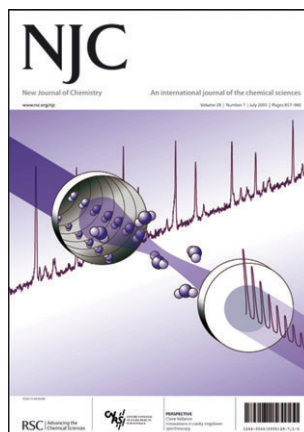


In this issue...

Solvothermal synthesis of ultralong single-crystalline TiO_2 nanowires by Chun-Yan Liu *et al.* New azido-bridged dinuclear cobalt(II) and copper(II) complexes by Chun-Hua Yan *et al.*



Cover

See Claire Vallance, page 867.

A cavity ringdown spectrometer (shown schematically on the front cover) measures the time constant for the exponential intensity decay of light trapped within a two-mirror optical cavity. The time constant is strongly influenced by the presence of an absorbing species within the cavity, with the result that the technique allows absorption spectra to be measured with extremely high sensitivity.

Image reproduced by permission of Claire Vallance, *New J. Chem.*, 2005, **29**, 867.

CHEMICAL SCIENCE

C49

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

Chemical Science

July 2005/Volume 2/Issue 7

www.rsc.org/chemicalscience

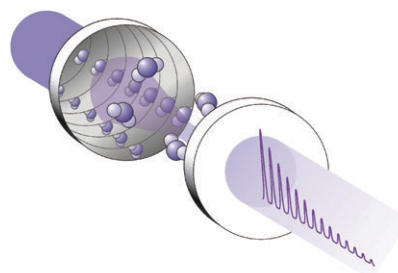
PERSPECTIVE

867

Innovations in cavity ringdown spectroscopy

Claire Vallance*

A cavity ringdown spectrometer (shown schematically on the front cover) measures the time constant for the exponential intensity decay of light trapped within a two-mirror optical cavity. The time constant is strongly influenced by the presence of an absorbing species within the cavity, with the result that the technique allows absorption spectra to be measured with extremely high sensitivity.



EDITORIAL STAFF

Managing editor (RSC)

Mike Corkill

Managing editor (CNRS)

Denise Parent

Assistant managing editor

G  rard Calleja (CNRS)

Publishing assistant

Jackie Cockrill (RSC)

Team leader, serials production

Helen Saxton (RSC)

Technical editors

Caroline Moore (RSC)

Celia Clarke (RSC)

Ken Wilkinson (RSC)

Editorial secretaries

Florence Lepage (CNRS)

Sonya Spring

Julie Thompson

Rebecca Gotobed

Publisher, journals and reviews

Adrian Kybett (RSC)

New Journal of Chemistry (Print: ISSN 1144-0546; electronic: ISSN 1369-9261) is published 12 times a year by the Centre National de la Recherche Scientifique (CNRS), 3 rue Michel-Ange, 75794 Paris cedex 16, France, and the Royal Society of Chemistry (RSC), 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 Portland Customer Services, Commerce Way, Colchester, Essex, CO2 8HP, UK. Tel +44 (0) 1206 226050; E-mail sales@rscdistribution.org

2005 Annual (print + electronic) subscription price:   650; US\$1075. 2005 Annual (electronic) subscription price:   585; US\$965. 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 New Journal of Chemistry, c/o Mercury Airfreight International Ltd., 365 Blair Road, Avenel, NJ 07001. All despatches outside the UK by Consolidated Airfreight.

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

NJC

New Journal of Chemistry

An international journal for the chemical sciences

www.rsc.org/njc

The New Journal of Chemistry is a broad-based primary journal encompassing all branches of the chemical sciences. Published monthly, it contains full research articles, letters, opinions and perspectives.

EDITORIAL BOARD

Editor-in-chief

Jean-Pierre Majoral, Toulouse, France

Consulting editor

Odile Eisenstein, Montpellier, France

Board members

Laurent Bonnevot, Lyon, France
John A Gladysz, Erlangen, Germany
George Gokel, St Louis, MO, USA
Luca Prodi, Bologna, Italy
Paul Raithby, Bath, UK
David Reinhoudt, Enschede, The Netherlands

Alan Rowan, Nijmegen, The Netherlands
Michael Scott, Gainesville, FL, USA
Jonathan W Steed, Durham, UK
Michael Veith, Saarbr  cken, Germany
Vivian Yam, Hong Kong, PR China

Associate editors

Manuscripts should be directed to the appropriate Editor detailed below.

Supramolecular chemistry and crystal engineering

Dr Jonathan W Steed
Department of Chemistry
University Science Laboratories
University of Durham
South Road
Durham
UK DH1 3LE
Fax (+44) (0) 191 384 4737
Tel (+44) (0) 191 384 2085
E-mail jon.steed@dur.ac.uk

Organic & bioorganic

Professor George Gokel
Departments of Chemistry and
Molecular Biology & Pharmacology
Washington University Medical
School
Campus Box 8103
660 S. Euclid Ave.
St Louis, MO 63110, USA
Fax (+1) 314 362 9298
Tel (+1) 314 362 9297
E-mail ggokel@molecool.wustl.edu

Alternatively, any author may submit direct to the
Montpellier Editorial Office
Dr Denise Parent
New Journal of Chemistry
Universit   Montpellier II
Place Eug  ne Bataillon
C.C. 014
34095 Montpellier cedex 5
France
Fax (+33) (0) 4 67 14 48 79
Tel (+33) (0) 4 67 14 48 78
E-mail njc@univ-montp2.fr

International advisory board

Markus Antonietti, MPI, Potsdam, Germany
Didier Astruc, Talence, France
Jerry Atwood, Columbia, MO, USA
Pierre Braunstein, Strasbourg, France
Kenneth Caulton, Bloomington, IN, USA
Robert Crabtree, New Haven, CT, USA
Pierre Dixneuf, Rennes, France

Fran  ois Fajula, Montpellier, France
Andrew B Holmes, Melbourne, Australia
Reinhard W Hoffmann, Marburg, Germany
Miguel Julve, Valencia, Spain
Peter Junk, Monash, Australia
Henryk Koslowski, Wroclaw, Poland
Bernard Meunier, Toulouse, France

Jan Reedijk, Leiden, The Netherlands
Kari Rissanen, Jyv  skyl  , Finland
Cl  ment Sanchez, Paris, France
Jeremy K M Sanders, Cambridge, UK
Philippe Sautet, Lyon, France
Jean-Pierre Sauvage, Strasbourg, France
Ulrich Schubert, Vienna, Austria
Hideki Sugihara, Tsukuba, Japan

INFORMATION FOR AUTHORS

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

  The Royal Society of Chemistry and the Centre National de la Recherche Scientifique 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 Royal Society of Chemistry (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 (the Publisher) 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).

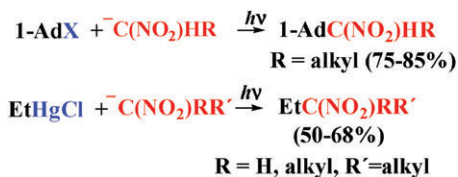
Royal Society of Chemistry: Registered Charity No. 207890

875

Reactions of 1-haloadamantanes and ethylmercury chloride with nitronate anions by the $S_{RN}1$ mechanism

Ana N. Santiago,* Silvana M. Basso, Carlos A. Toledo and Roberto A. Rossi*

Secondary or tertiary nitro compounds can be easily obtained by the $S_{RN}1$ reaction of nitroalkanes with an organohalide.



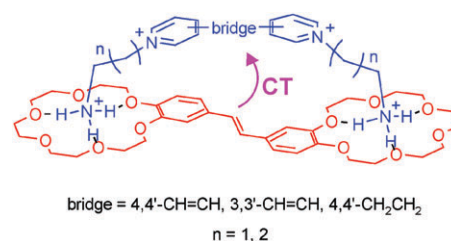
881



Novel supramolecular charge-transfer systems based on bis(18-crown-6)stilbene and viologen analogues bearing two ammonioalkyl groups

Sergey P. Gromov,* Artem I. Vedernikov, Evgeny N. Ushakov, Natalia A. Lobova, Asya A. Botsmanova, Lyudmila G. Kuz'mina, Andrei V. Churakov, Yuri A. Strelenko, Michael V. Alfimov, Judith A. K. Howard, Dan Johnels and Ulf G. Edlund*

Structure and stability of bis(18-crown-6)stilbene complexes.



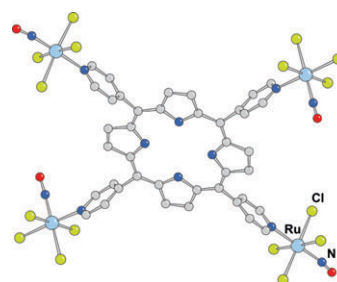
895



Pyridylporphyrins peripherally coordinated to ruthenium-nitrosyls, including the water-soluble $\text{Na}_4[\text{Zn} \cdot 4'\text{TPyP}\{\text{RuCl}_4(\text{NO})\}_4]$: synthesis and structural characterization

Teresa Gianferrara, Barbara Serli, Ennio Zangrando, Elisabetta Iengo and Enzo Alessio*

The water-soluble tetra-substituted 4'*meso*-tetrapyrrolylporphyrin, $\text{Na}_4[\text{Zn} \cdot 4'\text{TPyP}\{\text{RuCl}_4(\text{NO})\}_4]$, which bears four anionic ruthenium-nitrosyl fragments coordinated to the peripheral pyridyl N atoms, was prepared and structurally characterized as its tetrabutylammonium salt.



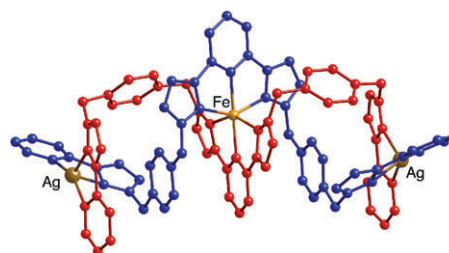
904



Homo- and heteropolynuclear helicates with a '2 + 3 + 2'-dentate compartmental ligand

Stephen P. Argent, Harry Adams, Lindsay P. Harding, T. Riis-Johannessen, John C. Jeffery and Michael D. Ward*

A compartmental ligand with a sequence of bidentate, terdentate and bidentate binding sites forms homo- and heteronuclear double helicates in which the two ligands describe 4-, 6- and 4-dentate cavities.

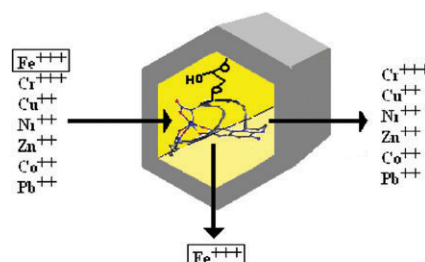


912

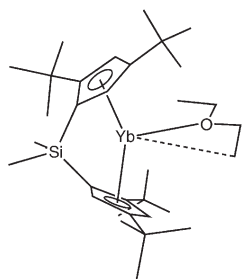
Immobilisation of a biological chelate in porous mesostructured silica for selective metal removal from wastewater and its recovery

Gilbert Renard,* Mihaela Mureseanu, Anne Galarneau, Dan A. Lerner and Daniel Brunel

The concept of using selective chelators of biological origin, anchored on a mesostructured porous silica (MTS type), as recyclable materials for the selective removal of metal ions from wastewater and their recovery has been demonstrated.



919

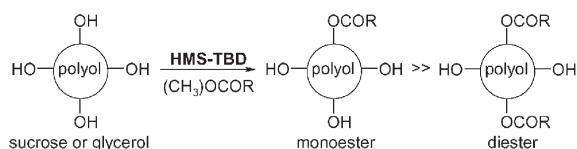


Coordination complexes of bivalent *ansa*-ytterbocenes: synthesis, structure and comparison with related unbridged ytterbocenes and *ansa*-ferrocenes

Madeleine Schultz, Chadwick D. Sofield, Marc D. Walter and Richard A. Andersen*

The optical spectrum of *ansa*-{[2,4-(Me₃)₂C₅H₂]₂SiMe₂}Yb(OEt₂) is not significantly different from that of the ether adducts of the unbridged metallocenes, except when the donor is an isocyanide ligand.

928

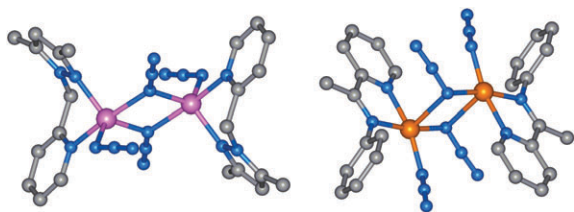


Design of well balanced hydrophilic–lipophilic catalytic surfaces for the direct and selective monoesterification of various polyols

Ghizlane Kharchafi, François Jérôme,* Isabelle Adam, Yannick Pouilloux and Joël Barrault

The control of the hydrophilic–lipophilic balance of prepared basic heterogeneous catalysts was found to be a crucial key for the direct and selective monoesterification of polyol at low temperature. Indeed, this parameter allowed the tuning of both the catalyst activity and the monoester selectivity.

935



Crystal structures and magnetic behaviour of three new azido-bridged dinuclear cobalt(II) and copper(II) complexes

Shi-Qiang Bai, En-Qing Gao,* Zheng He, Chen-Jie Fang and Chun-Hua Yan*

Three new dinuclear cobalt(II) and copper(II) complexes with [M(μ-1,1-N₃)₂M]²⁺ (M = Co(II) and Cu(II)) asymmetrical cores were synthesized and characterized by single-crystal X-ray diffraction and magnetic analyses.

942

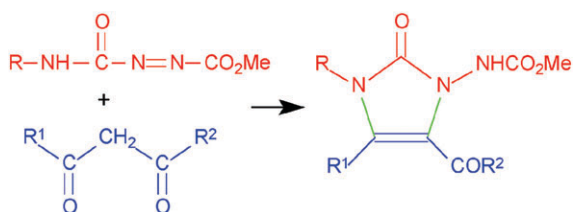


Active Ru catalysts in carbene chemistry: A kinetic study of carbene formation and an evaluation of selective cyclopropanation

Jeroen Van Craenenbroeck, Koen Van Isterdael, Carl Vercaemst and Francis Verpoort*

p-Cymene–Ru catalysts containing bidentate *N,O*-Schiff base ligands, known as active catalysts in various reactions, are studied in relation to the cyclopropanation of olefins with ethyl diazoacetate.

948



A simple and efficient synthesis of 2-imidazolin-2-ones

Sergeja Bombek, Franc Požgan, Marijan Kočevr and Slovenko Polanc*

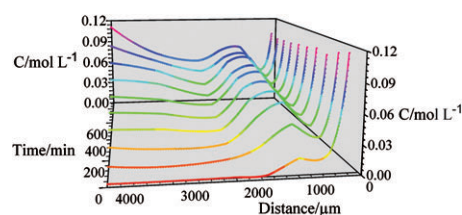
Reactions of diazenes with 1,3-dicarbonyl partners enabled either a stepwise or a one-pot procedure to highly substituted 2-imidazolin-2-ones.

955

The crossed interdiffusion of sodium nitrate and sulfate through an anion exchange membrane, as studied by Raman spectroscopy

Patrice Huguet,* Timofei Kiva, Olivier Noguera, Philippe Sistat and Victor Nikonenko

Confocal Raman microspectroscopy is applied to study the concentration profiles of anions in solution close to DSV anion exchange membranes, and comparisons made with a theoretical model based on Nernst–Planck equations with a convective term.

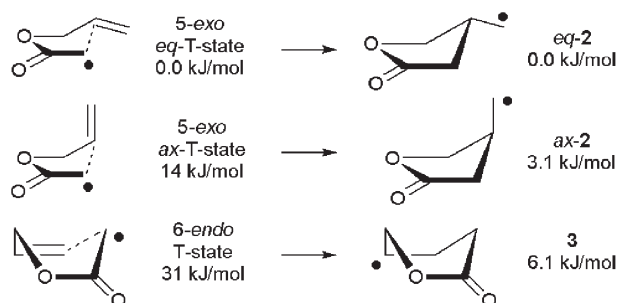


962

Kinetic and thermodynamic factors in the regioselectivity of α -carboallyloxymethyl radical cyclizations. A computational study

John Tamine*

Ab initio modeling of transition-states in the cyclization of α -carboallyloxymethyl radical (**1**) predicts a 300 000 : 1 kinetic ratio of 5-*exo* : 6-*endo* products at 25 °C, and that 5-*exo* educt (**2**) is thermodynamically favored over the 6-*endo* educt (**3**), as well.

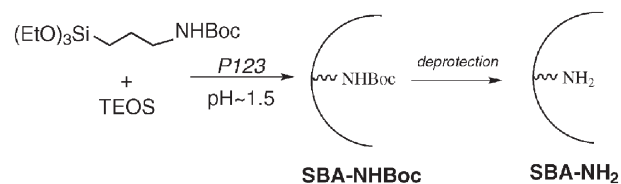


965

Synthesis of large-pore ordered mesoporous silicas containing aminopropyl groups

Ahmad Mehdi, Catherine Reyé, Stéphane Brandès, Roger Guilard and Robert J. P. Corriu*

Synthesis of large-pore aminopropyl functionalised mesostructured silica was achieved by co-condensation of tetraethyl orthosilicate and 3-*tert*-butoxycarbonylamino-propyltriethoxysilane templated with the nonionic surfactant P123 under acidic conditions.

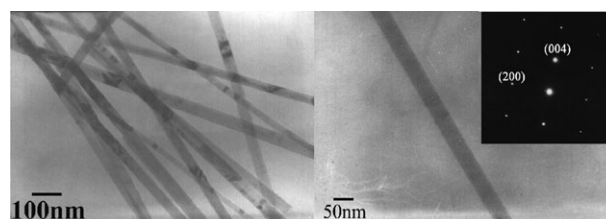


969

Solvothermal synthesis of ultralong single-crystalline TiO₂ nanowires

Bao-Mei Wen, Chun-Yan Liu* and Yun Liu

Well-defined single crystalline TiO₂ nanowires with diameters of 20–50 nm mostly and lengths of up to a few millimeters have been successfully synthesized by a simple, low-cost solvothermal process using the mixed solvent aqueous NaOH–ethanol.

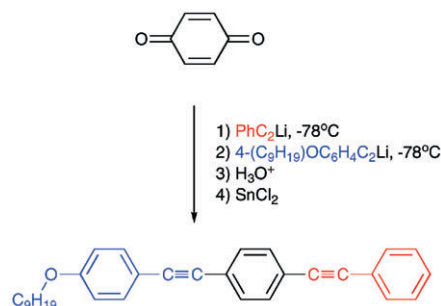


972

A simple “palladium-free” synthesis of phenyleneethynylene-based molecular materials revisited

Donocadh P. Lydon, Laurent Porrès, Andrew Beeby, Todd B. Marder and Paul J. Low*

A simple protocol for the rapid, large-scale synthesis of symmetrically and differentially substituted diethynyl aromatic compounds is described.



ADDITIONS AND CORRECTIONS

977

Gianna Favaro, Fausto Ortica, Aldo Romani, Del Kish, Forrest Blackburn

Unusual UV ($\lambda_{\text{exc}} = 303 \text{ nm}$) and visible ($\lambda_{\text{exc}} = 574 \text{ nm}$) activated photochromism of an indeno-fused naphthopyran

978

Elizabeth Balchin, David J. Malcolm-Lawes, Michael D. Rowe, John A. S. Smith, Michael J. Bearpark, Jonathan W. Steed, Weimin Wu, Anthony J. Horsewill and David Stephenson

The unusual solid state structure of heroin hydrochloride monohydrate and its selective detection using NQR spectroscopy

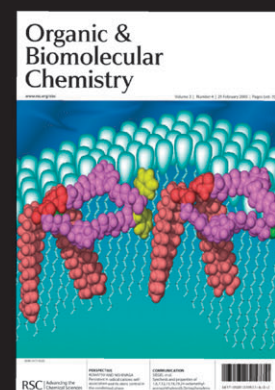
Organic & Biomolecular Chemistry

A major peer-reviewed international, high quality journal covering the full breadth of synthetic, physical and biomolecular organic chemistry.

Publish your review, article, or communication in OBC and benefit from:

- The fastest times to publication (80 days for full papers, 40 days for communications)
- High visibility (OBC is indexed in MEDLINE)
- Free colour (where scientifically justified)
- Electronic submission and manuscript tracking via ReSource (www.rsc.org/ReSource)
- A first class professional service
- No page charges

RSC | Advancing the Chemical Sciences



Submit today!

www.rsc.org/obc


AUTHOR INDEX

- Adam, Isabelle, 928
 Adams, Harry, 904
 Alessio, Enzo, 895
 Alfimov, Michael V., 881
 Andersen, Richard A., 919
 Argent, Stephen P., 904
 Bai, Shi-Qiang, 935
 Balchin, Elizabeth, 978
 Barrault, Joël, 928
 Basso, Silvana M., 875
 Bearpark, Michael J., 978
 Beeby, Andrew, 972
 Blackburn, Forrest, 977
 Bombek, Sergeja, 948
 Botsmanova, Asya A., 881
 Brandès, Stéphane, 965
 Brunel, Daniel, 912
 Churakov, Andrei V., 881
 Corriu, Robert J. P., 965
 Edlund, Ulf G., 881
 Fang, Chen-Jie, 935
 Favaro, Gianna, 977
 Galarneau, Anne, 912
 Gao, En-Qing, 935
 Gianferrara, Teresa, 895
 Gromov, Sergey P., 881
 Guillard, Roger, 965
 Harding, Lindsay P., 904
 He, Zheng, 935
 Horsewill, Anthony J., 978
 Howard, Judith A. K., 881
 Huguet, Patrice, 955
 Iengo, Elisabetta, 895
 Jeffery, John C., 904
 Jérôme, François, 928
 Johnels, Dan, 881
 Kharchafi, Ghizlane, 928
 Kish, Del, 977
 Kiva, Timofei, 955
 Kočvar, Marijan, 948
 Kuz'mina, Lyudmila G., 881
 Lerner, Dan A., 912
 Liu, Chun-Yan, 969
 Liu, Yun, 969
 Lobova, Natalia A., 881
 Low, Paul J., 972
 Lydon, Donocadh P., 972
 Malcolm-Lawes, David J., 978
 Marder, Todd B., 972
 Mehdi, Ahmad, 965
 Mureseanu, Mihaela, 912
 Nikonenko, Victor, 955
 Noguera, Olivier, 955
 Ortica, Fausto, 977
 Polanc, Slovenko, 948
 Porrès, Laurent, 972
 Pouilloux, Yannick, 928
 Požgan, Franc, 948
 Renard, Gilbert, 912
 Reyé, Catherine, 965
 Riis-Johannessen, T., 904
 Romani, Aldo, 977
 Rossi, Roberto A., 875
 Rowe, Michael D., 978
 Santiago, Ana N., 875
 Schultz, Madeleine, 919
 Serli, Barbara, 895
 Sístat, Philippe, 955
 Smith, John A. S., 978
 Sofield, Chadwick D., 919
 Steed, Jonathan W., 978
 Stephenson, David, 978
 Strelenko, Yuri A., 881
 Tamine, John, 962
 Toledo, Carlos A., 875
 Ushakov, Evgeny N., 881
 Vallance, Claire, 867
 Van Craenenbroeck, Jeroen, 942
 Van Isterdael, Koen, 942
 Vedernikov, Artem I., 881
 Vercaemst, Carl, 942
 Verpoort, Francis, 942
 Walter, Marc D., 919
 Ward, Michael D., 904
 Wen, Bao-Mei, 969
 Wu, Weimin, 978
 Yan, Chun-Hua, 935
 Zangrando, Ennio, 895

FREE E-MAIL ALERTS

Contents lists in advance of publication are available on the web via www.rsc.org/njc – 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.

* 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 the electronic form of this journal is provided with a full-rate institutional subscription. See www.rsc.org/ejs for more information.

Find a SOLUTION

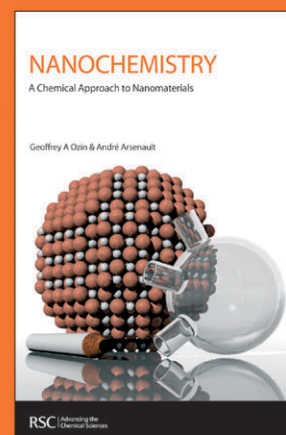
... with books from the RSC

Choose from exciting textbooks, research level books or reference books in a wide range of subject areas, including:

- Biological science
- Food and nutrition
- Materials and nanoscience
- Analytical and environmental sciences
- Organic, inorganic and physical chemistry

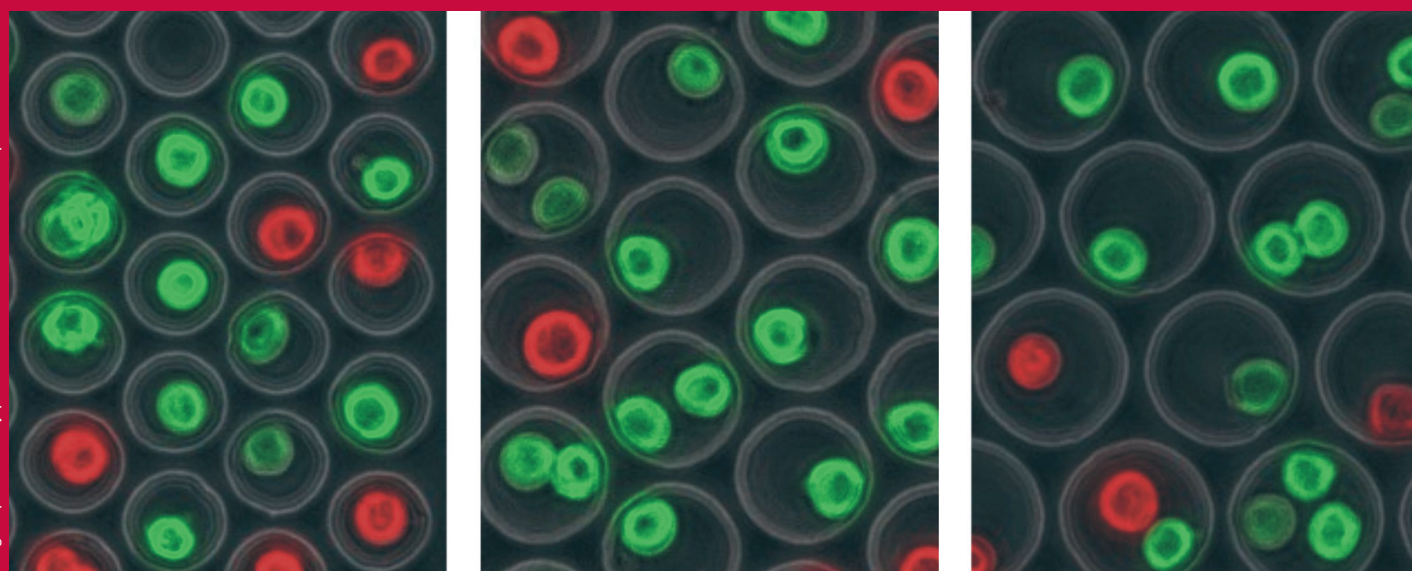
Look out for 3 new series coming soon ...

- RSC Nanoscience & Nanotechnology Series
- Issues in Toxicology
- RSC Biomolecular Sciences Series



RSC | Advancing the Chemical Sciences

www.rsc.org/books



16040530

Lab on a Chip

Miniaturisation for chemistry, biology and bioengineering

Publishing the latest key developments,
novel applications and fundamental
research at the micro- and nano-scale

- Fast times to publication – typically 90 days
- Impact factor: 4.27
- Indexed in MEDLINE

