

Cover
Synthetic rigid-rod β -barrel pores serving as supramolecular hosts for a broad variety of guests, as enzyme sensors and as catalysts (pp. 2514-2523).

contents

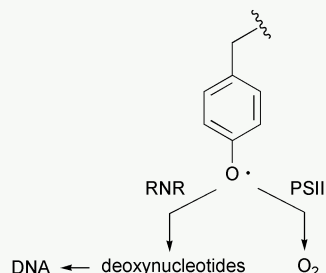
FOCUS ARTICLE

2511

Radicals with a controlled lifestyle

JoAnne Stubbe*

The importance of stable and transient amino acid radicals in primary metabolism is discussed.



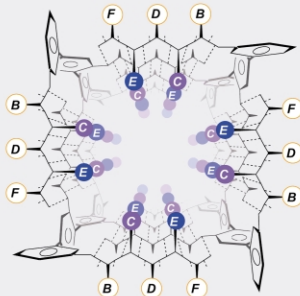
FEATURE ARTICLE

2514

Synthetic multifunctional pores: lessons from rigid-rod β -barrels

Naomi Sakai and Stefan Matile*

The concept of synthetic multifunctional pores as privileged platform to “do” chemistry in confined and oriented “nanospace” is discussed with examples of molecular recognition, translocation and transformation by rigid-rod β -barrels in bilayer membranes.



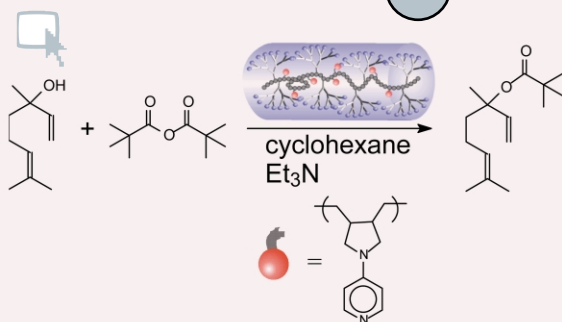
COMMUNICATIONS

2524

Dendronized cyclopolymers with a radial gradient of polarity and their use to catalyze a difficult esterification

Catherine O. Liang, Brett Helms, Craig J. Hawker and Jean M. J. Fréchet*

A dendronized macromolecule with a gradient of polarity surrounding pyrrolidinopyridine moieties was used as a “concentrator” helping to catalyze the difficult esterification of a tertiary alcohol with pivalic anhydride.



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

EDITORIAL STAFF

Managing editor

Sarah Thomas

Assistant editors

Sula Armstrong Amanda Hardy

Caroline Evans Lorna Jack

Publishing assistants

Jayne Drake Lois Kershaw

Jayne Gough Gareth Packham

Crystallographic data editor

Kirsty Anderson

Team Leader, Serials Production

Helen Saxton

Production editorial staff

Michelle Canning Carole Nerney

Sandra Jones Michael Smith

Hamish Kidd Ziva Whitelock

Kathryn Lees Ken Wilkinson

Lee Martin

Graphics

Scott Ollington

Editorial secretary (production)

Sarah James

Publisher, Journals and Reviews

Adrian Kybett

Chemical Communications (print: ISSN 1359-7345; electronic: ISSN 1364-548X) is published 24 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF. All orders accompanied by payment should be sent directly to Turpin Distribution Services Ltd, Blackhorse Road, Letchworth, Herts, UK SG6 1HN. 2003 Annual (print + electronic) subscription price: £878; US\$1450. 2003 Annual (electronic) subscription price: £790; US\$1305. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT. If you take an institutional subscription to any RSC journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip. Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank. Periodicals postage paid at Rahway, NJ, USA and at additional mailing offices. Airfreight and mailing in the USA by Mercury Airfreight International Ltd., 365 Blair Road, Avenel, NJ 07001, USA. US Postmaster: send address changes to *Chemical Communications*, c/o Mercury Airfreight International Ltd., 365 Blair Road, Avenel, NJ 07001. All despatches outside the UK by Consolidated Airfreight.

PRINTED IN THE UK.

Advertisement sales: Tel +44 (0)1223 432243; Fax +44 (0)1223 426017; E-mail advertising@rsc.org

© The Royal Society of Chemistry, 2003. Apart from fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988, 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 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.

© 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.

EDITORIAL BOARD

Chairman

Andrew B. Holmes, Cambridge, UK
E-mail: abh1@cam.ac.uk

Frank Allen, CCDC, Cambridge, UK
E-mail: allen@ccdc.cam.ac.uk

Jerry L. Atwood, Columbia, MO, USA

E-mail: rsc.chemcomm@missouri.edu

Shankar Balasubramanian, Cambridge, UK
E-mail: sb10031@cam.ac.uk

Makoto Fujita, Tokyo, Japan

E-mail: mfujita@appchem.t.u-tokyo.ac.jp

Alois Fürstner, Mülheim, Germany

E-mail: fuerstner@mpi-muelheim.mpg.de

Donald Hilvert, Zurich, Switzerland

E-mail: hilvert@org.chem.ethz.ch

Wolfgang Hölderich, Aachen, Germany

E-mail: Hoelderich@rwth-aachen.de

Mir Wais Hosseini, Strasbourg, France

E-mail: hosseini@chimie.u-strasbg.fr

Barbara Imperiali, Cambridge, MA, USA

E-mail: chemcomm@mit.edu

Roeland J. M. Nolte, Nijmegen, The Netherlands

E-mail: nolte@sci.kun.nl

Dermot O'Hare, Oxford, UK

E-mail: chemcomm@chem.ox.ac.uk

Colin Raston, Perth, Australia

E-mail: clraston@chem.uwa.edu.au

David Rice, Reading, UK

E-mail: c.foote@reading.ac.uk

Ian Rothwell, West Lafayette, IN, USA

E-mail: chemcomm@purdue.edu

Clément Sanchez, Paris, France

E-mail: clem@ccr.jussieu.fr

James D. White, Corvallis, OR, USA

E-mail: james.white@orst.edu

SCIENTIFIC EDITORS

The Scientific Editors welcome enquiries from potential authors regarding the submission and scientific content of papers. For the submission of manuscripts please

see <http://www.rsc.org/chemcomm>

Professor Dermot O'Hare

Inorganic Chemistry Laboratory

University of Oxford

Oxford, UK

E-mail: chemcomm@chem.ox.ac.uk

Professor Donald Hilvert

Laboratory of Organic Chemistry

ETH Zentrum, Zurich, Switzerland

E-mail: hilvert@org.chem.ethz.ch

Professor Mir Wais Hosseini

Lab de Chimie de Coordination Organique

Universite Louis Pasteur, Strasbourg, France

E-mail: hosseini@chimie.u-strasbg.fr

Professor Alois Fürstner

Max-Planck-Institut für Kohlenforschung

Müllheim/Ruhr, Germany

E-mail: fuerstner@mpi-muelheim.mpg.de

ASSOCIATE EDITORS

Manuscripts from the Americas should be submitted to the appropriate Associate Editor. Manuscripts from other regions should be submitted to the Cambridge Editorial Office. For information on how to submit your manuscript see <http://www.rsc.org/chemcomm>

Manuscripts from the Americas

SUPRAMOLECULAR

Professor Jerry L. Atwood

123 Chemistry Building

University of Missouri

Columbia, MO, USA

E-mail: rsc.chemcomm@missouri.edu

CHEMICAL BIOLOGY

Professor Barbara Imperiali

Department of Chemistry

Massachusetts Institute of Technology

Cambridge, MA, USA

E-mail: chemcomm@mit.edu

INORGANIC, ORGANOMETALLIC AND MATERIALS

Professor Ian Rothwell

Department of Chemistry

Purdue University,

West Lafayette, IN, USA

E-mail: chemcomm@purdue.edu

ORGANIC

Professor James D. White

Department of Chemistry

Oregon State University

Corvallis, OR, USA

E-mail: james.white@orst.edu

Manuscripts from all other regions

Dr Sarah Thomas

Chemical Communications

Royal Society of Chemistry

Thomas Graham House

Science Park, Milton Road

Cambridge, UK. CB4 0WF

Tel (+44) (0) 1223 420066

Fax (+44) (0) 1223 420247

E-mail: chemcomm@rsc.org

EDITORIAL ADVISORY BOARD

Takuzo Aida, Tokyo, Japan

Dario Braga, Bologna, Italy

Duncan W. Bruce, Exeter, UK

Jillian M. Buriak, Edmonton, Canada

David H. G. Crout, Warwick, UK

Marcetta Darensbourg, College Station, TX, USA

Gautam R. Desiraju, Hyderabad, India

Pierre H. Dixneuf, Rennes, France

Gregory C. Fu, Cambridge, MA, USA

Tohru Fukuyama, Tokyo, Japan

Lutz Gade, Strasbourg, France

George W. Gokel, St Louis, MO, USA

Karl J. Hale, London, UK

Amir Hoveyda, Boston, MA, USA

Kazuyuki Kuroda, Tokyo, Japan

Jérôme Lacour, Geneva, Switzerland

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

Albert I. Meyers, Fort Collins, CO, USA

Jason Micklefield, Manchester, UK

Achim Müller, Bielefeld, Germany

Maurizio Prato, Trieste, Italy

Richard J. Puddephatt, London, ON, Canada

Christopher A. Reed, Riverside, CA, USA

Jonathan Sessler, Austin, TX, USA

David C. Sherrington, Glasgow, UK

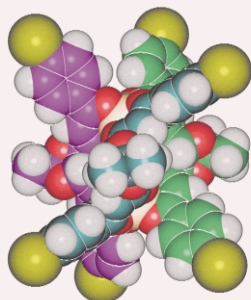
Jonathan W. Steed, London, UK

Herbert Waldmann, Dortmund, Germany

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

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 The Royal Society of Chemistry.

2526

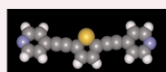
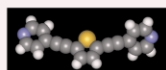
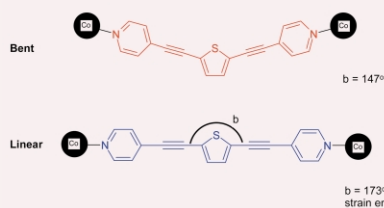


Self-assembly of an unpolar enantiomerically pure helicate-type metalla-cryptand

Markus Albrecht,* Sören Schmid, Marita deGroot, Patrick Weis and Roland Fröhlich

A chiral tetraketone ligand is derived from tartraic acid and forms with iron(III) or gallium(III) ions enantiomerically pure helicates which are able to take up lithium perchlorate into unpolar solvents.

2528



Unusual flexibility of 2,5-bis(4-pyridylethynyl)thiophene self-assembled with Co(NCS)₂ in a novel coordination polymer

Seung Uk Son, Bo Yun Kim, Cheol Ho Choi, Soon Won Lee, Yong Seung Kim and Young Keun Chung*

A novel coordination polymer containing Co(NCS)₂ and a rigid ligand, 2,5-bis(4-pyridylethynyl)-thiophene showing unusual flexibility was synthesized.

2530

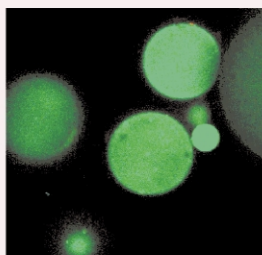


Novel UV cured coatings and adhesives based on the photoinitiated cyclopolymerization of derivatives of diallylamine

Alan W. Hall,* Keith M. Blackwood, Paul E. Y. Milne and John W. Goodby

A new family of non-acrylate UV cured three-dimensional polymeric networks for coatings and adhesives based on the photoinitiated cyclopolymerization of diallylamine salts and diallylamides using a low power (75 W) UVA domestic sunlamp is described.

2532

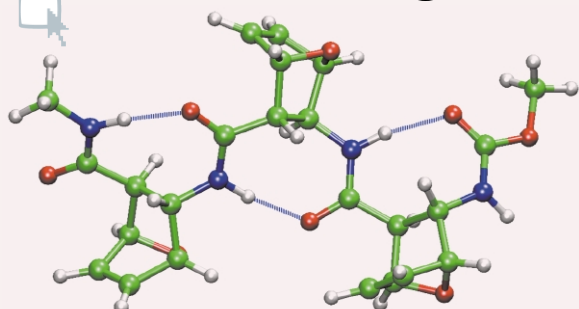


Quantum dot-labelled polymer beads by suspension polymerisation

Paul O'Brien, Siobhan S. Cummins, Dan Darcy, Angela Dearden, Ombretta Masala, Nigel L. Pickett, Steve Ryley and Andrew J. Sutherland*

CdSe quantum dots with polymerisable ligands have been incorporated into polystyrene beads, *via* a suspension polymerisation reaction, as a first step towards the optical encoding of solid supports for application in solid phase organic chemistry.

2534

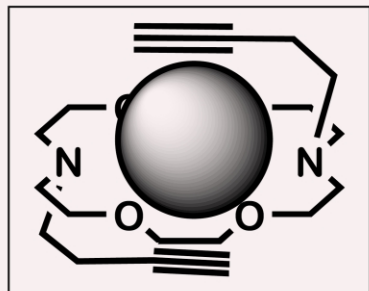


Novel conformationally-constrained β -peptides characterized by ¹H NMR chemical shifts

Robert J. Doerksen, Bin Chen, Jing Yuan, Jeffrey D. Winkler* and Michael L. Klein*

Novel oxanorbornene β -peptides were synthesized and shown, by ¹H NMR calculations which agree with experimental data, to form consecutive 8-membered hydrogen-bonded ring helices for both dimer and trimer.

2536

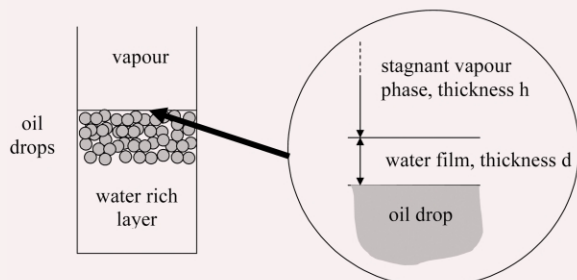


Solution complexation between potassium iodide and lariat ethers having pi-donor sidearms

Jiaxin Hu and George W. Gokel*

Experimental evidence is presented for the interaction of triple bond pi-donors with potassium cation in acetonitrile solution.

2538

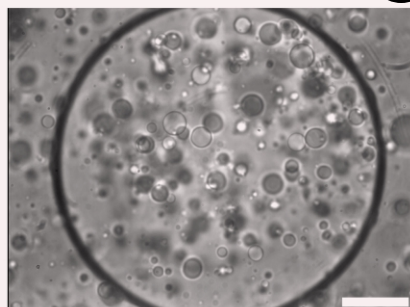


Retardation of oil drop evaporation from oil-in-water emulsions

Ibon Aranberri, Bernard P. Binks, John. H. Clint and Paul D. I. Fletcher*

The rate of evaporation of volatile oils from oil-in-water emulsions can be strongly retarded by using a polymeric emulsion stabiliser instead of a low molar mass surfactant.

2540

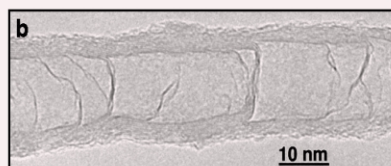


Novel emulsions of ionic liquids stabilised solely by silica nanoparticles

Bernard P. Binks, Amro K. F. Dyab and Paul D. I. Fletcher*

We have successfully prepared a series of novel stable emulsions, of both simple and multiple types, containing ionic liquids and stabilised solely by silica nanoparticles. The image shows an oil-in-ionic liquid-in-oil multiple emulsion (scale bar 20 μm).

2542

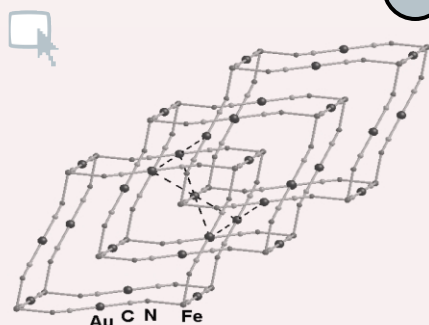


Synthesis of highly nitrogen-doped multi-walled carbon nanotubes

M. Glerup,* M. Castignolles, M. Holzinger, G. Hug, A. Loiseau and P. Bernier

MWNTs with a record high concentration of nitrogen (~20 atom%) were synthesized and characterized by TEM and EELS. A strong correlation between N-concentration and morphology of the tubes is observed.

2544

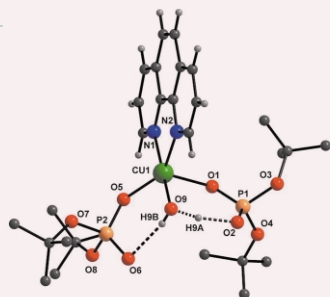


3D porous and 3D interpenetrating triple framework structures constructed by aurophilicity-coordination interplay in $\{\text{Mn}[\text{Au}(\text{CN})_2]_2(\text{H}_2\text{O})_2\}_n$ and $\{\text{KFe}[\text{Au}(\text{CN})_2]_3\}_n$

Wen Dong, Li-Na Zhu, Ya-Qiu Sun, Mao Liang, Zhan-Quan Liu, Dai-Zheng Liao,* Zong-Hui Jiang, Shi-Ping Yan and Peng Cheng

3D porous and 3D interpenetrating triple cubic framework structures are constructed by aurophilicity-coordination interplay in heterobimetallic complexes $\{\text{Mn}[\text{Au}(\text{CN})_2]_2(\text{H}_2\text{O})_2\}_n$ and $\{\text{KFe}[\text{Au}(\text{CN})_2]_3\}_n$, and both compounds display interesting luminescent properties.

2546

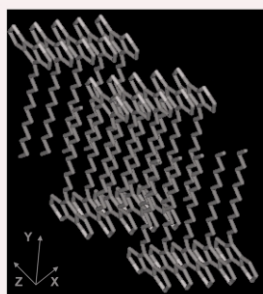


O–H Bond elongation in co-ordinated water through intramolecular P=O⋯H–O bonding. ‘Snap-shots’ in phosphate ester hydrolysis

Ramaswamy Murugavel,* Malaichamy Sathiyendiran, Ramasamy Pothiraja and Ray J. Butcher

For the first time, a copper mononuclear complex provides evidence for the involvement of phosphoryl oxygen in the activation of the O–H bond of the coordinated water molecule through intramolecular hydrogen bonding, while additional intermolecular C–H⋯O interactions shed light on the role of neutral ligands in the activation of phosphate ester linkages.

2548

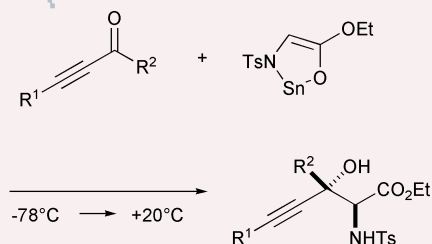


Synthesis, solid state structure and polymerisation of a fully planar cyclopentadithiophene

Paolo Coppo, Harry Adams, Domenico C. Cupertino, Stephen G. Yeates and Michael L. Turner*

The cyclopentadithiophene, 4-*n*-dodecyldiene-4*H*-cyclopenta(2,1-*b*;3,4-*b'*)dithiophene, shows extensive π -stacking in the solid state with short intermolecular distances (*ca.* 3.5 Å) between adjacent molecules. Polymerisation of this monomer by two different procedures gives solution processable alkenyl-bridged cyclopentadithiophene polymers with extended π -conjugation in the main chain.

2550

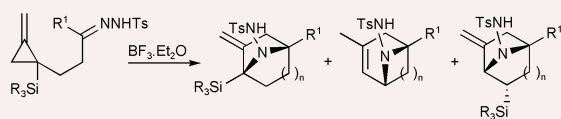


A stereoselective synthesis of *anti*- γ,δ -alkynyl- and -alkenyl- β -hydroxy- α -amino esters from tin(II) enolates of glycinate

Jonathan J. Gridley, Michael P. Coogan, David W. Knight,* K. M. Abdul Malik, Christopher M. Sharland, Jirada Singkhonrat and Siân Williams

Condensations between conjugated ynals and ynones and the tin(II) enolate of *N*-tosylglycinate show excellent levels of *anti*-stereoselectivity to give good yields of highly functionalised amino acid derivatives.

2552

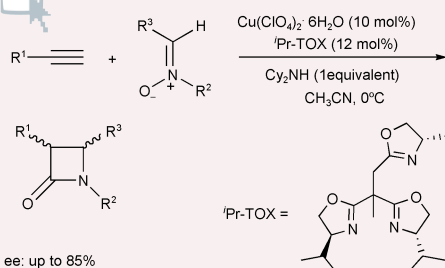


Lewis acid mediated cyclisations of silylated methylenecyclopropyl hydrazones

Lee Patient, Malcolm B. Berry, Simon J. Coles, Mike B. Hursthouse and Jeremy D. Kilburn*

Silylated methylenecyclopropyl hydrazones on treatment with $\text{BF}_3 \cdot \text{Et}_2\text{O}$ cyclise to give heterocyclic products involving a novel sequence of hydride and silyl shifts *via* a series of increasingly stable cationic intermediates.

2554



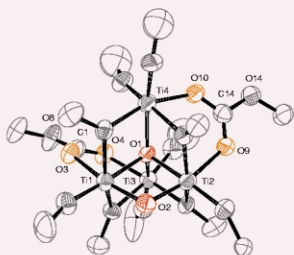
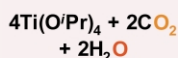
Chiral tris(oxazoline)/Cu(II) catalyzed coupling of terminal alkynes and nitrones

Meng-Chun Ye, Jian Zhou, Zheng-Zheng Huang and Yong Tang*

The reaction of nitrones with terminal alkynes catalyzed by 'Pr-tris(oxazoline)/ $\text{Cu}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ afforded *cis*-disubstituted β -lactams with good enantioselectivity in good to high yields.

ee: up to 85%
cis/trans: up to 97/3

2556

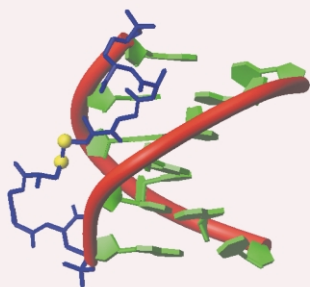


On the water promoted reaction of titanium isopropoxide with carbon dioxide

Rajshekhkar Ghosh, Munirathinam Nethaji and Ashoka G. Samuelson*

Insertion of carbon dioxide into titanium isopropoxide takes place only in the presence of trace quantities of water to give an isopropyl carbonato cluster which has been crystallographically characterised.

2558

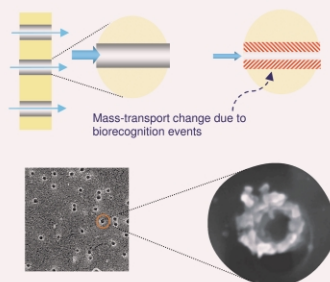


Solution structure and stability of a disulfide cross-linked nucleopeptide duplex

Irene Gómez-Pinto, Vicente Marchán, Federico Gago, Anna Grandas* and Carlos González*

Cysteine-containing peptide–oligonucleotide hybrids can be used to establish cross-links between two DNA strands.

2560

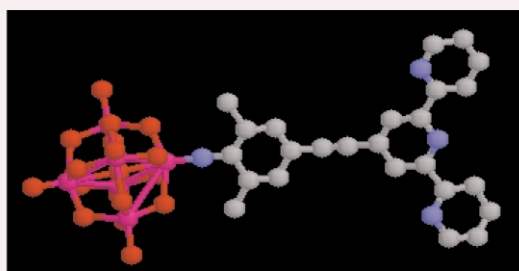


Biorecognition-modulated ion fluxes through functionalized gold nanotubes as a novel label-free biosensing approach

Robert E. Gyurcsányi,* Tamás Vigassy and Ernő Pretsch*

A novel biosensing principle is presented, based on the potentiometric monitoring of an indicator ion such as Ca^{2+} , whose zero-current flux through chemically modified nanochannels is altered by biorecognition events.

2562

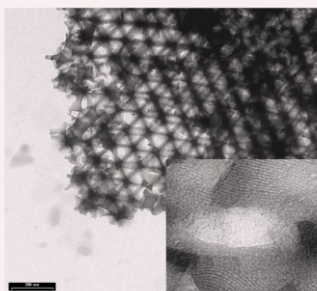


Polyoxometalates covalently bonded with terpyridine ligands

Bubin Xu, Zhonghua Peng,* Yongge Wei and Douglas R. Powell

A molecular hybrid containing a terpyridine ligand and a hexamolybdate cluster has been synthesized; preliminary studies revealed its facile coordination with metal ions such as Zn^{2+} and Ru^{2+} .

2564



A novel tailored bimodal porous silica with well-defined inverse opal microstructure and super-microporous lamellar nanostructure

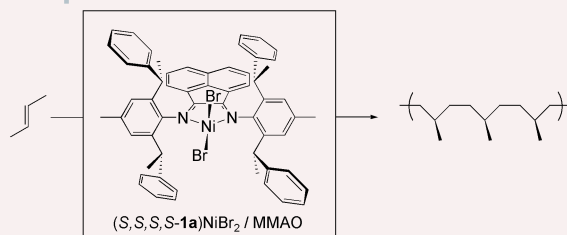
Yong Zhou* and Markus Antonietti

A novel tailored bimodal porous silica with well-defined inverse opal microstructure and super-microporous lamellar nanostructure has been successfully synthesized by simultaneous application of three-dimensional order polystyrene (PS) beads and an amphiphilic ionic liquid (AIL) as templates.

2566

Chiral anilines: development of C_2 -symmetric, late-transition metal catalysts for isoselective 2-butene polymerization

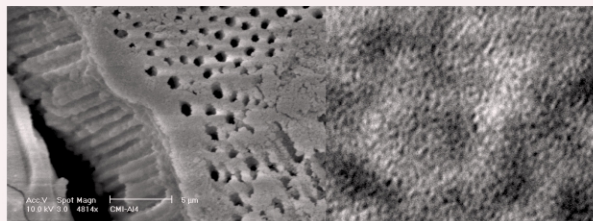
Anna E. Cherian, Emil B. Lobkovsky and Geoffrey W. Coates*

Chiral nickel catalysts were synthesized and used for the isoselective polymerization of *trans*-2-butene.

2568

One-pot surfactant assisted synthesis of aluminosilicate macrochannels with tunable micro- or mesoporous wall structure

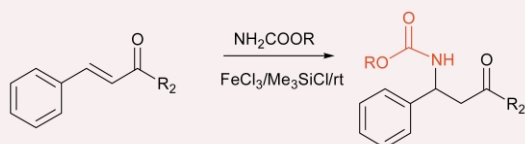
Alexandre Léonard, Jean-Luc Blin and Bao-Lian Su*

Hierarchical macro-meso (or micro-)porous silicoaluminates are obtained by a simple one step surfactant templating pathway with the straight tubular macrochannels ($\phi = 0.5\text{--}2\ \mu\text{m}$) separated by disordered meso- (or micro-)porous walls.

2570

An efficient and inexpensive catalyst system for the aza-Michael reactions of enones with carbamates

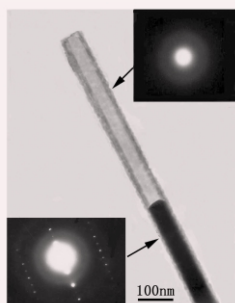
Li-Wen Xu, Chun-Gu Xia* and Xiao-Xue Hu

A new strategy with very cheap FeCl₃ as an effective catalyst in the presence of Me₃SiCl has been developed for the conjugate addition of enones and chalcone with carbamates.

2572

CdSe-Filled silica nanotubes

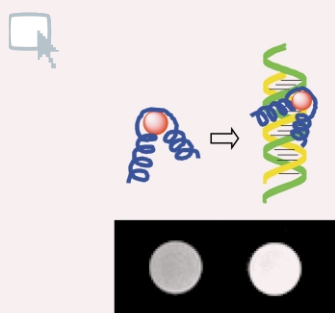
Baoyou Geng,* Guowen Meng, Lide Zhang,* Guozhong Wang and Xinsheng Peng

The novel nanostructures, CdSe-filled silica nanotubes with diameter about 100 nm and length up to several micrometres, were synthesized through a simple thermochemistry method. CdSe nanorods inside the nanotubes are structurally uniform and single crystalline growing along the $\langle 100 \rangle$ direction.

2574

Gadolinium-binding helix–turn–helix peptides: DNA-dependent MRI contrast agents

Peter Caravan, Jaclyn M. Greenwood, Joel T. Welch and Sonya J. Franklin*

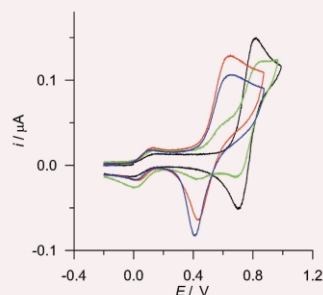
A de novo designed gadolinium metallopeptide was found to be a very efficient relaxation agent, with 100% increase in relaxivity upon binding to DNA.

2576

Anion recognition by functionalized single wall carbon nanotubes

Andrea Callegari, Massimo Marcaccio, Demis Paolucci, Francesco Paolucci,* Nikos Tagmatarchis, Dimitrios Tasis, Ester Vázquez and Maurizio Prato*

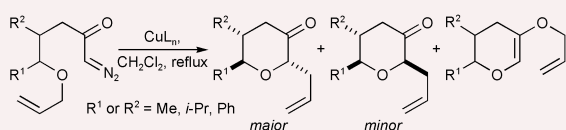
Amidoferrocenyl-functionalised single wall carbon nanotubes (Fc-SWNT) are a significant example of the use of carbon nanotubes as a templating system for electrochemical detection of phosphate anions.



2578

Stereoselective synthesis of tetrahydropyran-3-ones by rearrangement of oxonium ylides generated from metal carbenoids

J. Stephen Clark,* Gavin Whitlock, Shende Jiang and Ngozi Onyia



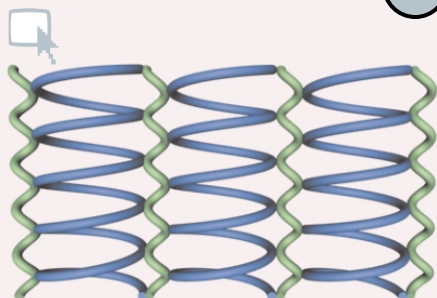
Substituted tetrahydropyran-3-ones have been prepared from carbenoids by intramolecular oxonium ylide generation and rearrangement. The thermodynamically less stable diastereoisomer is obtained and isomer ratio is dependent on the catalyst used for carbenoid formation.

2580

A novel nonlinear optically active tubular coordination network based on two distinct homo-chiral helices

Lei Han, Maochun Hong,* Ruihu Wang, Junhua Luo, Zhengzhong Lin and Daqiang Yuan

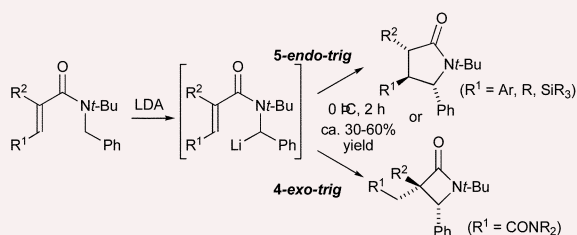
A novel tubular coordination network [Zn(spcp)(OH)] (spcp = 4-sulfanylmethyl-4'-phenylcarboxylate pyridine) with a modest SHG activity based on two types of homo-chiral helices was synthesized and characterized.



2582

β-Lactams or γ-lactams by 4-exo-trig or 5-endo-trig anionic cyclisation of lithiated acrylamide derivatives

Jonathan Clayden,* David W. Watson, Madeleine Helliwell and Mark Chambers



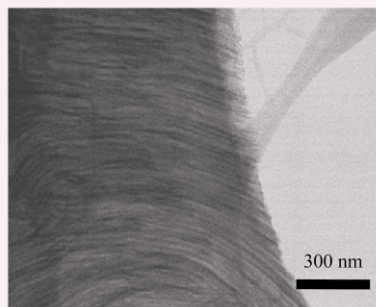
Lithiation of *N*-benzyl acrylamides can promote an unexpected 5-endo-trig cyclisation, yielding a lactam enolate which alkylates stereoselectively. Altering the substitution pattern can divert the cyclisation towards a 4-exo-trig pathway, generating a β-lactam.

2584

Synthesis of ultrahigh-density ordered arrays of metallic nickel nanowires in mesoporous silica films

Zongtao Zhang, Zhengwei Pan, Shannon M. Mahurin and Sheng Dai*

We report the synthesis of ultrahigh-density one dimensional metal nickel nanowires inside 2D mesoporous films based on electroless deposition.

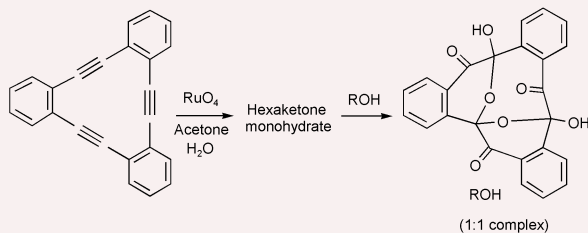


2586

Synthesis and inclusion properties of a novel macrocyclic hexaketone monohydrate with a hemiacetal structure

Masanori Ohkoshi, Takeru Horino, Masato Yoshida and Masahiko Iyoda*

Macrocyclic hexaketone prepared from tribenzohexadehydro[12]annulene forms a stable monohydrate which incorporates methanol or ethanol in the crystalline lattice to afford a very stable 1 : 1 inclusion complex.

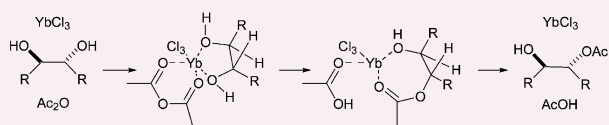


2588

Mechanistic insight into the lanthanide(III) salt catalysed monoacylation of symmetrical diols from structural models

Paul A. Clarke,* Polly L. Arnold,* Martin A. Smith, Louise S. Natrajan, Claire Wilson and Chuen Chan

Model studies are presented that suggest the mechanism of the lanthanide(III) salt catalysed monoacylation of symmetrical diols proceeds *via* chelation of the diol and the anhydride to the lanthanide salt, followed by an 'intramolecular' acyl transfer.

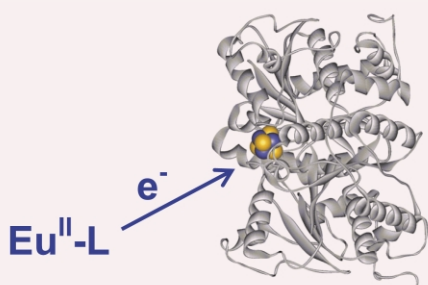


2590

Instantaneous, stoichiometric generation of powerfully reducing states of protein active sites using Eu(II) and polyaminocarboxylate ligands

Kylie A. Vincent, Gareth J. Tilley, Nina C. Quammie, Ian Streeter, Barbara K. Burgess, Myles R. Cheesman and Fraser A. Armstrong

Instantaneous *in situ* generation of the very powerful reductant $\text{Eu}^{\text{II}}\text{-L}$ (L = polyaminocarboxylate) which can rapidly drive an electron stoichiometrically onto a redox centre having an extremely negative reduction potential (lower than -1 V).

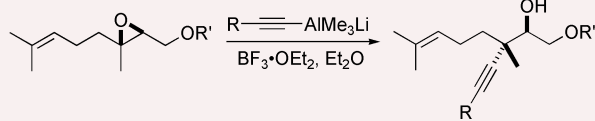


2592

Stereospecific and efficient alkynylation at the more hindered carbon of trisubstituted epoxides

Hongda Zhao and Brian L. Pagenkopf*

The stereospecific and regioselective C(3) alkynylation of trisubstituted epoxides has been achieved with lithium alkynyl trimethylaluminium ate complexes in the presence of $\text{BF}_3\cdot\text{OEt}_2$. This general method provides access to synthetically useful structures containing chiral, optically active quaternary stereocenters, and offers a practical solution to the long standing problem of alkyne additions to trisubstituted epoxides.

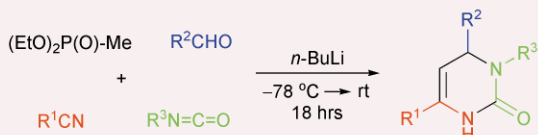


2594

A novel four-component reaction for the synthesis of functionalised dihydropyrimidines

Danielle J. Vugts, Helen Jansen, Rob F. Schmitz, Frans J. J. de Kanter and Romano V. A. Orru*

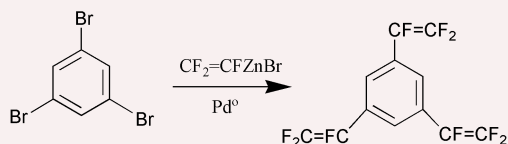
A phosphonate, nitriles, aldehydes and isocyanates react in a one pot multicomponent reaction to efficiently produce *N*3-functionalised dihydropyrimidines.



2596

A novel 1,3,5-tris(α,β,β -trifluorovinyl)benzene monomer

Lawrence A. Ford and Darryl D. DesMarteau*

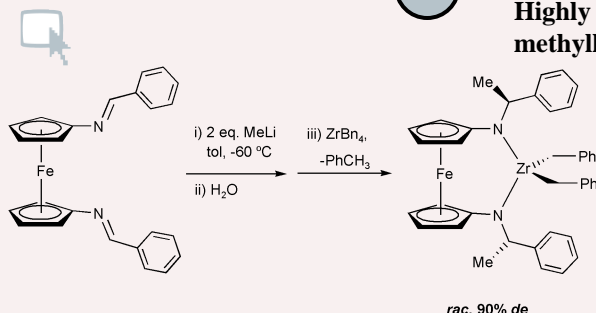


The reaction of the perfluoroalkenylzinc reagent, $\text{CF}_2=\text{CFZnBr}$, with 1,3,5-tribromobenzene in the presence of a catalytic amount of $\text{Pd}(\text{Ph}_3)_4$ yielded a novel trifunctional monomer 1,3,5-tris(α,β,β -trifluorovinyl)benzene (**1**). Monomer **1** undergoes step growth polymerization by thermal (2 + 2) cycloaddition to give the first example of an aryl perfluorocyclobutyl linked polymer.

2598

Highly diastereoselective reduction of ferrocene bis-imines with methylithium and the formation of C_2 -symmetric Zr complexes

Alexandr Shafir, Dorothea Fiedler and John Arnold*



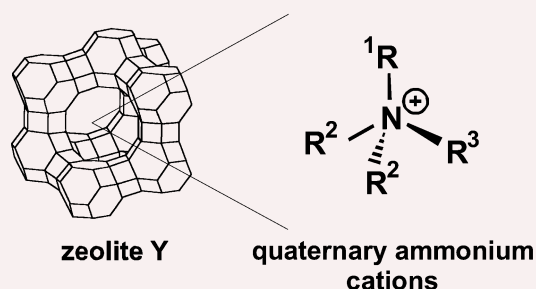
Ferrocene bis-imines $\text{Fc}[\text{N}=\text{C}(\text{H})\text{Ph}]_2$ and $\text{Fc}[\text{N}=\text{C}(\text{H})(p\text{-tol})_2]$ react with methylithium to afford the racemic *trans* diamines $\text{Fc}[\text{NC}(\text{Me})(\text{Ph})\text{H}]_2\text{H}_2$ and $\text{Fc}[\text{NC}(\text{Me})(p\text{-tol})\text{H}]_2\text{H}_2$; treatment of these diamines with ZrBn_4 afforded the C_2 -symmetric LZrBn_2 complexes in up to 90% de.

rac, 90% de

2600

Synthesis and immobilization of quaternary ammonium cations in acidic zeolites

Wei Wang,* Andreas Buchholz, Irina I. Ivanova, Jens Weitkamp and Michael Hunger*

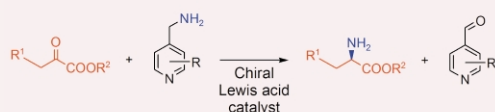


A general method for the synthesis of quaternary ammonium cations on acidic zeolites H-Y and H-ZSM-5 by a direct reaction of tertiary amines and alcohols is described. These quaternary ammonium cations are important for the modification of zeolites, and, in the ^{13}C -labelled state, for investigations of template-related issues by solid-state NMR spectroscopy.

2602

Catalytic enantioselective transamination of α -keto esters: an organic approach to enzymatic reactions

Kristian Rahbek Knudsen, Stephan Bachmann and Karl Anker Jørgensen*

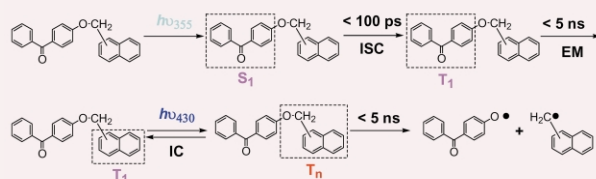


A new approach mimicking enzymatic transamination based on Lewis acid catalysis is presented.

2604

Rapid cleavage of the naphthylmethyl-oxygen bond in higher triplet excited states

Xichen Cai, Masanori Sakamoto, Michihiro Hara, Sachiko Tojo, Mamoru Fujitsuka, Akihiko Ouchi and Tetsuro Majima*



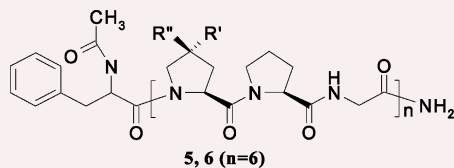
Rapid cleavage of the naphthylmethyl-oxygen bond of 1- and 2-[(4-benzoylphenoxy)methyl]naphthalenes in the T_n state occurred to give 1- and 2-naphthylmethyl radicals with formation quantum yields of 0.042 ± 0.004 and 0.020 ± 0.002 , respectively.

2606

Two prolines with a difference: contrasting stereoelectronic effects of 4*R/S*-aminoproline on triplex stability in collagen peptides [Pro(X)-Pro(Y)-Gly]_n

M. Umashankara, I. Ramesh Babu and Krishna N. Ganesh*

4*R/S*-Aminoprolines in the X-position of collagen peptide [Pro(X)-Pro(Y)-Gly]_n exhibit pH- and stereochemistry-dependent effects on triplex stability.

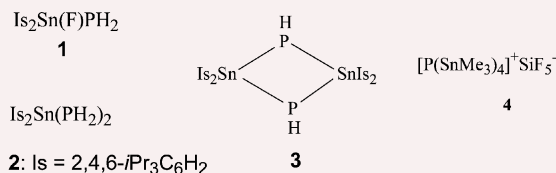


2608

Synthesis of the first fluoro(phosphanyl)- and diphosphanyl-stannanes and surprising formation of [P(SnMe₃)₄]⁺SiF₅⁻

Matthias Driess,* Klaus Merz and Christian Monsé

The first isolable and unusual thermally resistant fluoro(phosphanyl)- and diphosphanyl-stannanes **1** and **2** have been prepared which undergo unique glass-assisted conversion to the Sn₂P₂ heterocycle **3** and the novel tetra(stannyl)phosphonium salt **4**.

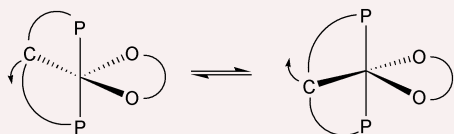


2610

An EPR study of the intramolecular dynamics in *o*-semiquinonic nickel complexes with a diphosphorous pincer ligand

Konstantin A. Kozhanov, Michael P. Bubnov,* Vladimir K. Cherkasov, Georgy K. Fukin and Gleb A. Abakumov

Novel *o*-semiquinonic nickel complexes with diphosphorous pincer ligand undergo pendulum oscillations in solution. The rate of interconversion is close to the rate of solvate sphere reorganization. EPR spectroscopy allows evaluation of kinetic parameters of equilibrium.

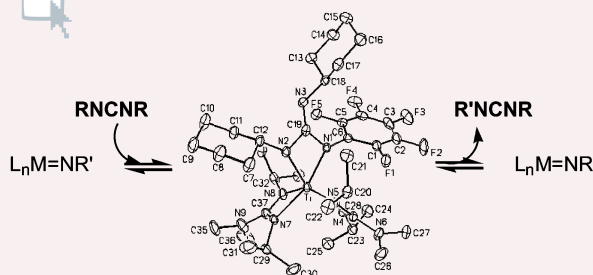


2612

Catalytic C=N bond metathesis of carbodiimides by group 4 and 5 imido complexes supported by guanidinate ligands

Tiow-Gan Ong, Glenn P. A. Yap and Darrin S. Richeson*

Group 4 and 5 guanidinate-supported imido complexes catalytically metathesize the C=N bonds of alkyl and aryl carbodiimides and the observation of intermediates and the reaction products provides evidence that the mechanism of this transformation involves a series of [2 + 2] addition/elimination steps.

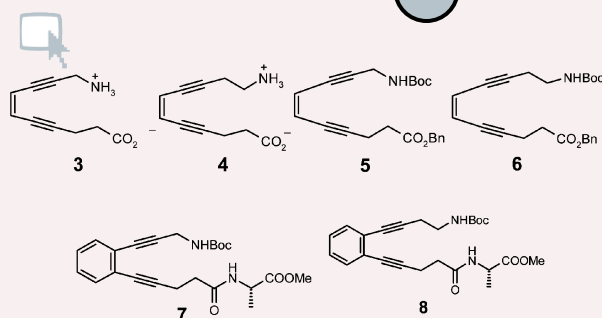


2614

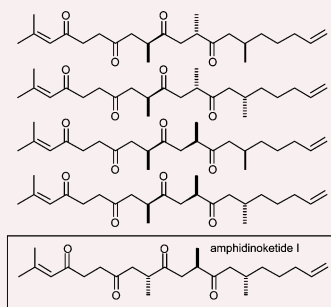
Synthesis and reactivity of enediynyl amino acids and peptides: a novel concept in lowering the activation energy of Bergman cyclisation by H-bonding and electrostatic interactions

Amit Basak,* Subhendu Sekhar Bag and Hussam M. M. Bdour

The thermal reactivity of the amino acids and peptides **3–8** demonstrates the effect of H-bonding and electrostatic interactions in lowering the activation energy for Bergman cyclization.



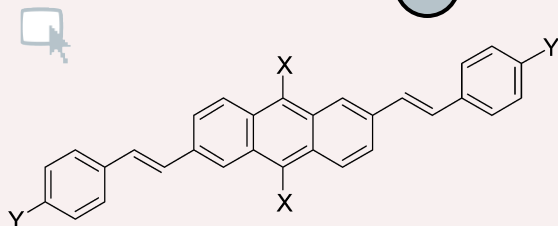
2616

**Stereochemical elucidation of the 1,4 polyketide amphidinoketide I**

Louise M Walsh and Jonathan M Goodman*

The relative and absolute stereochemistry of amphidinoketide I has been determined by the total synthesis of all the diastereoisomers.

2618



X = H (**1**), CN (**2**), *p*-CNC₆H₄ (**3**)
 Y = NHex₂ (**a**), N(C₆H₄-*p*-*t*-Bu)₂ (**b**), NPh₂ (**b'**)
 δ_{\max} = 1100-2490 GM

2,6-Bis(styryl)anthracene derivatives with large two-photon cross-sections

Wen Jun Yang, Dae Young Kim, Mi-Yun Jeong, Hwan Myung Kim, Seung-Joon Jeon and Bong Rae Cho*

The first synthesis of 2,6-bis(styryl)anthracene derivatives with very large two-photon cross sections is reported. Both $\lambda_{\max}^{(2)}$ and $\Phi\delta_{\max}$ have been optimized by introducing donor-substituted styryl and *p*-cyanophenyl groups at the 2,6- and 9,10-positions, respectively.

2620

**Deep desulfurization by selective adsorption of dibenzothiophenes on Ag⁺/SBA-15 and Ag⁺/SiO₂**

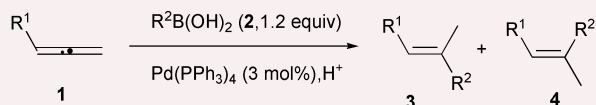
Scott G. McKinley and Robert J. Angelici*

The removal of low levels of dibenzothiophenes from hydrocarbon feedstocks is achieved using adsorbents consisting of silver (Ag⁺) salts adsorbed on amorphous or mesoporous silica.

2622

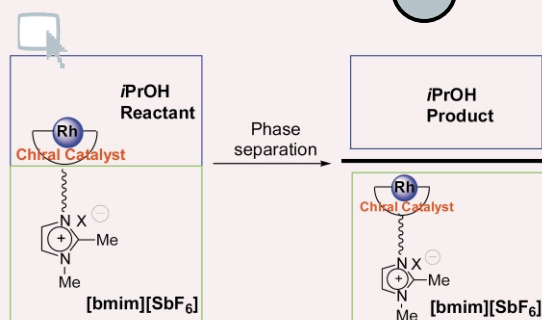
Palladium-catalyzed addition of organoboronic acids to allenes

Chang Ho Oh,* Tae Won Ahn and V. Raghava Reddy



The palladium-catalyzed addition reactions of alkenyl- or aryl-boronic acids to various allenes is described, which allows C–C bond formation in a highly regioselective manner under very mild conditions.

2624

**Catalytic asymmetric hydrogenation in a room temperature ionic liquid using chiral Rh-complex of ionic liquid grafted 1,4-bisphosphine ligand**

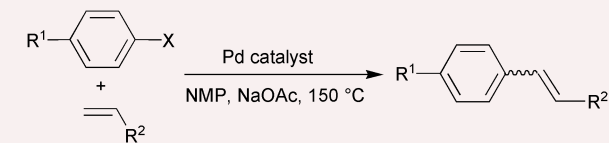
Sang-gi Lee,* Yong Jian Zhang, Jing Yu Piao, Hyeon Yoon, Choong Eui Song, Jung Hoon Choi and Jongki Hong

In Rh-catalyzed asymmetric hydrogenation of an enamide, the ionic liquid grafted catalyst was successfully immobilized in an ionic liquid and reused several times without significant loss of catalytic efficiency.

2626

Organically modified Pd–silica catalysts applied in Heck coupling

Árpád Molnár,* Attila Papp, Krisztina Miklós and Péter Forgo



$X = \text{halogen (I, Br)}$
 $R^1 = \text{H, Ac, NO}_2$
 $R^2 = \text{Ph, COOMe}$

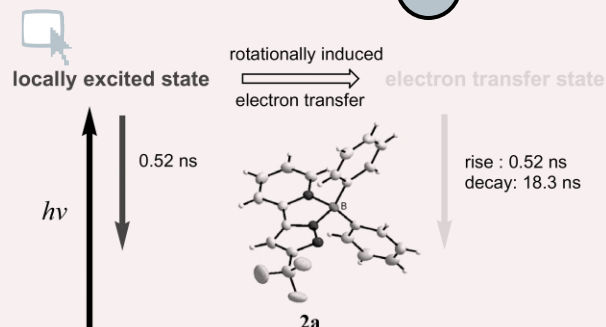
yield
 parent Pd-on-silica = 47-81%
 modified with Me = 58-100%
 modified with Ph = 75-100%

Pd–silica catalysts prepared by depositing Pd through surface reduction onto silica precursors modified by surface methyl or phenyl groups exhibit high activity and selectivity in Heck coupling.

2628

Syntheses and remarkable photophysical properties of 5-(2-pyridyl) pyrazolate boron complexes; photoinduced electron transfer

Chung-Chih Cheng, Wei-Shan Yu, Pi-Tai Chou,* Shie-Ming Peng, Gene-Hsiang Lee, Pei-Chi Wu, Yi-Hwa Song and Yun Chi*

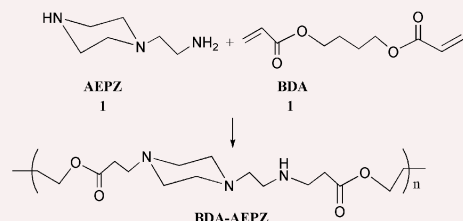


A new series of pyridyl pyrazolate boron complexes have been synthesized, which exhibit remarkable dual fluorescence properties due to the photoinduced electron transfer reaction.

2630

Novel poly(amino ester)s obtained from Michael addition polymerizations of trifunctional amine monomers with diacrylates: safe and efficient DNA carriers

Ye Liu,* Decheng Wu, Yuexia Ma, Guping Tang, Shu Wang, Chaobin He, Taishung Chung and Suathong Goh

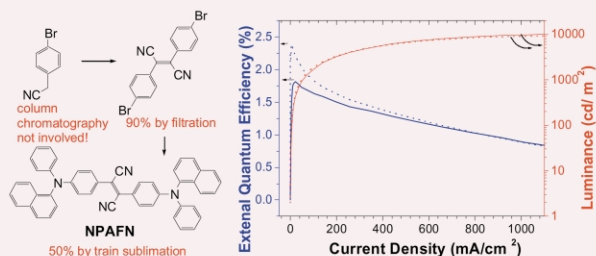


Novel biodegradable poly(amino ester)s containing secondary and tertiary amines in the backbones were obtained from the Michael addition polymerizations of trifunctional amine monomers with diacrylates, and showed high transfection efficiency for the delivery of DNA, comparable to polyethylenimine, and low cytotoxicity.

2632

Readily synthesised arylamino fumaronitrile for non-doped red organic light-emitting diodes

Hsiu-Chih Yeh, Shi-Jay Yeh and Chin-Ti Chen*

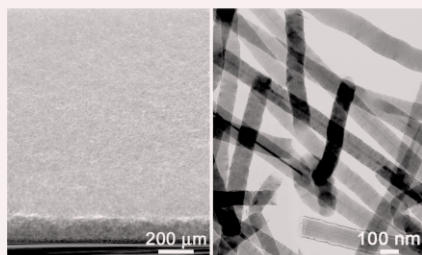


Bright (maximum 10034 cd m^{-2} , 455 cd m^{-2} at 20 mA cm^{-2}) and efficient (maximum 2.4% at 4 mA cm^{-2}) non-doped red OLEDs were obtained by using readily synthesized and purified NPFAN as the host emitter.

2634

Fabrication of SiC–C coaxial nanocables: thickness control of C outer layers

Hwa Young Kim, Seung Yong Bae, Nam Seo Kim and Jeunghee Park*



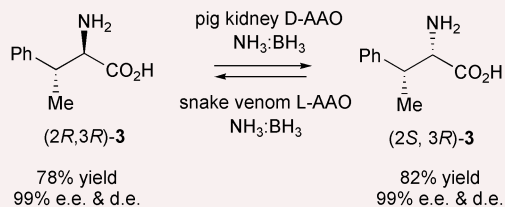
Aligned SiC–C coaxial nanocables were synthesized *via* the direct growth of the SiC nanowires from the silicon substrates and the subsequent carbon deposition.

COMMUNICATIONS

2636

Stereoinversion of β - and γ -substituted α -amino acids using a chemo-enzymatic oxidation–reduction procedure

Alexis Enright, Francois-Rene Alexandre, Geoffrey Roff, Ian G. Fotheringham, Michael J. Dawson and Nicholas J. Turner*



A new versatile method for the stereoinversion of β - and γ -substituted D- and L- α -amino acids has been developed. The procedure involves the combination of a stereoselective amino acid oxidase with a non-selective reducing agent (*e.g.* $\text{NH}_3 : \text{BH}_3$, NaCNBH_3 , $\text{Pd/C-HCO}_2\text{NH}_4$) in one pot.

ADDITIONS AND CORRECTIONS

2638

Leroy Cronin and Paul H. Walton

Synthesis and structure of $[\text{Zn}(\text{OMe})(\text{L})]\cdot[\text{Zn}(\text{OH})(\text{L})]\cdot 2(\text{BPh}_4)$, $\text{L}=\text{cis,cis-1,3,5-tris}[(E,E)\text{-3-(2-furyl)acrylideneamino}]$ cyclohexane: structural models of carbonic anhydrase and liver alcohol dehydrogenase

2638

Owendi Ongayi, Frank R. Fronczek and M. Graça H. Vicente

Benzoylbiliverdins from chemical oxidation of dodeca-substituted porphyrins

CONFERENCE DIARY

xxviii

Dates, venues and contact details of forthcoming events.

COPIES OF CITED ARTICLES

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

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

ADVANCE CONTENTS LISTS

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

ADVANCE ARTICLES AND ELECTRONIC JOURNAL

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

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



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

AUTHOR INDEX

- Abakumov, Gleb A., 2610
 Adams, Harry, 2548
 Ahn, Tae Won, 2622
 Albrecht, Markus, 2526
 Alexandre, Francois-Rene, 2636
 Angelici, Robert J., 2620
 Antonietti, Markus, 2564
 Aranberri, Ibon, 2538
 Armstrong, Fraser A., 2590
 Arnold, John, 2598
 Arnold, Polly L., 2588
 Bachmann, Stephan, 2602
 Bae, Seung Yong, 2634
 Basak, Amit, 2614
 Bdour, Hussam M. M., 2614
 Bernier, P., 2542
 Berry, Malcolm B., 2552
 Binks, Bernard P., 2538, 2540
 Blackwood, Keith M., 2530
 Blin, Jean-Luc, 2568
 Bubnov, Michael P., 2610
 Buchholz, Andreas, 2600
 Burgess, Barbara K., 2590
 Butcher, Ray J., 2546
 Cai, Xichen, 2604
 Callegari, Andrea, 2576
 Caravan, Peter, 2574
 Castignolles, M., 2542
 Chambers, Mark, 2582
 Chan, Chuen, 2588
 Cheesman, Myles R., 2590
 Chen, Bin, 2534
 Chen, Chin-Ti, 2632
 Cheng, Chung-Chih, 2628
 Cheng, Peng, 2544
 Cherian, Anna E., 2566
 Cherkasov, Vladimir K., 2610
 Chi, Yun, 2628
 Cho, Bong Rae, 2618
 Choi, Jung Hoon, 2624
 Chou, Pi-Tai, 2628
 Chung, Taishung, 2630
 Clarke, Paul A., 2588
 Clayden, Jonathan, 2582
 Clint, John. H., 2538
 Coates, Geoffrey W., 2566
 Coles, Simon J., 2552
 Coogan, Michael P., 2550
 Coppo, Paolo, 2548
 Cummins, Siobhan S., 2532
 Cupertino, Domenico C., 2548
 Dai, Sheng, 2584
 Darcy, Dan, 2532
 Dawson, Michael J., 2636
 de Kanter, Frans J. J., 2594
 Dearden, Angela, 2532
 deGroot, Marita, 2526
 DesMarteau, Darryl D., 2596
 Doerksen, Robert J., 2534
 Dong, Wen, 2544
 Driess, Matthias, 2608
 Dyab, Amro K. F., 2540
 Enright, Alexis, 2636
 Fiedler, Dorothea, 2598
 Fletcher, Paul D. I., 2538, 2540
 Ford, Lawrence A., 2596
 Forgo, Péter, 2626
 Fotheringham, Ian G., 2636
 Franklin, Sonya J., 2574
 Fréchet, Jean M. J., 2524
 Fröhlich, Roland, 2526
 Fujitsuka, Mamoru, 2604
 Fukin, Georgy K., 2610
 Gago, Federico, 2558
 Ganesh, Krishna N., 2606
 Geng, Baoyou, 2572
 Ghosh, Rajshekar, 2556
 Glerup, M., 2542
 Goh, Suathong, 2630
 Gokel, George W., 2536
 Gómez-Pinto, Irene, 2558
 González, Carlos, 2558
 Goodby, John W., 2530
 Goodman, Jonathan M., 2616
 Grandas, Anna, 2558
 Greenwood, Jaclyn M., 2574
 Gridley, Jonathan J., 2550
 Gyurcsányi, Robert E., 2560
 Hall, Alan W., 2530
 Han, Lei, 2580
 Hara, Michihiro, 2604
 Hawker, Craig J., 2524
 He, Chaobin, 2630
 Helliwell, Madeleine, 2582
 Helms, Brett, 2524
 Ho Choi, Cheol, 2528
 Holzinger, M., 2542
 Hong, Jongki, 2624
 Hong, Maochun, 2580
 Horino, Takeru, 2586
 Hu, Jiaxin, 2536
 Hu, Xiao-Xue, 2570
 Huang, Zheng-Zheng, 2554
 Hug, G., 2542
 Hunger, Michael, 2600
 Hursthouse, Mike B., 2552
 Ivanova, Irina I., 2600
 Iyoda, Masahiko, 2586
 Jansen, Helen, 2594
 Jeon, Seung-Joon, 2618
 Jeong, Mi-Yun, 2618
 Jiang, Shende, 2578
 Jiang, Zong-Hui, 2544
 Jørgensen, Karl Anker, 2602
 Keun Chung, Young, 2528
 Kilburn, Jeremy D., 2552
 Kim, Dae Young, 2618
 Kim, Hwa Young, 2634
 Kim, Hwan Myung, 2618
 Kim, Nam Seo, 2634
 Klein, Michael L., 2534
 Knight, David W., 2550
 Knudsen, Kristian Rahbek, 2602
 Kozhanov, Konstantin A., 2610
 Lee, Gene-Hsiang, 2628
 Lee, Sang-gi, 2624
 Léonard, Alexandre, 2568
 Liang, Catherine O., 2524
 Liang, Mao, 2544
 Liao, Dai-Zheng, 2544
 Lin, Zhengzhong, 2580
 Liu, Ye, 2630
 Liu, Zhan-Quan, 2544
 Lobkovsky, Emil B., 2566
 Loiseau, A., 2542
 Luo, Junhua, 2580
 Ma, Yuexia, 2630
 McKinley, Scott G., 2620
 Mahurin, Shannon M., 2584
 Majima, Tetsuro, 2604
 Malik, K. M. Abdul, 2550
 Marcaccio, Massimo, 2576
 Marchán, Vicente, 2558
 Masala, Ombretta, 2532
 Matile, Stefan, 2514
 Meng, Guowen, 2572
 Merz, Klaus, 2608
 Miklós, Krisztina, 2626
 Milne, Paul E. Y., 2530
 Molnár, Árpád, 2626
 Monsé, Christian, 2608
 Murugavel, Ramaswamy, 2546
 Natraján, Louise S., 2588
 Nethaji, Munirathinam, 2556
 O'Brien, Paul, 2532
 Oh, Chang Ho, 2622
 Ohkoshi, Masanori, 2586
 Ong, Tiow-Gan, 2612
 Onyia, Ngozi, 2578
 Orru, Romano V. A., 2594
 Ouchi, Akihiko, 2604
 Pagenkopf, Brian L., 2592
 Pan, Zhengwei, 2584
 Panucci, Demis, 2576
 Paolucci, Francesco, 2576
 Papp, Attila, 2626
 Park, Jeunghee, 2634
 Patient, Lee, 2552
 Peng, Shie-Ming, 2628
 Peng, Xinsheng, 2572
 Peng, Zhonghua, 2562
 Piao, Jing Yu, 2624
 Pickett, Nigel L., 2532
 Pothiraja, Ramasamy, 2546
 Powell, Douglas R., 2562
 Prato, Maurizio, 2576
 Pretsch, Ernő, 2560
 Quammie, Nina C., 2590
 Raghava, Reddy, V., 2622
 Ramesh Babu, I., 2606
 Richeson, Darrin S., 2612
 Roff, Geoffrey, 2636
 Ryley, Steve, 2532
 Sakai, Naomi, 2514
 Sakamoto, Masanori, 2604
 Samuelson, Ashoka G., 2556
 Sathiyendiran, Malaichamy, 2546
 Schmid, Sören, 2526
 Schmitz, Rob F., 2594
 Sekhar Bag, Subhendu, 2614
 Seung Kim, Yong, 2528
 Shafir, Alexandr, 2598
 Sharland, Christopher M., 2550
 Singkhonrat, Jirada, 2550
 Smith, Martin A., 2588
 Song, Choong Eui, 2624
 Song, Yi-Hwa, 2628
 Stephen Clark, J., 2578
 Streeter, Ian, 2590
 Su, Bao-Lian, 2568
 Sun, Ya-Qiu, 2544
 Sutherland, Andrew J., 2532
 Tagmatarchis, Nikos, 2576
 Tang, Guping, 2630
 Tang, Yong, 2554
 Tasis, Dimitrios, 2576
 Tilley, Gareth J., 2590
 Tojo, Sachiko, 2604
 Turner, Michael L., 2548
 Turner, Nicholas J., 2636
 Uk Son, Seung, 2528
 Umashankara, M., 2606
 Vázquez, Ester, 2576
 Vigassy, Tamás, 2560
 Vincent, Kylie A., 2590
 Vuğts, Danielle J., 2594
 Walsh, Louise M., 2616
 Wang, Guozhong, 2572
 Wang, Ruihu, 2580
 Wang, Shu, 2630
 Wang, Wei, 2600
 Watson, David W., 2582
 Wei, Yongge, 2562
 Weis, Patrick, 2526
 Weitkamp, Jens, 2600
 Welch, Joel T., 2574
 Whitlock, Gavin, 2578
 Williams, Siân, 2550
 Wilson, Claire, 2588
 Winkler, Jeffrey D., 2534
 Won Lee, Soon, 2528
 Wu, Decheng, 2630
 Wu, Pei-Chi, 2628
 Xia, Chun-Gu, 2570
 Xu, Bubin, 2562
 Xu, Li-Wen, 2570
 Yan, Shi-Ping, 2544
 Yang, Wen Jun, 2618
 Yap, Glenn P. A., 2612
 Ye, Meng-Chun, 2554
 Yeates, Stephen G., 2548
 Yeh, Hsiu-Chih, 2632
 Yeh, Shi-Jay, 2632
 Yoon, Hyeon, 2624
 Yoshida, Masato, 2586
 Yu, Wei-Shan, 2628
 Yuan, Daqiang, 2580
 Yuan, Jing, 2534
 Yun Kim, Bo, 2528
 Zhang, Lide, 2572
 Zhang, Yong Jian, 2624
 Zhang, Zongtao, 2584
 Zhao, Hongda, 2592
 Zhou, Jian, 2554
 Zhou, Yong, 2564
 Zhu, Li-Na, 2544

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