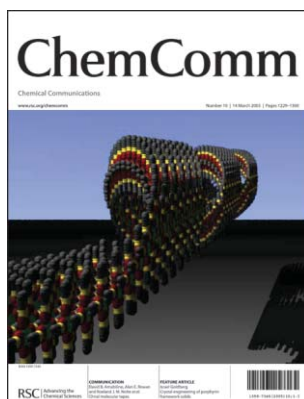


## In this issue...

The feature article reviews recent achievements in the area of targeted synthesis of porphyrin-based framework solids by various non-covalent mechanisms of molecular recognition. See Israel Goldberg, pp. 1243–1254.



Chemical biology articles published in this journal also appear in the *Chemical Biology Virtual Journal*: [www.rsc.org/chembiol](http://www.rsc.org/chembiol)



### Cover

Artistic interpretation of the self-association of tetra(thiafulvalene-crown-ether)-substituted phthalocyanine building blocks. See page 1255. Image reproduced by permission of Professor Roeland J. M. Nolte.

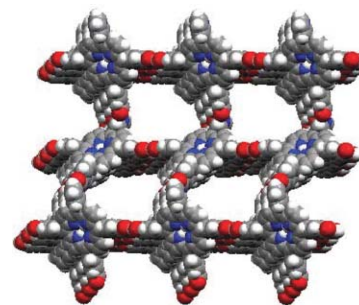
## FEATURE ARTICLE

1243

### Crystal engineering of porphyrin framework solids

Israel Goldberg

Crystal engineering of extended solids from porphyrin building blocks by self-assembly has led us to a variety of supramolecular framework materials with tunable pore structure, aiming mainly at the formulations of molecular sieves and zeolite analogs. This review surveys some practical strategies and effective cooperative mechanisms for the rational design of open porphyrin frameworks with diverse topologies, through systematic variation of the porphyrin platform and application of suitable templates.



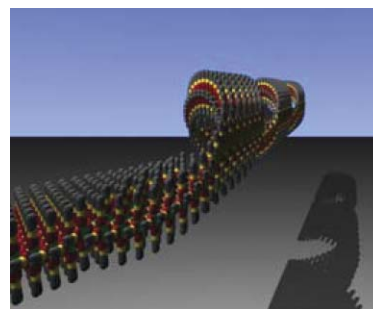
## COMMUNICATIONS

1255

### Chiral molecular tapes from novel tetra(thiafulvalene-crown-ether)-substituted phthalocyanine building blocks

Joseph Sly, Peter Kasák, Elba Gomar-Nadal, Concepció Rovira, Lucía Górriz, Pall Thordarson, David B. Amabilino,\* Alan E. Rowan\* and Roeland J. M. Nolte\*

A tetra(crown-ether) phthalocyanine (Pc) appended with four tetrathiafulvalene (TTF) units has been shown to self-assemble into helical tapes several micrometers in length.



## 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

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

Hans-Ulrich Blaser, Solvias AG, Switzerland  
hans-ulrich.blaser@SOLVIAS.com

P. Andrew Evans, Bloomington, USA  
chemcomm@indiana.edu

Makoto Fujita, Tokyo, Japan  
mfujita@appchem.tu-tokyo.ac.jp

Alois Fürstner, Mülheim, Germany  
fuerstner@mpi-muelheim.mpg.de

David Haddleton, Warwick, UK  
D.M.Haddleton@warwick.ac.uk

Donald Hilvert, Zurich, Switzerland  
hilvert@org.chem.ethz.ch

Mir Wais Hosseini, Strasbourg, France  
hosseini@chimie.u-strasbg.fr

Barbara Imperiali, Cambridge, USA  
chemcomm@mit.edu

Dermot O'Hare, Oxford, UK  
chemcomm@chem.ox.ac.uk

Colin Raston, Perth, Australia  
clraston@chem.uwa.edu.au

Ferdi Schüth, Mülheim, Germany  
schueth@mpi-muelheim.mpg.de

T. Don Tilley, Berkeley, USA  
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.

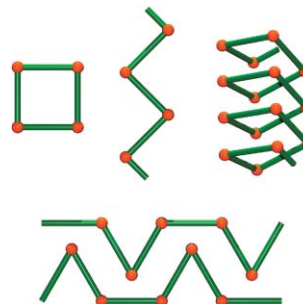
Authors may reproduce/republish portions of their published contribution without seeking permission from the RSC, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of The Royal Society of Chemistry.

1258

**Molecular chairs, zippers, zigzag and helical chains: chemical enumeration of supramolecular isomerism based on a pre-designed metal–organic building-block**

Jie-Peng Zhang, Yan-Yong Lin, Xiao-Chun Huang and Xiao-Ming Chen\*

A pre-designed metal–organic building-block [Cu<sup>I</sup>(2-pytz)] (2-Hpytz = 3,5-di-2-pyridyl-1,2,4-triazole) has been successfully used to synthesize four genuine supramolecular isomers.

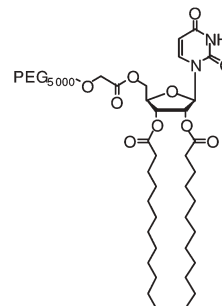


1261

**Supramolecular assemblies of DNA with neutral nucleoside amphiphiles**

Philippe Barthelemy, Carla A. H. Prata, Shaun F. Filocamo, Chad E. Immoos, Benjamin W. Maynor, S. A. Nadeem Hashmi, Stephen J. Lee and Mark W. Grinstaff\*

A neutral uridine-based amphiphile is described which condenses plasmid DNA. AFM studies show that the three distinct structural components of the amphiphile (*i.e.*, nucleobase, alkyl chains, and poly(ethylene glycol)) are required for the formation of DNA–amphiphile supramolecular assemblies on a mica surface.

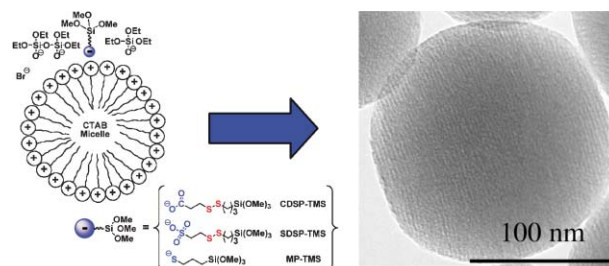


1264

**Fine-tuning the degree of organic functionalization of mesoporous silica nanosphere materials *via* an interfacially designed co-condensation method**

Daniela R. Radu, Cheng-Yu Lai, Jianguo Huang, Xu Shu and Victor S.-Y. Lin\*

A synthetic method that can fine tune the amount of chemically accessible organic functional groups of MCM-41 type mesoporous silica nanosphere (MSN) materials has been developed by electrostatically matching various anionic organoalkoxysilanes with the cationic CTAB micelles in a base-catalyzed condensation reaction of tetraethoxysilane.

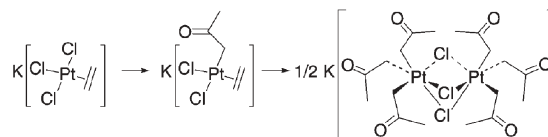


1267

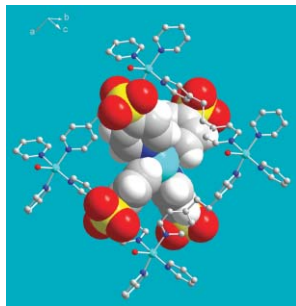
**An unprecedented process involving normal and redox transmetallation reactions between Hg and Pt affording the unexpected K[Pt<sub>2</sub>{CH<sub>2</sub>C(O)Me}<sub>6</sub>(μ-Cl)<sub>3</sub>] complex: the key role of X-ray powder diffraction in unravelling its nature and structure**

José Vicente,\* Aurelia Arcas, Jesús M. Fernández-Hernández, Angelo Sironi and Norberto Masciocchi

By reacting Zeise's salt with [Hg{CH<sub>2</sub>C(O)Me}<sub>2</sub>] a monoacetyl platinum(II) or a tris(acetyl) platinum(IV) species can be isolated.



1270

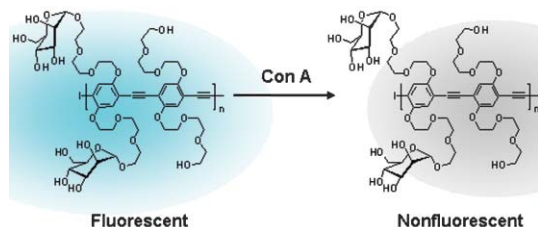


### Mutual structure-directing effects of a non-interpenetrated square grid coordination polymer and its complementary complex anion net

Leslie J. May and George K. H. Shimizu\*

The cationic grid,  $\{[\text{Cu}(1,2\text{-bis}(4\text{-pyridylethane)}_2)(\text{H}_2\text{O})_2]^{2+}\}_n$ , and the complex anion,  $\text{Cu}(4\text{-pySO}_3)_4(\text{H}_2\text{O})_2]^{2-}$ , neither of which have been previously observed, form a perfectly complementary supramolecular pair with respect to charge and H-bonding, to mutually stabilize each others formation.

1273

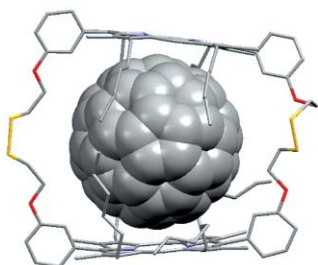


### Mannose-substituted PPEs detect lectins: A model for Ricin sensing

Ik-Bum Kim, James N. Wilson and Uwe H. F. Bunz\*

A novel mannose-substituted and water soluble poly(*para* phenyleneethynylene) has been prepared as a highly effective fluorescent sensor that detects the sugar binding protein (lectin) Concanavalin A by a quenching assay.

1276

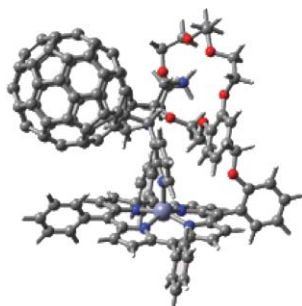


### Inclusion of C<sub>60</sub> into an adjustable porphyrin dimer generated by dynamic disulfide chemistry

Amy L. Kieran, Sofia I. Pascu, Thibaut Jarrosson and Jeremy K. M. Sanders\*

A new, highly flexible porphyrin dimer was isolated from a dynamic disulfide library; this receptor adjusts to fit guests with a wide range of steric requirements

1279



### Supramolecular porphyrin–fullerene via ‘two-point’ binding strategy: Axial-coordination and cation–crown ether complexation

Francis D'Souza,\* Raghu Chitta, Suresh Gadde, Melvin E. Zandler, Atula S. D. Sandanayaka, Yasuyuki Araki and Osamu Ito\*

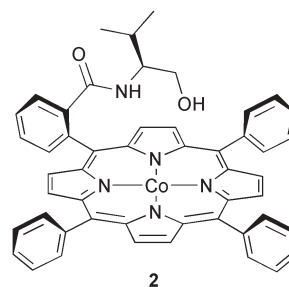
A highly stable porphyrin–fullerene conjugate with defined distance and orientation, was formed using a newly developed ‘two-point’ binding strategy involving axial-coordination and cation–crown ether complexation.

1282

**Fast and mild palladium(II)-catalyzed 1,4-oxidation of 1,3-dienes *via* activation of molecular oxygen with a designed cobalt(II) porphyrin**

Renzo C. Verboom, Vincent F. Slagt and Jan-E. Bäckvall\*

The use of Co(porphyrin)-amide ligand **2** in the palladium(II)-catalyzed 1,4-diacetoxylation of conjugated dienes under O<sub>2</sub> results in aerobic oxidation. The reaction can also be performed under air.

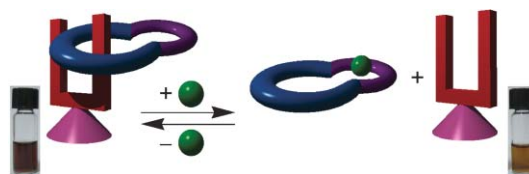


1285

**A switchable macrocycle–clip complex that functions as a NOR logic gate**

Pin-Nan Cheng, Pinn-Tsong Chiang and Sheng-Hsien Chiu\*

A new molecular switch based on a macrocycle–clip complex can be operated as a two-input NOR functioning molecular logic gate.

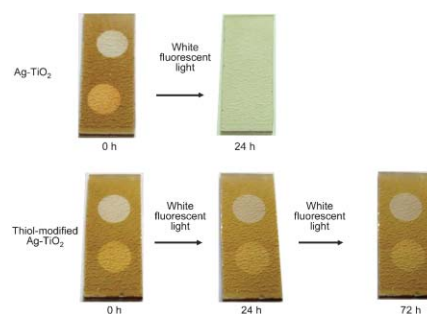


1288

**Switchable rewritability of Ag–TiO<sub>2</sub> nanocomposite films with multicolor photochromism**

Kenji Naoi, Yoshihisa Ohko and Tetsu Tatsuma\*

The photochromism and rewritability of Ag–TiO<sub>2</sub> films were deactivated by modification with thiols to make it possible to retain color images displayed on the films, while the deactivated properties were fully reactivated by UV-irradiation.

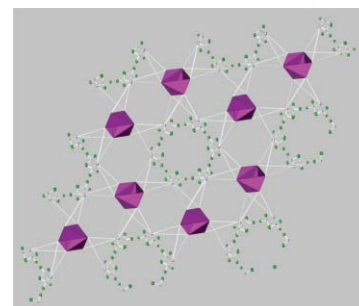


1291

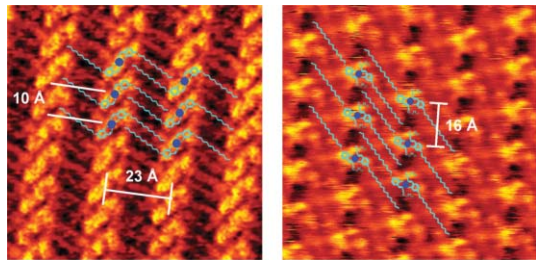
**One teflon<sup>®</sup>-like channelled nanoporous polymer with a chiral and new uninodal 4-connected net: sorption and catalytic properties**

Angeles Monge,\* Natalia Snejko, Enrique Gutiérrez-Puebla, Manuela Medina, Concepción Cascales, Caridad Ruiz-Valero, Marta Iglesias and Berta Gómez-Lor

Zn(C<sub>17</sub>H<sub>8</sub>F<sub>6</sub>O<sub>4</sub>) is the first example of a fluoro-lined nanotube organo-inorganic 3D polymeric chiral compound, which possesses two types of isolated channels. The structure is a new uninodal 4-connected net and the compound exhibits selective sorption and catalytic chiral recognition properties.



1294

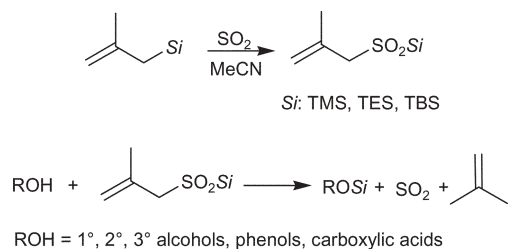


### Structure controlled self-assembly of Cu(II) salicylic aldehyde and aldimine derivative complexes

Philipp Zell, Florian Mögele, Ulrich Ziener and Bernhard Rieger\*

The orientation of metal complexes in 2D surface structures and hence the relative distances between the individual Cu(II) ions have been controlled by ligand design as a tool for the “fine-tuning” of intermolecular interactions.

1297

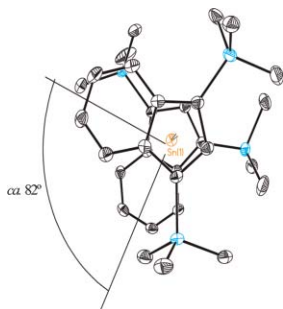


### Silyl methallylsulfonates: efficient and powerful agents for the chemoselective silylation of alcohols, polyols, phenols and carboxylic acids

Xiaogen Huang, Cotinica Craita, Loay Awad and Pierre Vogel\*

Alcohols, phenols and carboxylic acids are silylated with very good yield in the presence of silyl methallylsulfonates under non-basic conditions and with the formation of volatile co-products.

1300

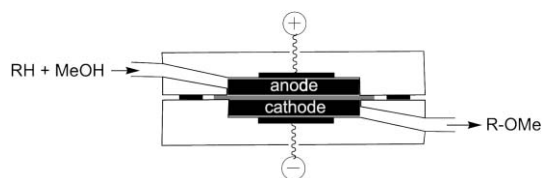


### π-Indenyl tin(II) and lead(II) compounds

Jamie N. Jones and Alan H. Cowley

The first π-indenyl tin(II) complexes are reported; the bis(π-indenyl) tin(II) derivative has an essentially parallel arrangement of indenyl rings.

1303



### Microflow electroorganic synthesis without supporting electrolyte

Roberto Horcajada, Masayuki Okajima, Seiji Suga and Jun-ichi Yoshida\*

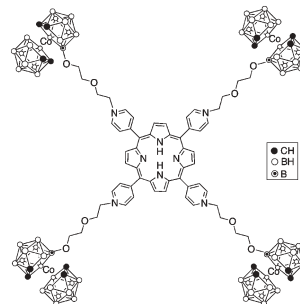
Anodic methoxylation of several organic compounds has been successfully achieved in the absence of intentionally added supporting electrolyte using an electrochemical microflow system.

1306

### Expedient synthesis of porphyrin–cobaltacarborane conjugates

Erhong Hao and M. Graça H. Vicente\*

The high yield synthesis of two new porphyrin–cobaltacarborane conjugates is described. These conjugates of high boron content display spectroscopic properties characteristic of porphyrin macrocycles and may have application in the BNCT treatment of tumors.

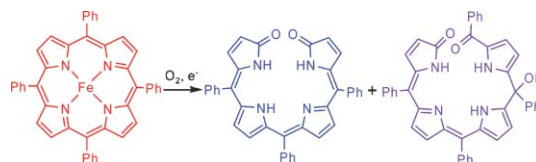


1309

### A facile and versatile preparation of bilindiones and biladienones from tetraarylporphyrins

Takae Yamauchi, Tadashi Mizutani,\* Kenji Wada, Shoji Horii, Hiroataka Furukawa, Shigeyuki Masaoka, Ho-Chol Chang and Susumu Kitagawa

Coupled oxidation of iron tetraarylporphyrins with dioxygen and ascorbic acid afforded *meso*-arylbilindiones and *meso*-arylbiladienones in 20–63% yield. The crystal structure of *meso*-triphenylbilindione showed that it has larger helix pitch than  $\beta$ -octaethylbilindione.

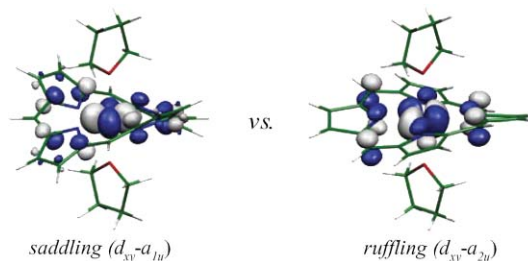


1312

### An unexpected bonding interaction between $d_{xy}$ and $a_{1u}$ orbitals mediated by porphyrin deformation

Ru-Jen Cheng,\* Yen-Ku Wang, Ping-Yu Chen, Ya-Ping Han and Chih-Ching Chang

The extraordinary bonding interaction between  $d_{xy}$  and  $a_{1u}$  orbitals in the saddle-shaped  $[\text{Fe}(\text{OETPP})(\text{THF})_2]^+$  complex offers a novel symmetry-controlled mechanism for the formation of the unusual intermediate-spin electronic structure  $(d_{xz}d_{yz})^3(d_{xy})^1(d_z)^1$  that is consistent with the reported NMR data.

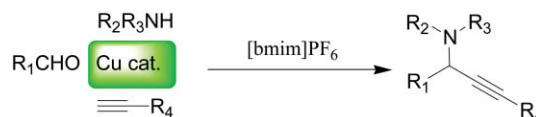


1315

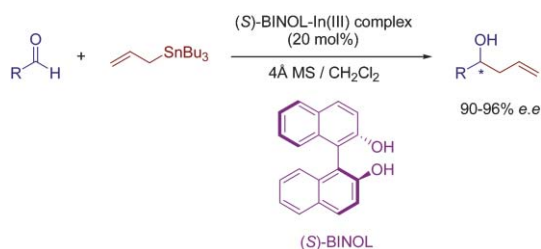
### An efficient synthesis of propargylamines *via* C–H activation catalyzed by copper(I) in ionic liquids

Soon Bong Park and Howard Alper\*

An efficient three-component coupling of aldehydes with amines and alkynes to form propargylamines has been developed *via* C–H activation catalyzed by a copper(I) compound in an ionic liquid; the catalysts were recycled five times without any significant loss of catalytic activity.



1318

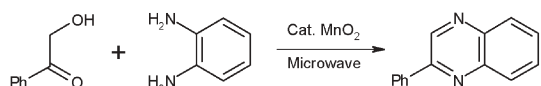


### Catalytic asymmetric allylation of aldehydes *via* a chiral indium(III) complex

Yong-Chua Teo, Kui-Thong Tan and Teck-Peng Loh\*

A chiral indium complex has been discovered to effect high enantioselectivities in the addition of allyltributyl stannanes to aldehydes. The allylation of a variety of aromatic,  $\alpha,\beta$ -unsaturated and aliphatic aldehydes resulted in good yields and high enantioselectivities (90–96% ee).

1321

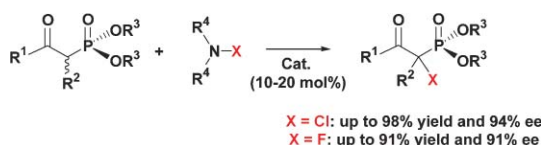


### Manganese(IV) dioxide-catalyzed synthesis of quinoxalines under microwave irradiation

So Yeon Kim, Kang Hyun Park and Young Keun Chung\*

We synthesize quinoxalines, catalyzed by manganese(IV) dioxide, from a variety of  $\alpha$ -hydroxyketones followed by trapping with aromatic or aliphatic 1,2-diamines without using a solvent, within one minute under microwave irradiation.

1324

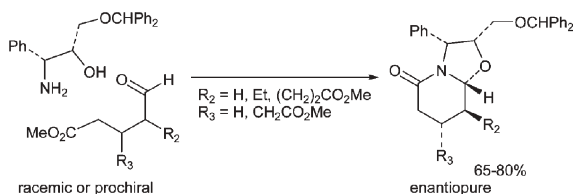


### Enantioselective chlorination and fluorination of $\beta$ -keto phosphonates catalyzed by chiral Lewis acids

Luca Bernardi and Karl Anker Jørgensen\*

The direct enantioselective chlorination and fluorination of  $\beta$ -keto phosphonates catalyzed by chiral Lewis acids is presented; both reactions proceed in good yields furnishing the corresponding highly valuable  $\alpha$ -halo phosphonate derivatives with high enantioselectivities.

1327



### Highly enantioselective dynamic kinetic resolution and desymmetrization processes by cyclocondensation of chiral aminoalcohols with racemic or prochiral $\delta$ -oxoacid derivatives

Mercedes Amat,\* Oriol Bassas, Miquel A. Pericàs, Mireia Pastó and Joan Bosch\*

Cyclocondensation reactions of aminoalcohols **7** and **8** with racemic or prochiral  $\delta$ -oxoacid derivatives provide polysubstituted lactams with high enantioselectivity in a process that involves dynamic kinetic resolution and/or desymmetrization of enantiotopic or diastereotopic ester groups.

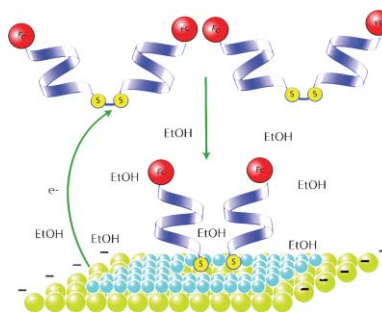


1330

### Electrodeposition of ferrocenoyl peptide disulfides

Grzegorz A. Orlowski, Somenath Chowdhury,  
Yi-Tao Long, Todd C. Sutherland and  
Heinz-Bernhard Kraatz\*

Using electrodeposition of cyclic and acyclic Fc-peptide disulfides tightly-packed Fc-peptide monolayers were conveniently formed, which exhibit significant differences in their electron transfer kinetics.

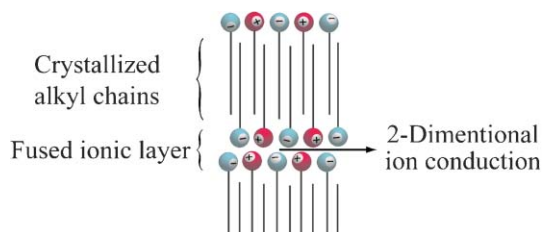


1333

### Anisotropic ion conduction in a unique smectic phase of self-assembled amphiphilic ionic liquids

Tomohiro Mukai, Masafumi Yoshio, Takashi Kato,  
Masahiro Yoshizawa and Hiroyuki Ohno\*

Anisotropic ion conduction was observed in a supercooled smectic phase composed of crystallized alkyl chains and fused ionic layer.

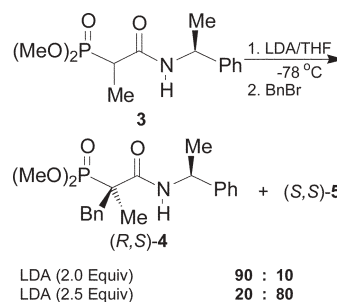


1336

### Asymmetric alkylation of dimethoxyphosphoryl-*N*-[1-(*S*)- $\alpha$ -methylbenzyl]acetamide enolates. Synthesis of both stereoisomers from the same source of chirality by changing the equivalents of LDA

Mario Ordóñez,\* Eugenio Hernández-Fernández,  
Janet Xahuentitla and Carlos Cativiela

A new methodology has been developed for the synthesis of both stereoisomers from a single chiral source.

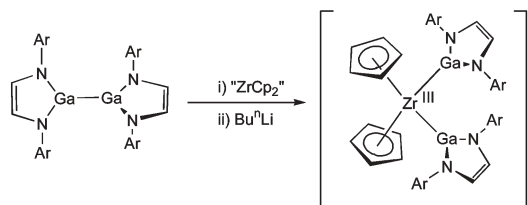


1339

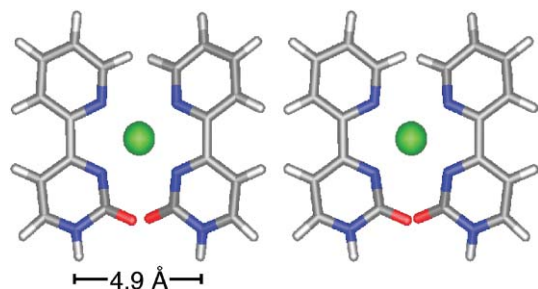
### Evidence for the first oxidative insertion of a transition metal into a digallane(4): synthesis, structural characterisation and EPR studies of $[\text{Cp}_2\text{Zr}^{\text{III}}\{\text{Ga}[\text{N}(\text{Ar})\text{C}(\text{H})_2]_2\}_2][\text{Li}(\text{THF})_4]$ , Ar = $\text{C}_6\text{H}_3\text{Pr}^i_{2,6}$

Robert J. Baker, Cameron Jones\* and Damien M. Murphy

The first gallyl-Group 4 complex has been prepared *via* an unusual reaction involving an unprecedented oxidative insertion of a transition metal centre into a digallane(4).



1342

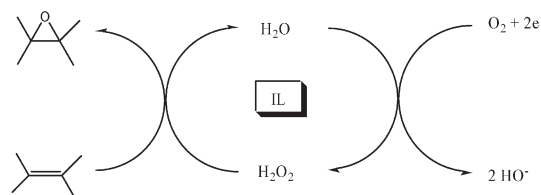


### A pyrimidine-like nickel(II) DNA base pair

Christopher Switzer\* and Dongwon Shin

We report an improbable naturally inspired DNA self-pair based on a pyrimidine scaffold. The  $\text{Pyr}^{\text{P}}\cdot\text{Ni}^{2+}\cdot\text{Pyr}^{\text{P}}$  metallo base-pair ( $\text{Pyr}^{\text{P}} = 4\text{-(2'-pyridyl)-pyrimidinone}$ ) has mismatch discrimination and stability on a par with natural Watson–Crick base-pairs despite assuming a base–base distance predicted to be half the corresponding natural dimension.

1345

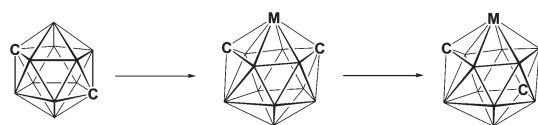


### Electrosynthesis of hydrogen peroxide in room temperature ionic liquids and *in situ* epoxidation of alkenes

Michael Chi-Yung Tang, Kwok-Yin Wong and Tak Hang Chan\*

Hydrogen peroxide can be electro synthesized from oxygen in  $[\text{bmim}][\text{BF}_4]$ –water or 0.04M NaOH and used *in situ* for the epoxidation of alkenes.

1348

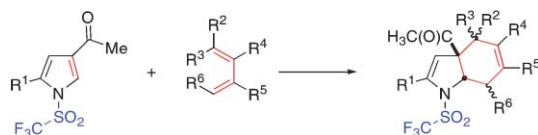


### The first 4,1,10- $\text{MC}_2\text{B}_{10}$ supraicosahedral metallacarboranes and a route to previously inaccessible 4,1,12-ruthenium arene species

David Ellis, Maria Elena Lopez, Ruairaidh McIntosh, Georgina M. Rosair, Alan J. Welch\* and Romain Quenardelle

Reduction and subsequent metallation of 1,12-*closo*- $\text{C}_2\text{B}_{10}\text{H}_{12}$  affords the first examples of 4,1,10- $\text{MC}_2\text{B}_{10}$  supraicosahedral metallacarboranes: these undergo quantitative isomerisation to the corresponding 4,1,12 isomers on heating.

1351



### 1-Triflylpyrroles as efficient dienophiles in normal electron demand [4+2] cycloaddition reactions under pressure

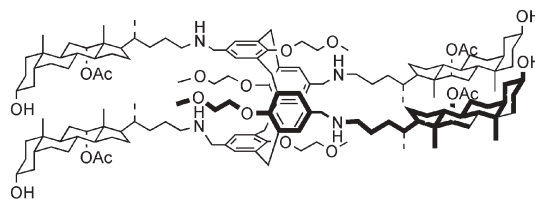
Antony Chrétien, Isabelle Chataigner and Serge R. Piettre\*

1-Triflylpyrroles bearing acetyl group(s) on position 3, or 2 and 4, are efficient dienophiles in normal electron demand Diels–Alder reactions activated by high pressures and Lewis acids.

**Calix[4]arene-cholic acid conjugates: a new class of efficient synthetic ionophores**

Nakia Maulucci, Francesco De Riccardis,\*  
Cinzia Barbara Botta, Agostino Casapullo, Elena Cressina,  
Massimo Fregonese, Paolo Tecilla\* and Irene Izzo\*

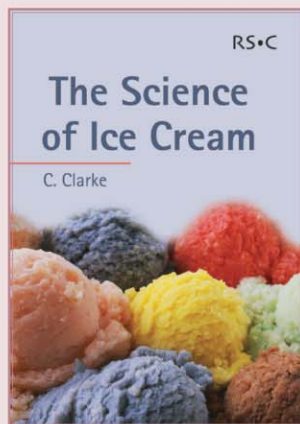
The synthesis of a new class of amphiphilic calix[4]arene-based ionophores, relying on direct reductive amination as a key step, and the evaluation of their H<sup>+</sup> and Na<sup>+</sup> transporting properties is described.



# The Science of Ice Cream

RSC Paperbacks

By C Clarke



This book is accessible to the general reader who has studied science to A level. It describes the link between the microscopic structure and the macroscopic properties of ice cream.

It describes:

- the physical chemistry underlying the manufacture of ice cream
- the ingredients and industrial production of ice cream and ice cream products
- a wide range of different physical and sensory techniques used to measure and assess ice cream
- the microstructure of ice cream and how this relates to the physical properties and ultimately the texture that you experience when you eat it

Softcover | 2004 | approx xvi + 182 | 0 85404 629 1 | £24.95 | RSC members' price £16.00

[www.rsc.org/books/6291](http://www.rsc.org/books/6291)

Orders & further details **Sales & Customer Services**  
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

RSC


## AUTHOR INDEX

- Alper, Howard, 1315  
 Amabilino, David B., 1255  
 Amat, Mercedes, 1327  
 Araki, Yasuyuki, 1279  
 Arcas, Aurelia, 1267  
 Awad, Loay, 1297  
 Bäckvall, Jan-E., 1282  
 Baker, Robert J., 1339  
 Barthelemy, Philippe, 1261  
 Bassas, Oriol, 1327  
 Bernardi, Luca, 1324  
 Bosch, Joan, 1327  
 Botta, Cinzia Barbara, 1354  
 Bunz, Uwe H. F., 1273  
 Casapullo, Agostino, 1354  
 Cascales, Concepción, 1291  
 Cativiela, Carlos, 1336  
 Chan, Tak Hang, 1345  
 Chang, Chih-Ching, 1312  
 Chang, Ho-Chol, 1309  
 Chataigner, Isabelle, 1351  
 Chen, Ping-Yu, 1312  
 Chen, Xiao-Ming, 1258  
 Cheng, Pin-Nan, 1285  
 Cheng, Ru-Jen, 1312  
 Chiang, Pinn-Tsong, 1285  
 Chitta, Raghu, 1279  
 Chiu, Sheng-Hsien, 1285  
 Chowdhury, Somenath, 1330  
 Chrétien, Antony, 1351  
 Chung, Young Keun, 1321  
 Cowley, Alan H., 1300  
 Craita, Cotinica, 1297  
 Cressina, Elena, 1354  
 De Riccardis, Francesco, 1354  
 D'Souza, Francis, 1279  
 Ellis, David, 1348  
 Fernández-Hernández, Jesús M., 1267  
 Filocamo, Shaun F., 1261  
 Fregonese, Massimo, 1354  
 Furukawa, Hirotaka, 1309  
 Gadde, Suresh, 1279  
 Goldberg, Israel, 1243  
 Gomar-Nadal, Elba, 1255  
 Gómez-Lor, Berta, 1291  
 Górriz, Lucía, 1255  
 Grinstaff, Mark W., 1261  
 Gutiérrez-Puebla, Enrique, 1291  
 Han, Ya-Ping, 1312  
 Hao, Erhong, 1306  
 Hashmi, S. A. Nadeem, 1261  
 Hernández-Fernández, Eugenio, 1336  
 Horcajada, Roberto, 1303  
 Horii, Shoji, 1309  
 Huang, Jianguo, 1264  
 Huang, Xiao-Chun, 1258  
 Huang, Xiaogen, 1297  
 Iglesias, Marta, 1291  
 Immoos, Chad E., 1261  
 Ito, Osamu, 1279  
 Izzo, Irene, 1354  
 Jarrosson, Thibaut, 1276  
 Jones, Cameron, 1339  
 Jones, Jamie N., 1300  
 Jørgensen, Karl Anker, 1324  
 Kasák, Peter, 1255  
 Kato, Takashi, 1333  
 Kieran, Amy L., 1276  
 Kim, Ik-Bum, 1273  
 Kim, So Yeon, 1321  
 Kitagawa, Susumu, 1309  
 Kraatz, Heinz-Bernhard, 1330  
 Lai, Cheng-Yu, 1264  
 Lee, Stephen J., 1261  
 Lin, Victor S.-Y., 1264  
 Lin, Yan-Yong, 1258  
 Loh, Teck-Peng, 1318  
 Long, Yi-Tao, 1330  
 Lopez, Maria Elena, 1348  
 Masaoka, Shigeyuki, 1309  
 Masciocchi, Norberto, 1267  
 Maulucci, Nakia, 1354  
 May, Leslie J., 1270  
 Maynor, Benjamin W., 1261  
 McIntosh, Ruaraidh, 1348  
 Medina, Manuela, 1291  
 Mizutani, Tadashi, 1309  
 Mögele, Florian, 1294  
 Monge, Angeles, 1291  
 Mukai, Tomohiro, 1333  
 Murphy, Damien M., 1339  
 Naoi, Kenji, 1288  
 Nolte, Roeland J. M., 1255  
 Ohko, Yoshihisa, 1288  
 Ohno, Hiroyuki, 1333  
 Okajima, Masayuki, 1303  
 Ordóñez, Mario, 1336  
 Orłowski, Grzegorz A., 1330  
 Park, Kang Hyun, 1321  
 Park, Soon Bong, 1315  
 Pascu, Sofia I., 1276  
 Pastó, Mireia, 1327  
 Pericàs, Miquel A., 1327  
 Piettre, Serge R., 1351  
 Prata, Carla A. H., 1261  
 Quenardelle, Romain, 1348  
 Radu, Daniela R., 1264  
 Rieger, Bernhard, 1294  
 Rosair, Georgina M., 1348  
 Rovira, Concepció, 1255  
 Rowan, Alan E., 1255  
 Ruiz-Valero, Caridad, 1291  
 Sandanayaka, Atula S. D., 1279  
 Sanders, Jeremy K. M., 1276  
 Shimizu, George K. H., 1270  
 Shin, Dongwon, 1342  
 Shu, Xu, 1264  
 Sironi, Angelo, 1267  
 Slagt, Vincent F., 1282  
 Sly, Joseph, 1255  
 Snejko, Natalia, 1291  
 Suga, Seiji, 1303  
 Sutherland, Todd C., 1330  
 Switzer, Christopher, 1342  
 Tan, Kui-Thong, 1318  
 Tang, Michael Chi-Yung, 1345  
 Tatsuma, Tetsu, 1288  
 Tecilla, Paolo, 1354  
 Teo, Yong-Chua, 1318  
 Thordarson, Pall, 1255  
 Verboom, Renzo C., 1282  
 Vicente, José, 1267  
 Vicente, M. Graça H., 1306  
 Vogel, Pierre, 1297  
 Wada, Kenji, 1309  
 Wang, Yen-Ku, 1312  
 Welch, Alan J., 1348  
 Wilson, James N., 1273  
 Wong, Kwok-Yin, 1345  
 Xahuentitla, Janet, 1336  
 Yamauchi, Takae, 1309  
 Yoshida, Jun-ichi, 1303  
 Yoshio, Masafumi, 1333  
 Yoshizawa, Masahiro, 1333  
 Zandler, Melvin E., 1279  
 Zell, Philipp, 1294  
 Zhang, Jie-Peng, 1258  
 Ziener, Ulrich, 1294

## 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.