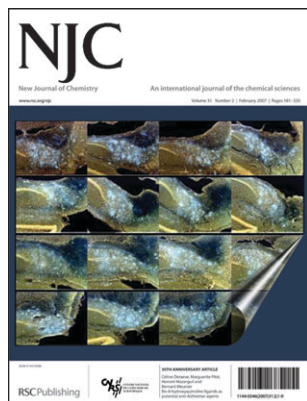


## IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 31(2) 181-320 (2007)



### Cover

See Marguerite Pitié *et al.*, p. 193. The cover depicts immunostaining of amyloid plaques from transgenic mice.  $\beta$ -Amyloid peptide aggregation in the brain is a known symptom of Alzheimer's neurodegenerative disease. Chelators can help to study the interactions of metal ions with  $\beta$ -amyloid peptides and, ultimately, to develop new therapeutic applications. Image reproduced by permission of Céline Deraeve, Marguerite Pitié, Honoré Mazarguil and Bernard Meunier, *New J. Chem.*, 2007, **31**, 193.

## CHEMICAL SCIENCE

### C9

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

February 2007/Volume 4/Issue 2

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

## LETTERS

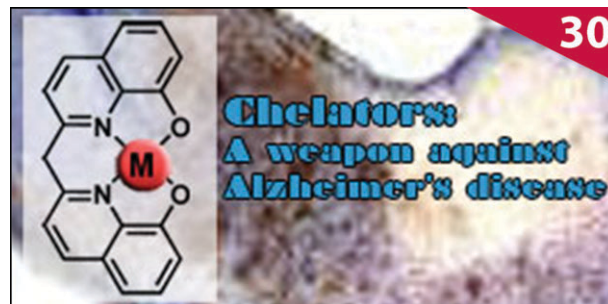


### 193

#### Bis-8-hydroxyquinoline ligands as potential anti-Alzheimer agents

Céline Deraeve, Marguerite Pitié,\* Honoré Mazarguil and Bernard Meunier

**30th Anniversary article:** A strategy based on the use of a tetradentate ligand containing two linked 8-hydroxyquinolines allowed a significant increase in the ability to protect against  $\beta$ -amyloid peptide precipitation in the presence of Cu(II), Zn(II) and Fe(III).



## EDITORIAL STAFF

### Editor (RSC)

Sarah Ruthven

### Editor (CNRS)

Denise Parent

### Assistant editor

G rard Calleja (CNRS)

### Publishing assistant

Jackie Cockrill (RSC)

### Team leader, serials production

Helen Saxton (RSC)

### Technical editors

Celia Clarke (RSC), Nicola Convine (RSC),  
David Parker (RSC), Ken Wilkinson (RSC)

### Administration coordinator

Sonya Spring (RSC)

### Editorial secretaries

Florence Lepage (CNRS),  
Jill Segev (RSC), Julie Thompson (RSC)

### Publisher

Emma Wilson (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 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](mailto:sales@rscdistribution.org)

2007 Annual (print + electronic) subscription price: £747; US\$1412. 2007 Annual (electronic) subscription price: £672; US\$1271. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any RSC journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at [www.rsc.org/ip](http://www.rsc.org/ip). Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank. Periodicals postage paid at Rahway, NJ, USA and at additional mailing offices. Airfreight and mailing in the USA by Mercury Airfreight International Ltd., 365 Blair Road, Avenel, NJ 07001, USA.

US Postmaster: send address changes to New Journal of Chemistry, 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 432246;  
Fax +44 (0) 1223 426017; E-mail [advertising@rsc.org](mailto:advertising@rsc.org)

# NJC

## New Journal of Chemistry

### An international journal for the chemical sciences

[www.rsc.org/njc](http://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

### Co-editor-in-chief

Jean-Pierre Majoral, Toulouse,  
France

### Co-editor-in-chief

Jerry Atwood,  
Columbia, MO, USA

### Consulting editor

Odile Eisenstein, Montpellier, France

### 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](mailto:jon.steed@dur.ac.uk)

### Board members

Mats Almgren, Uppsala, Sweden  
Yasuhiro Aoyama, Kyoto, Japan  
Laurent Bonneviot, Lyon, France  
Matthias Bremer, Darmstadt,  
Germany  
Fabrizia Grepioni, Bologna, Italy  
Helen Hailes, London, UK  
Barbara Nawrot, Lodz, Poland

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

### Other Fields:

### 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](mailto:njc@univ-montp2.fr)

## INTERNATIONAL ADVISORY EDITORIAL BOARD

Markus Antonietti, MPI,  
Potsdam, Germany  
Didier Astruc, Talence, France  
Pierre Braunstein, Strasbourg,  
France  
Kenneth Caulton, Bloomington,  
IN, USA  
Robert Crabtree, New Haven,  
CT, USA  
Pierre Dixneuf, Rennes, France  
Fran ois Fajula, Montpellier,  
France  
John A. Gladysz, Erlangen,  
Germany

George Gokel, St Louis, MO, USA  
Reinhard W Hoffmann,  
Marburg, Germany  
Andrew B Holmes, Melbourne,  
Australia  
Miguel Julve, Valencia, Spain  
Peter Junk, Monash, Australia  
Henryk Koslowski, Wroclaw,  
Poland  
Bernard Meunier, Toulouse,  
France  
Luca Prodi, Bologna, Italy  
Jan Reedijk, Leiden,  
The Netherlands

David Reinhoudt, Enschede,  
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

## INFORMATION FOR AUTHORS

Full details of how to submit material for publication in the New Journal of Chemistry are given in the Instructions for Authors (available from <http://www.rsc.org/authors>). Submissions should be sent via ReSource: <http://www.rsc.org/resource>. 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 2007. 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 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.

 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

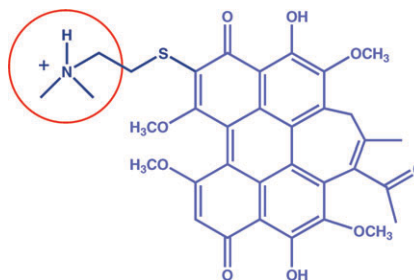
## LETTERS

196

### Using electrostatic interactions to increase the photodamaging ability of hypocrellin B: synthesis and study of 2-(dimethylamino)ethanethiol-modified HB

Rui Qiao, Zhang-Hua Zeng, Sheng-Qin Xia, Jia-Hong Zhou, Yan-Yan Liu, Jing-Rong Chen, Xue-Song Wang\* and Bao-Wen Zhang\*

A new 2-(dimethylamino)ethanethiol-modified HB derivative was synthesized and enhanced photodamaging ability towards DNA was achieved by making use of the electrostatic attraction.

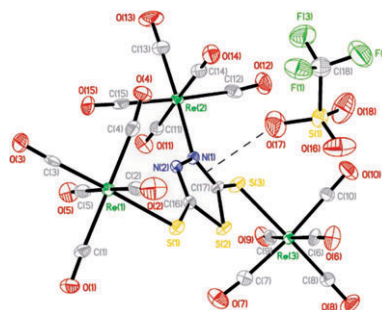


199

### A novel trinuclear Re(I) complex containing 1,3,4-thiadiazole-2,5-dithiolate: structural and spectroscopic properties

Biing-Chiau Tzeng,\* Ya-Ling Wu, Gene-Hsiang Lee and Shie-Ming Peng

A novel trinuclear Re(I) complex containing 1,3,4-thiadiazole-2,5-dithiolate (SSS) shows a  $\kappa_3$ -bridging pattern. In addition, its solid-state structure confirms the presence of an interesting anion  $\pi$ -interaction.



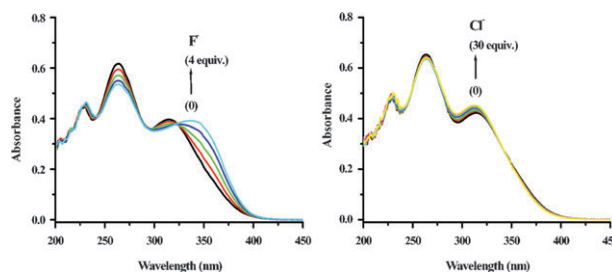
## PAPERS

202

### Anion-recognition studies of a Re(I)-based square containing the dipyriddy-amide ligand

Biing-Chiau Tzeng,\* Yen-Fei Chen, Chia-Chin Wu, Cho-Chun Hu, Ya-Ting Chang and Chang-Kai Chen

A remarkable spectral change with clear isosbestic points was observed for up to 4 equivalents of  $F^-$ . However, only a minor spectral change with 50 equivalents of  $Cl^-$  was observed.



210

### Spectroscopic studies of a fluorescent fluoresceinophane formed *via* a practical synthetic route

Sergio Andrés Pérez Guarín, Derek Tsang and W. G. Skene\*

A practical macrocycle synthesis incorporating a highly fluorescent fluorescein has been developed.

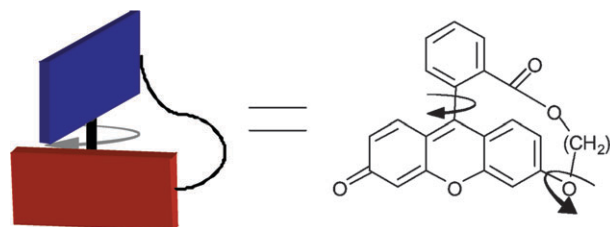




Image courtesy of Steve Shrimpton, University of Southampton, UK

# Covering the complete spectrum

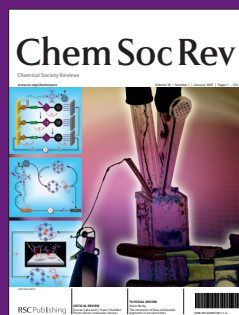
## Multidisciplinary chemical sciences



### For communications...

*ChemComm* is a weekly high impact blend of quality research from across the chemical sciences, offering exceptionally fast publication times.

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



### For reviews...

*Chem Soc Rev* provides highly cited, succinct and reader friendly review articles each month, covering topics of international, multidisciplinary and social interest.

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



### For full papers...

The home of quality, original and significant work of wide general appeal, the monthly issue of *New Journal of Chemistry* is the perfect place to publish your research.

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



### For the latest news...

The award-winning *Chemistry World* is a lively and informative guide to the latest developments across the chemical sciences. Daily web updates ensure you'll always be kept informed of the science hitting the headlines.

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

RSC Publishing

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

Registered Charity Number 207890

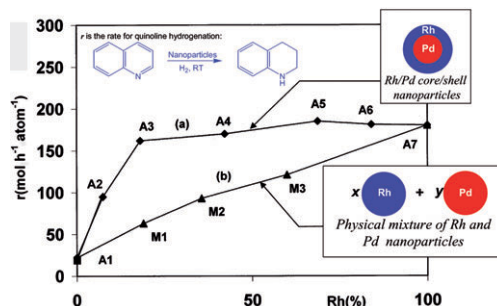
00010714

218

### Catalytic evidence of the core/shell structure of bimetallic Pd/Rh colloids

Christian Bergounhou, Claudine Blandy, Robert Choukroun,\* Pierre Lecante, Christian Lorber and Jean-Louis Pellegatta

The catalytic performance of Pd/Rh core/shell nanoparticles over a physical mixture of Pd and Rh nanoparticles is evidenced in the hydrogenation of quinoline by kinetic studies.

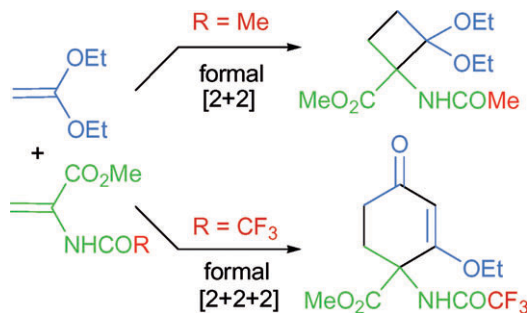


224

### Mechanistic study of the ring-size modulation in Michael–Dieckmann type reactions of 2-acylaminoacrylates with ketene diethyl acetal

A. Avenoza,\* J. H. Busto, N. Canal, J. I. García,\* G. Jiménez-Osés, J. M. Peregrina and M. Pérez-Fernández

Theoretical studies offer insights into the origin of the chemoselectivity in the reaction of 2-acylaminoacrylates with ketene diethyl acetal, which can be modulated by means of the acylamino group to yield cyclobutane or cyclohexane structures.

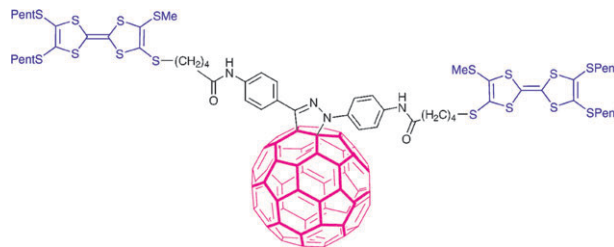


230

### Through-space communication in a TTF–C<sub>60</sub>–TTF triad

Frédéric Oswald, Stéphanie Chopin, Pilar de la Cruz, Jesús Orduna, Javier Garín, Atula S. D. Sandanayaka, Yasuyuki Araki, Osamu Ito,\* Juan Luis Delgado, Jack Cousseau\* and Fernando Langa\*

A 2-pyrazolino[60]fullerene-based triad, possessing two TTF units, shows a through-space photoinduced charge separation process. The longest lifetime of the CT state was 230 ns in CH<sub>2</sub>Cl<sub>2</sub>.

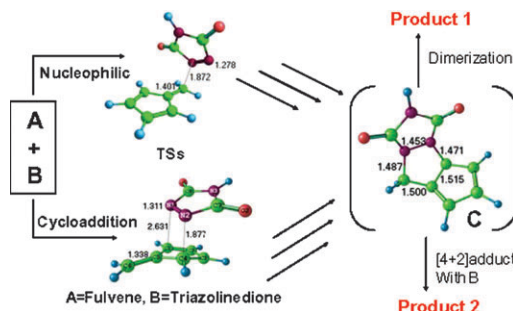


237

### Interplay of dual reactivity in the reaction of pentafulvenes with 1,2,4-triazoline-3,5-diones: experimental and theoretical investigations

S. Anas, K. Syam Krishnan, V. Sanjayan Sajisha, K. Sasidharan Anju, K. V. Radhakrishnan,\* Eringathodi Suresh and Cherumuttathu H. Suresh\*

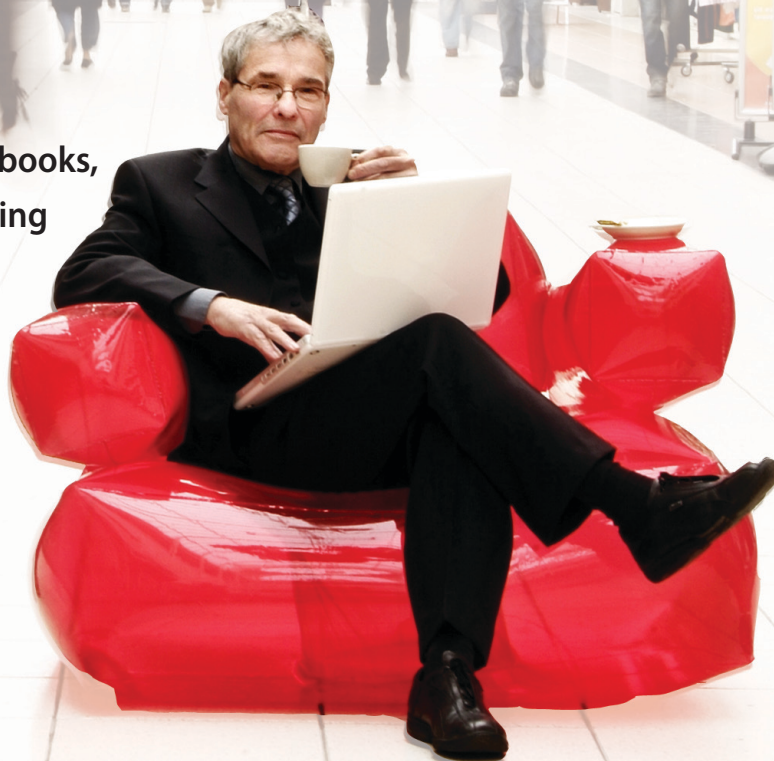
A detailed experimental and theoretical investigation on the reaction of pentafulvenes with triazolinediones, suggested that both cycloaddition and nucleophilic mechanisms are operative in the reaction conditions.



# Sit back and relax...

## Online shopping is *easy* with the RSC

Whether you're looking for text books, the latest research articles, training courses, conferences or a light read for the commute... online shopping with the RSC couldn't be easier.



**24/7 access:** The RSC online shop gives you continuous access to class leading products and services, expertly tailored to cater for your training and educational needs.

**Browse and buy:** Visit our shop to browse over 750 book titles, subscribe or purchase an individual article in one of our journals, join or renew your RSC membership, or register to attend a conference or training event.

**Gift ideas:** If you're looking for gift ideas, look no further. In our online shop you'll find everything from popular science books like *The Age of the Molecule* and the inspirational *Elegant Solutions* from award winning writer, Philip Ball, to our stunning Visual Elements Periodic Table wall chart and jigsaw.

With secure online payment you can shop online with confidence.

The RSC has so much to offer... **why not go online today?**

RSCPublishing

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

Registered Charity Number 207890

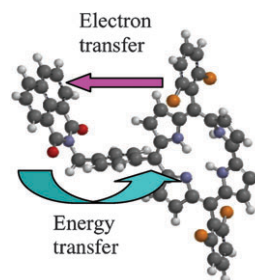
## PAPERS

247

**Photoinduced energy and electron transfer in 1,8-naphthalimide–corrole dyads**

Mariusz Tasior, Daniel T. Gryko,\* Marek Cembor, Jan S. Jaworski, Barbara Ventura and Lucia Flamigni\*

This is the first report of stable corrole-based dyads with interesting photo-activity at ambient temperature.



260

**Syntheses of monodispersed SnO<sub>2</sub> and CeO<sub>2</sub> nanoparticles through the self-capping role of 2-ethylhexanoate ligands**

Yong Joo Kim, Young Seok Kim, Seung Yong Chai, Dong Hyun Cha, Young Sik Choi and Wan In Lee\*

Monodispersed 2.4 nm-sized SnO<sub>2</sub> (A) and 2.6 nm-sized CeO<sub>2</sub> (B) nanoparticles have been reproducibly formed through a non-hydrolytic solvothermal reaction with 2-ethylhexanoate complexes, without the addition of extra surfactants.

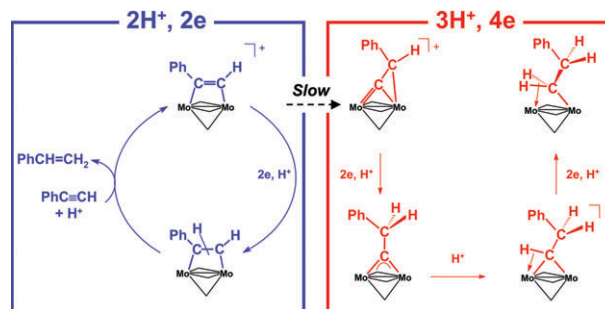


265

**Influence of the initial bonding mode of the hydrocarbyl bridge on the mechanisms and products of the electrochemical reduction of alkyne- and vinylidene dimolybdenum tris(μ-thiolate) complexes**

Alan Le Goff, Christine Le Roy, François Y. Pétillon, Philippe Schollhammer and Jean Talarmin\*

The binding mode of the hydrocarbyl bridge steers the reduction on two routes leading to the release of an alkene (2H<sup>+</sup>/2e process) or to an alkyl complex (3H<sup>+</sup>/4e process).

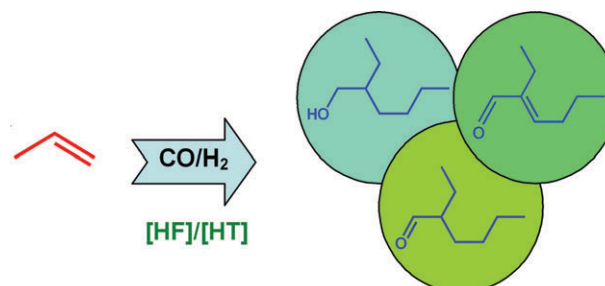


277

**One-pot synthesis of C<sub>8</sub> aldehydes/alcohols from propylene using eco-friendly hydrotalcite supported HRhCO(PPh<sub>3</sub>)<sub>3</sub> catalyst**

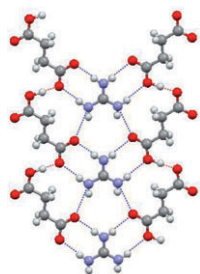
Sumeet K. Sharma, Vivek K. Srivastava, Ram S. Shukla, Parimal A. Parikh and Raksh V. Jasra\*

A novel approach utilizing a multi-functional heterogeneous catalyst [HF/HT], by impregnation of HRh(CO)(PPh<sub>3</sub>)<sub>3</sub>, [HF] on the surface of hydrotalcite Mg<sub>1-x</sub>Al<sub>x</sub>(OH)<sub>2</sub><sup>x+</sup>(CO<sub>3</sub><sup>2-</sup>)<sub>x/n</sub>·mH<sub>2</sub>O, [HT] is developed for the one-pot synthesis of C<sub>8</sub> aldehydes and alcohols from propylene.





287

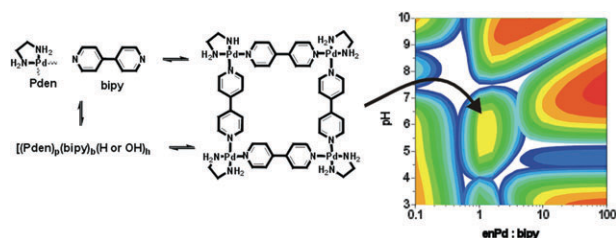


### Two-dimensional hydrogen-bonded networks in guanidinium hydrogen dicarboxylates

Veneta Videnova-Adrabinska,\* Elżbieta Obara and Tadeusz Lis

Single crystal X-ray structures of three guanidinium hydrogen dicarboxylates are reported. The polarity/nonpolarity of the monolayers is discussed with respect to the symmetry relations and hydrogen-bond connectivity patterns of the network.

296



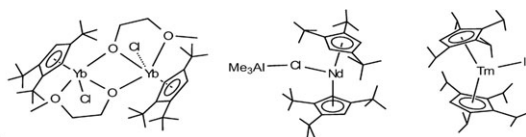
### Predicting speciation in the multi-component equilibrium self-assembly of a metallasupramolecular complex

Thomas M. Fyles\* and Christine C. Tong

The concentrations of 56 directly competing species in the formation of a self-assembled macrocyclic complex can be predicted by a simple and practical numerical method.



305



### Cation size dependent reactivity of lanthanide trihalides with bulky alkylcyclopentadienyl anions

Marc D. Walter, Dirk Bentz, Frank Weber, Oliver Schmitt, Gotthelf Wolmershäuser and Helmut Sitzmann\*

With bulky alkylcyclopentadienyl ligands mono- or dicyclopentadienyl lanthanide halo complexes are accessible depending on solvent, starting materials and reaction conditions.

## AUTHOR INDEX

- Anas, S., 237  
 Anju, K. Sasidharan, 237  
 Araki, Yasuyuki, 230  
 Avenoza, Alberto, 224  
 Bentz, Dirk, 305  
 Bergounhou, Christian, 218  
 Blandy, Claudine, 218  
 Busto, Jesús H., 224  
 Canal, Noelia, 224  
 Cembor, Marek, 247  
 Cha, Dong Hyun, 260  
 Chai, Seung Yong, 260  
 Chang, Ya-Ting, 202  
 Chen, Chang-Kai, 202  
 Chen, Jing-Rong, 196  
 Chen, Yen-Fei, 202  
 Choi, Young Sik, 260  
 Chopin, Stéphanie, 230  
 Choukroun, Robert, 218  
 Cousseau, Jack, 230  
 de la Cruz, Pilar, 230  
 Delgado, Juan Luis, 230  
 Deraeve, Céline, 193  
 Flamigni, Lucia, 247  
 Fyles, Thomas M., 296  
 García, José I., 224  
 Garin, Javier, 230  
 Gryko, Daniel T., 247  
 Hu, Cho-Chun, 202  
 Ito, Osamu, 230  
 Jasra, Raksh V., 277  
 Jaworski, Jan S., 247  
 Jiménez-Osés, Gonzalo, 224  
 Kim, Yong Joo, 260  
 Kim, Young Seok, 260  
 Krishnan, K. Syam, 237  
 Langa, Fernando, 230  
 Le Goff, Alan, 265  
 Le Roy, Christine, 265  
 Lecante, Pierre, 218  
 Lee, Gene-Hsiang, 199  
 Lee, Wan In, 260  
 Lis, Tadeusz, 287  
 Liu, Yan-Yan, 196  
 Lorber, Christian, 218  
 Mazarguil, Honoré, 193  
 Meunier, Bernard, 193  
 Obara, Elzbieta, 287  
 Orduna, Jesús, 230  
 Oswald, Frédéric, 230  
 Parikh, Parimal A., 277  
 Pellegatta, Jean-Louis, 218  
 Peng, Shie-Ming, 199  
 Peregrina, Jesús M., 224  
 Pérez-Fernández, Marta, 224  
 Pérez Guarín, Sergio Andrés, 210  
 Pétillon, François Y., 265  
 Pitié, Marguerite, 193  
 Qiao, Rui, 196  
 Radhakrishnan, K. V., 237  
 Sajisha, V. Sanjayan, 237  
 Sandanayaka, Atula S. D., 230  
 Schmitt, Oliver, 305  
 Schollhammer, Philippe, 265  
 Sharma, Sumeet K., 277  
 Shukla, Ram S., 277  
 Sitzmann, Helmut, 305  
 Skene, W. G., 210  
 Srivastava, Vivek K., 277  
 Suresh, Cherumuttathu H., 237  
 Suresh, Eringathodi, 237  
 Talarmin, Jean, 265  
 Tasiór, Mariusz, 247  
 Tong, Christine C., 296  
 Tsang, Derek, 210  
 Tzeng, Biing-Chiau, 199, 202  
 Ventura, Barbara, 247  
 Videnova-Adrabska, Veneta, 287  
 Walter, Marc D., 305  
 Wang, Xue-Song, 196  
 Weber, Frank, 305  
 Wolmershäuser, Gottfried, 305  
 Wu, Chia-Chin, 202  
 Wu, Ya-Ling, 199  
 Xia, Sheng-Qin, 196  
 Zeng, Zhang-Hua, 196  
 Zhang, Bao-Wen, 196  
 Zhou, Jia-Hong, 196

## FREE E-MAIL ALERTS AND RSS FEEDS

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



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](http://www.rsc.org/publishing/technology/rss.asp) for details.

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

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

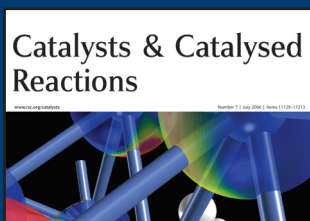


Electronic supplementary information (ESI) is available via the online article (see <http://www.rsc.org/esi> for general information about ESI).

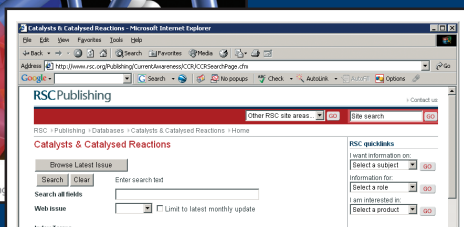
# Specialised searching

The graphical abstracting services at the RSC are an indispensable tool to help you search the literature. Focussing on specific areas of research they review key primary journals for novel and interesting chemistry.

## requires specialised tools

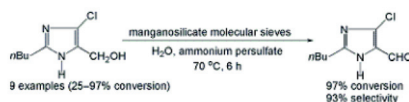


**Catalysts and Catalysed Reactions** covers all areas of catalysis research, with particular emphasis on chiral catalysts, polymerisation catalysts, enzymatic catalysts and clean catalytic methods.



The online database has excellent functionality. Search by: authors, products, reactants and catalysts, catalyst type and reaction type.

**11086 The green catalytic oxidation of alcohols in water by using highly efficient manganosilicate molecular sieves**  
H. G. Manyar, G. S. Chauré, A. Kumar\*  
*Green Chem.*, 2006, 8(4), 344-348



With **Catalysts and Catalysed Reactions** you can find exactly what you need. Search results include diagrams of reaction schemes. Also available as a print bulletin.

Registered charity Number 207890

For more information visit

RSC Publishing

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