are represented, including nano-structures, synthesis, properties, assembly and devices. Applications of nanoscience in biotechnology, medicine, pharmaceuticals, physics, material science and electronics are also covered. The journal is essential to all involved in nanoscience and its applied areas.

**Don't Wait: Get your FREE copy online now!**  
[www.bentham.org/cnano](http://www.bentham.org/cnano)

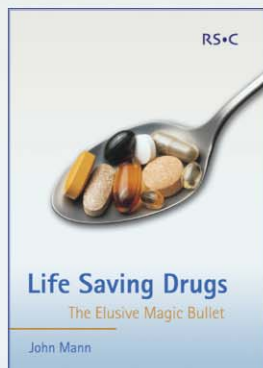
For information or to subscribe:  
Subscriptions@bentham.org  
Tel: +971 65571132 Fax: +971 66571134



**BENTHAM  
SCIENCE  
PUBLISHERS LTD.**

## Life Saving Drugs The Elusive Magic Bullet

By John Mann



### RSC Paperbacks

An introduction to the discovery and development of antibacterial, anti-viral and anti-cancer drugs.

- describes the colourful characters behind the inventions
- highlights the huge improvements in quality of life and life-expectancy that these drugs have produced
- describes new drugs that have emerged as a result of knowledge of the human genome
- demonstrates ways in which the newer drugs are being designed to tackle disease at the genetic level
- well illustrated with chemical structures for all of the key drugs

Accessible to anyone interested in the history of drug development during the past 100 years.

Softcover | 2004 | viii + 248 | 0 85404 634 8 | £24.95 | Members' price £16.00

[www.rsc.org/books/6348](http://www.rsc.org/books/6348)

Orders & further details **Sales & Customer Care**  
Royal Society of Chemistry · Thomas Graham House  
Science Park · Milton Road · Cambridge · CB4 0WF · UK

T +44(0)1223 432360 · F +44(0)1223 426017 · E [sales@rsc.org](mailto:sales@rsc.org)  
Or visit our websites: [www.rsc.org](http://www.rsc.org) and [www.chemsoc.org](http://www.chemsoc.org)  
Registered Charity No. 207890

**RS·C**