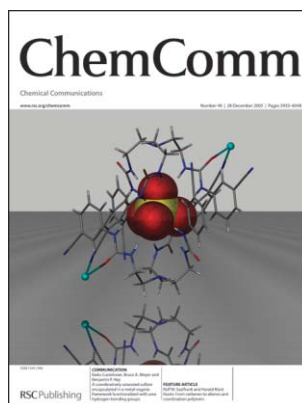
**Cover**

See Takashi Uemura *et al.*, page 5968. Radical polymerisation of styrene in a porous coordination polymer provides single polystyrene chains isolated in the nanochannels. Image reproduced by permission of Takashi Uemura, Kana Kitagawa, Satoshi Horike, Takashi Kawamura, Susumu Kitagawa, Motohiro Mizuno and Kazunaka Endo from *Chem. Commun.*, 2005, 5968.

**Inside cover**

See Radu Custelcean, Bruce A. Moyer and Benjamin P. Hay, page 5971. Coordination of sulfate *via* twelve complementary hydrogen bonds was achieved by encapsulation in a coordination polymer functionalized with urea groups. Image reproduced by permission of Radu Custelcean, Bruce A. Moyer and Benjamin P. Hay from *Chem. Commun.*, 2005, 5971.

40TH ANNIVERSARY ARTICLE

5945

Sir Jack Baldwin, FRS: Biomimetic studies at Oxford

John E. Moses* and Robert M. Adlington*

Professor Sir Jack Baldwin, FRS, has recently stepped down as the Waynefleete Professor of Organic Chemistry at the University of Oxford. This article is intended to overview some aspects of Professor Baldwin's spectacular career, with an emphasis on his contributions towards the field of biomimetic synthesis. The picture shows Sir Jack giving a closing speech at his retirement dinner at Lady Margaret Hall, Oxford in August 2005.



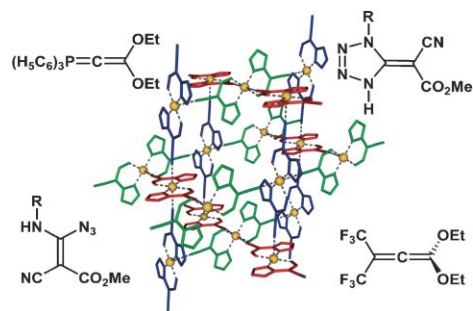
FEATURE ARTICLE

5953

Roots: From carbenes to allenes and coordination polymers*Ever present never twice the same*

Rolf W. Saalfrank* and Harald Maid

Recognizing the similarities in different areas of chemistry allows the reaching of the new levels necessary for predicting potential results and progress in related fields. This Feature Article is designed to emphasise the achievements across different topics, together with a straightforward evaluation of developing new common aspects. It covers the chemistry of cumulated phosphoranes, tetrazolyidenes, of vinyl-azides and push-pull substituted allenes, as well as coordination polymers.



EDITORIAL STAFF

Editor

Sarah Thomas

Deputy editor

Kathryn Sear

Assistant editors

Sarah Dixon, Nicola Nugent, Alison Stoddart, Katherine Vickers, Jenna Wilson

Publishing assistants

Jayne Drake, Jayne Gough, Lois Kershaw

Crystallographic data editor

Kirsty Anderson

Team leader, serials production

Helen Saxton

Technical editors

Celia Clarke, Laura Howes, Sandra Jones, Caroline Moore, David Parker, Michael Smith, Ken Wilkinson

Administration coordinator

Sonya Spring

Editorial secretaries

Lynne Braybrook, Rebecca Gotobed, Julie Thompson

Publisher

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, with cheques made payable to the Royal Society of Chemistry, should be sent to RSC Distribution Services, c/o 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. 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

ChemComm

Chemical Communications

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.t.u-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

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

T. Don Tilley, Berkeley, USA
chemcomm@berkeley.edu

ASSOCIATE EDITORS

All submissions should be sent via ReSource:

<http://www.rsc.org/resource>

Manuscripts from North America should be submitted to the appropriate Associate Editor:

Supramolecular

Jerry L. Atwood

Organic

P. Andrew Evans

Chemical biology

Barbara Imperiali

Inorganic, Organometallic and Materials

T. Don Tilley

Submissions from all other regions should be submitted to the Editor via ReSource at <http://www.rsc.org/resource>. For further information see <http://www.rsc.org/authors>

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

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
Philip 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

☞ The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Royal Society of Chemistry: Registered Charity No. 207890.

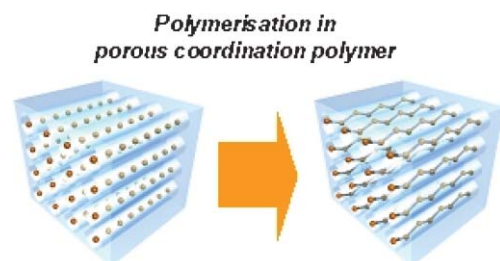
Authors may reproduce/republish portions of their published contribution without seeking permission from the RSC, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of The Royal Society of Chemistry.

5968

Radical polymerisation of styrene in porous coordination polymers

Takashi Uemura, Kana Kitagawa, Satoshi Horike,
Takashi Kawamura, Susumu Kitagawa,*
Motohiro Mizuno and Kazunaka Endo

Radical polymerisation of styrene was performed in one-dimensional nanochannels of porous coordination polymers, showing stable propagating radicals in the nanochannels and a specific space effect of the host frameworks on the monomer reactivity.

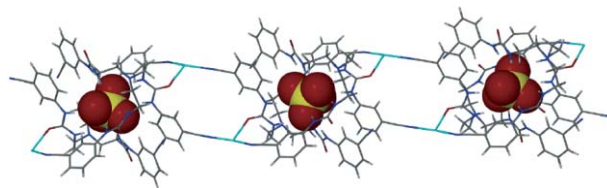


5971

A coordinatively saturated sulfate encapsulated in a metal–organic framework functionalized with urea hydrogen-bonding groups

Radu Custelcean,* Bruce A. Moyer and Benjamin P. Hay

Self-assembly of a tripodal urea-functionalized linker with Ag_2SO_4 generates a coordination polymer that encapsulates SO_4^{2-} via twelve complementary hydrogen bonds, which represents the highest coordination number observed for sulfate inside a host.

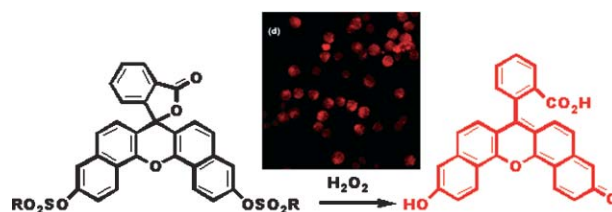


5974

Strong red fluorescent probes suitable for detecting hydrogen peroxide generated by mice peritoneal macrophages

Kehua Xu, Bo Tang,* Hui Huang, Guiwen Yang,
Zhenzhen Chen, Ping Li and Liguo An

This paper reports the synthesis, fluorescence properties, and biological applications of naphthofluorescein disulfonate (NFDS-1), as a red fluorescence imaging probe to detect intracellular H_2O_2 .

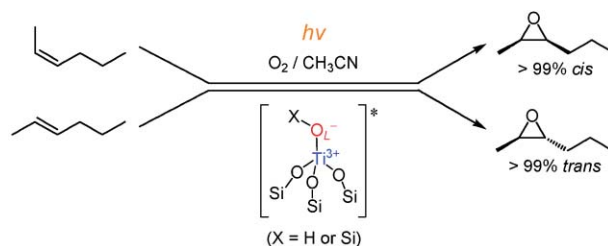


5977

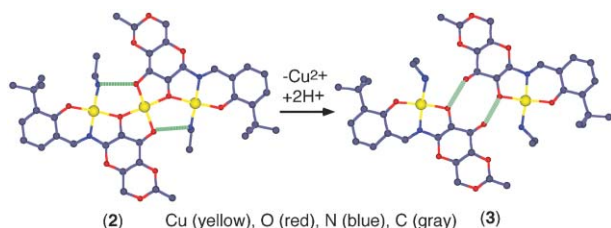
Acetonitrile-assisted highly selective photocatalytic epoxidation of olefins on Ti-containing silica with molecular oxygen

Yasuhiro Shiraishi,* Masatsugu Morishita and
Takayuku Hirai

Highly selective photocatalytic epoxidation of olefins proceeds on Ti-containing silica with tetrahedrally coordinated Ti-oxide species with molecular oxygen and a simple addition of MeCN.



5980

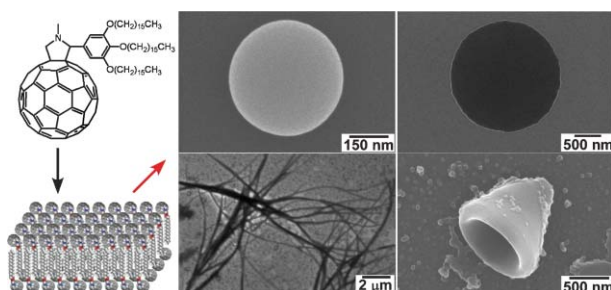


Crystal-to-crystal transformation from tri- to mononuclear Cu(II) complex with a sugar-derived ligand *via* proton transfer reaction and rearrangement of hydrogen bonding networks

Ajay K. Sah and Tomoaki Tanase*

The trinuclear Cu(II) complex of a glucopyranosylamine derived ligand has been converted into a mononuclear one *via* proton transfer reaction revealing the first instance of crystal-to-crystal transformation in the field of metal saccharide chemistry.

5982

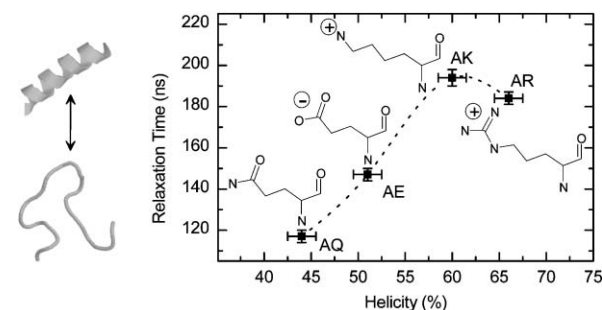


Hierarchical supramolecular fullerene architectures with controlled dimensionality

Takashi Nakanishi,* Wolfgang Schmitt, Tsuyoshi Michinobu, Dirk G. Kurth and Katsuhiko Ariga

Self-assembly of a long alkyl chain-substituted fullerene results in the formation of hierarchical supramolecular architectures such as vesicles, fibers, discs and cones.

5985

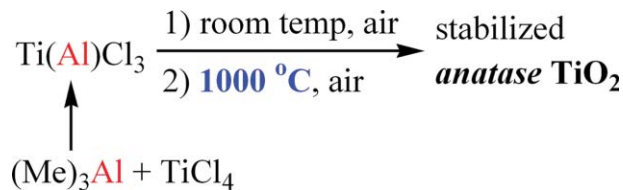


The effects of individual amino acids on the fast folding dynamics of α -helical peptides

Edward A. Gooding,* Angela Pozo Ramajo, JunWei Wang, Colin Palmer, Elizabeth Fouts and Martin Volk*

Nanosecond temperature jump experiments confirm for the first time that the substitution of individual amino acid residues in an α -helical peptide not only affects helical stability, but also the helix-coil kinetics.

5988



High-temperature stabilized anatase TiO₂ from an aluminum-doped TiCl₃ precursor

Sujith Perera and Edward G. Gillan*

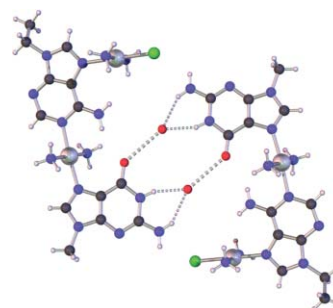
This study describes the synthesis of crystalline aluminum-doped anatase TiO₂ from an organometallic derived aluminum-doped TiCl₃ precursor. The anatase product is stable at 1000 °C for extended periods with average crystallite sizes close to 100 nm.

5991

Structural precursor of the hemideprotonated guanine pair

Michael Roitzsch and Bernhard Lippert*

The insertion of two water molecules between the Watson–Crick faces of two N(7) platinated guanine bases permits indirect base pairing. This pair is proposed to be the precursor of the corresponding hemideprotonated guanine pair, following removal of H_5O_2^+ .

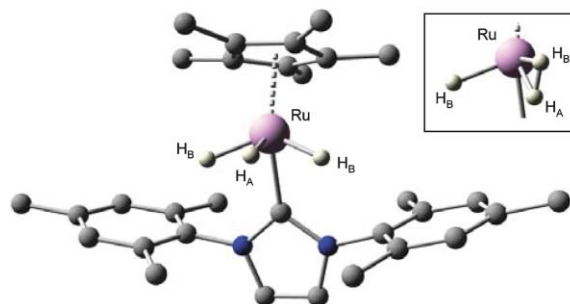


5994

Ruthenium trihydrides with *N*-heterocyclic carbene ligands: effects on quantum mechanical exchange coupling

Aled L. Jones, G. Sean McGrady,* Peter Sirsch and Jonathan W. Steed*

Ruthenium trihydrides containing *N*-heterocyclic carbene ligands display large quantum mechanical exchange couplings in their ^1H NMR spectra: DFT calculations are used to explore this phenomenon and to compare them to their phosphine congeners.

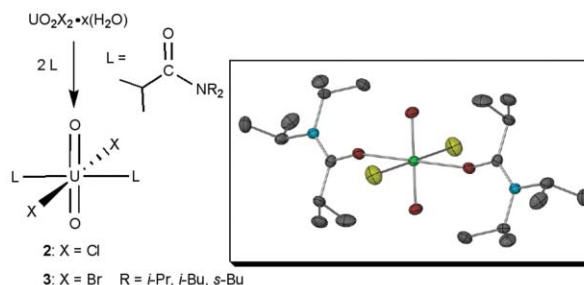


5997

Versatile new uranyl(VI) dihalide complexes supported by tunable organic amide ligands

Shanmugaperumal Kannan, Charles L. Barnes and Paul B. Duval*

A series of air-stable uranyl(VI) dihalide complexes supported by organic amide ligands offers facile benchtop syntheses, solubility in hydrocarbon solvents and tunable steric/electronic properties.

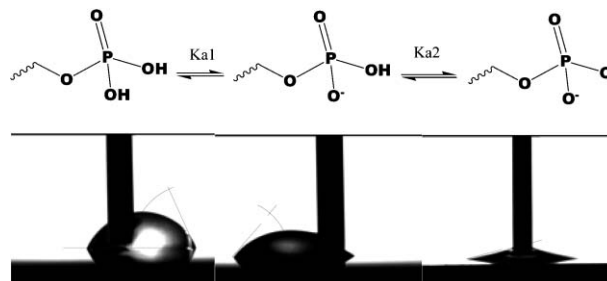


5999

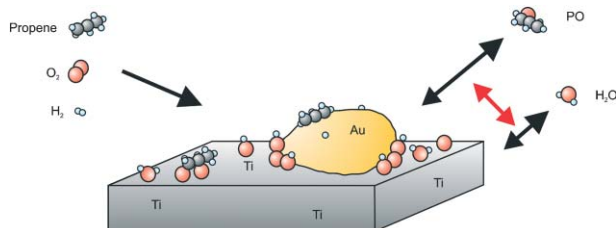
Three-stage switching of surface wetting using phosphate-bearing polymer brushes

Feng Zhou and Wilhelm T. S. Huck*

Surface initiated polymer brushes containing phosphate side groups have been used to reversibly switch wettability and hydration between three different states depending on pH.



6002

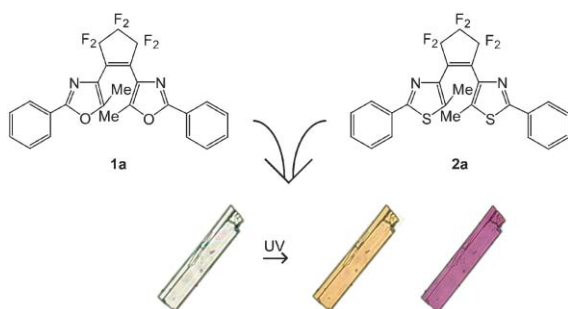


The role of water in the epoxidation over gold–titania catalysts

T. Alexander Nijhuis* and Bert M. Weckhuysen

In the epoxidation of propene over gold–titania catalysts, water and water formation strongly influence the epoxidation and *vice versa*. Competitive adsorption of water reduces catalyst activity but increases catalyst stability.

6005

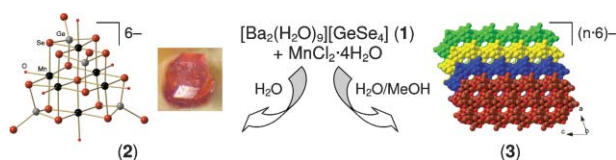


Photochromism of single crystals composed of dioxazolyethene and dithiazolyethene

Lumi Kuroki, Shizuka Takami, Katsunori Shibata and Masahiro Irie*

Dioxazolyethene **1a**, which is photochemically inactive in the homo-crystal, becomes photoactive in the mixed crystal containing both **1a** and dithiazolyethene **2a**. The mixed crystal shows two-color photochromism.

6008

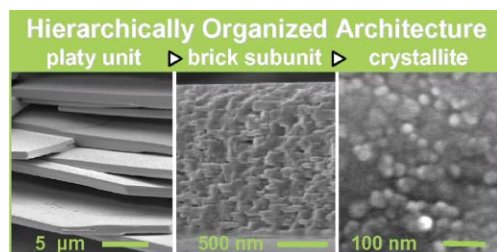


Ternary Mn/Ge/Se anions from reactions of [Ba₂(H₂O)₉][GeSe₄]: Synthesis and characterization of compounds containing discrete or polymeric [Mn₆Ge₄Se₁₇]⁶⁻ units

Maike Melullis, Rodolphe Clérac and Stefanie Dehnen*

Reactions of [Ba₂(H₂O)₉][GeSe₄] with MnCl₂·4H₂O in aqueous or H₂O/methanol solutions yielded compounds [Ba₃(H₂O)₁₅][Mn₆(H₂O)₆(μ₆-Se)(GeSe₄)₄]·9H₂O (**2**) or [Ba₃(H₂O)₁₆][Mn₆(H₂O)₃(μ₆-Se)(GeSe₄)₄] (**3**) containing novel M/14/16 anions.

6011

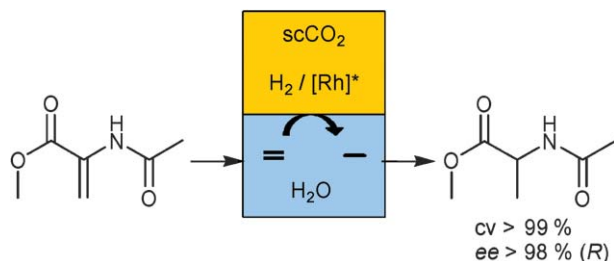


Hierarchically organized architecture of potassium hydrogen phthalate and poly(acrylic acid): toward a general strategy for biomimetic crystal design

Yuya Oaki and Hiroaki Imai*

A hierarchically organized architecture in multiple scales emerged from potassium hydrogen phthalate crystals and poly(acrylic acid). The exquisite interaction between crystal and polymer led to the hierarchical crystal growth.

6026

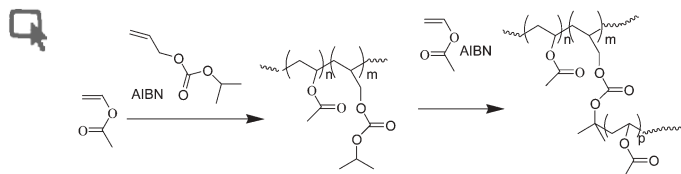


Enantioselective hydrogenation of polar substrates in inverted supercritical CO_2 /aqueous biphasic media

Katja Burgemeister, Giancarlo Franciò, Herbert Hugl and Walter Leitner*

An inverted supercritical CO_2 /aqueous biphasic catalytic system allows highly enantioselective hydrogenation of polar water-soluble substrates and efficient recycling of the CO_2 -philic catalysts.

6029

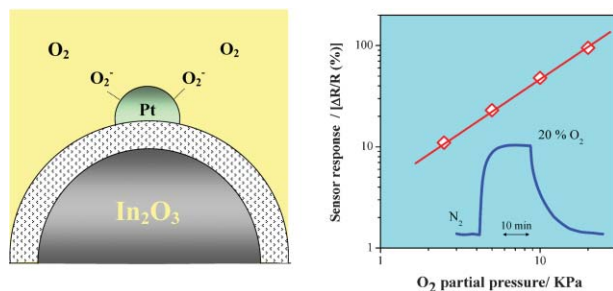


Preparation of highly branched poly(vinyl acetate) by transfer to allylic carbonate comonomers

Stephen Rimmer,* Stephen Collins and Prodip Sarker

The copolymerization of allyl isopropyl carbonates with vinyl acetate produces branched polymers. The branching is controlled by transfer to the isopropyl group of the carbonate comonomer.

6032

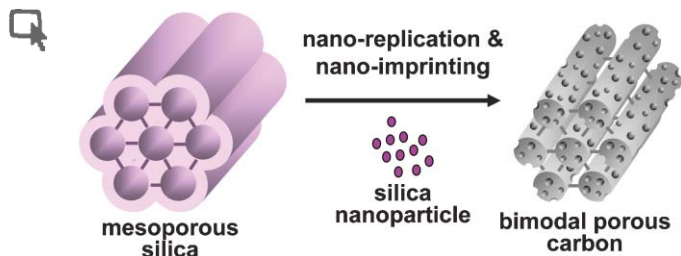


A highly sensitive oxygen sensor operating at room temperature based on platinum-doped In_2O_3 nanocrystals

Giovanni Neri, Anna Bonavita, Giuseppe Micali,* Giuseppe Rizzo, Signorino Galvagno, Markus Niederberger and Nicola Pinna

Semiconducting n-type Pt-doped In_2O_3 nanocrystals, synthesised by a nonaqueous sol-gel method, have been used to develop an oxygen sensor showing unique high sensitivity towards oxygen at room temperature.

6035



Rational design of ordered mesoporous carbon with controlled bimodal porosity *via* dual silica templating route

Hyung Ik Lee, Chanho Pak, Chae-Ho Shin, Hyuk Chang, Doyoung Seung, Jae Eui Yie and Ji Man Kim*

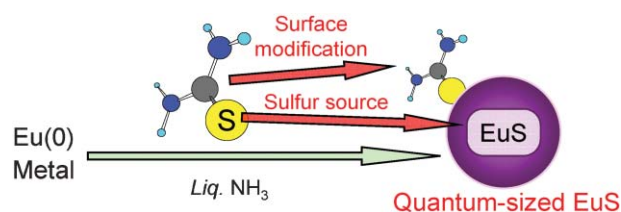
Combining both nano-replication and nano-imprinting techniques using dual silica templates provides a simple way to synthesize ordered mesoporous carbons with bimodal pore size distributions (~ 1.5 nm and ~ 3.5 nm).

6038

Size-controlled synthesis of quantum-sized EuS nanoparticles and tuning of their Faraday rotation peak

Tomoharu Kataoka, Yasunori Tsukahara, Yasuchika Hasegawa and Yuji Wada*

Size-controlled EuS nanoparticles were synthesized by reaction of europium metal with thiourea, giving Faraday rotation peaks adjustable by control of the EuS particle size.



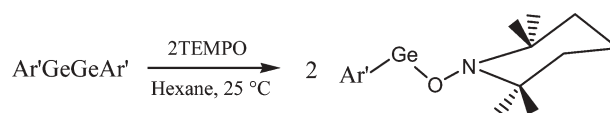
6041

Different reactivity of the heavier group 14 element alkyne analogues Ar'MMAR' (M = Ge, Sn; Ar' = C₆H₃-2,6-(C₆H₃-2,6-Prⁱ₂)₂) with R₂NO

Geoffrey H. Spikes, Yang Peng, James C. Fettinger, Jochen Steiner and Philip P. Power*

The reactions of the digermanium and ditin alkyne analogues Ar'MMAR' (M = Ge or Sn) with R₂NO,

(R₂NO = Me₂C(CH₂)₃CMe₂NO or N₂O), result in complete MM bond cleavage to afford the germylene :Ge(Ar')ONR₂ or the germanium(II) or tin(II) hydroxides {M(Ar')(μ-OH)}₂.

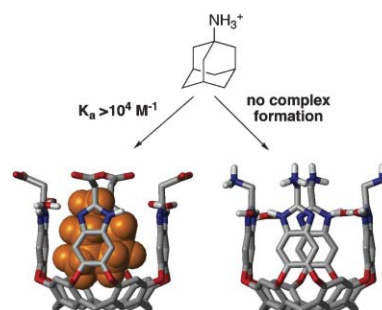


6044

Binding properties of cavitands in aqueous solution—the influence of charge on guest selectivity

Clemens H. Haas, Shannon M. Biros and Julius Rebek, Jr.*

The charge of the upper rim has influences on the binding properties of cavitands in aqueous media.



ADDITIONS AND CORRECTIONS

6046

Synthesis of single-phase anatase nanocrystallites at near room temperatures

Walid A. Daoud and John H. Xin

AUTHOR INDEX

- Adlington, Robert M., 5945
An, Liguao, 5974
Antoine, Elisabeth, 6020
Ariga, Katsuhiko, 5982
Barnes, Charles L., 5997
Biros, Shannon M., 6044
Bonavita, Anna, 6032
Burgemeister, Katja, 6026
Chang, Hyuk, 6035
Chen, Zhenzhen, 5974
Choi, Nicholas, 6023
Clérac, Rodolphe, 6008
Collins, Stephen, 6029
Compere, Chantal, 6020
Custelcean, Radu, 5971
Dehnen, Stefanie, 6008
Duval, Paul B., 5997
Endo, Kazunaka, 5968
Fettinger, James C., 6041
Fouts, Elizabeth, 5985
Franciò, Giancarlo, 6026
Galvagno, Signorino, 6032
Gillan, Edward G., 5988
Gooding, Edward A., 5985
Haas, Clemens H., 6044
Hasegawa, Yasuchika, 6038
Hay, Benjamin P., 5971
Hirai, Takayuku, 5977
Horike, Satoshi, 5968
Huang, Hui, 5974
Huck, Wilhelm T. S., 5999
Hugl, Herbert, 6026
Imai, Hiroaki, 6011, 6014
Irie, Masahiro, 6005
Jones, Aled L., 5994
Kannan, Shanmugaperumal, 5997
Kataoka, Tomoharu, 6038
Kawamura, Takashi, 5968
Kim, Ji Man, 6035
Kitagawa, Kana, 5968
Kitagawa, Susumu, 5968
Kuroki, Lumi, 6005
Kurth, Dirk G., 5982
Lazerges, Mathieu, 6020
Lee, Hyung Ik, 6035
Leitner, Walter, 6026
Li, Ping, 5974
Lickiss, Paul D., 6023
Lippert, Bernhard, 5991
Maid, Harald, 5953
Masangane, Phindile C., 6023
McGrady, G. Sean, 5994
McPartlin, Mary, 6023
Melullis, Maike, 6008
Micali, Giuseppe, 6032
Michinobu, Tsuyoshi, 5982
Mizuno, Motohiro, 5968
Morishita, Masatsugu, 5977
Moses, John E., 5945
Moyer, Bruce A., 5971
Nakanishi, Takashi, 5982
Neri, Giovanni, 6032
Niederberger, Markus, 6032
Nijhuis, T. Alexander, 6002
Oaki, Yuya, 6011
Pak, Chanho, 6035
Palmer, Colin, 5985
Peng, Yang, 6041
Perera, Sujith, 5988
Perrot, Hubert, 6020
Pinna, Nicola, 6032
Power, Philip P., 6041
Rabehagasoa, Niriniony, 6020
Ramajo, Angela Pozo, 5985
Rebek, Jr., Julius, 6044
Rimmer, Stephen, 6029
Rizzo, Giuseppe, 6032
Roitzsch, Michael, 5991
Saalfrank, Rolf W., 5953
Sah, Ajay K., 5980
Sarker, Prodig, 6029
Schmitt, Wolfgang, 5982
Seung, Doyoung, 6035
Shibata, Katsunori, 6005
Shibata, Takanori, 6017
Shin, Chae-Ho, 6035
Shiraishi, Yasuhiro, 5977
Sirsch, Peter, 5994
Spikes, Geoffrey H., 6041
Steed, Jonathan W., 5994
Steiner, Jochen, 6041
Takami, Shizuka, 6005
Tanase, Tomoaki, 5980
Tang, Bo, 5974
Tsuchikama, Kyoji, 6017
Tsukahara, Yasunori, 6038
Uchiyama, Hiroaki, 6014
Uemura, Takashi, 5968
Veneziani, Guilaine L., 6023
Volk, Martin, 5985
Wada, Yuji, 6038
Wang, JunWei, 5985
Weckhuysen, Bert M., 6002
Xu, Kehua, 5974
Yang, Guiwen, 5974
Yie, Jae Eui, 6035
Zhou, Feng, 5999

FREE E-MAIL ALERTS AND RSS FEEDS


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.

RSS Try our RSS feeds for up-to-the-minute news of the latest research. By setting up RSS feeds, preferably using feed reader software, you can be alerted to the latest Advance Articles published on the RSC web site. Visit www.rsc.org/publishing/technology/rss.asp for details.

ADVANCE ARTICLES AND ELECTRONIC JOURNAL

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

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

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