

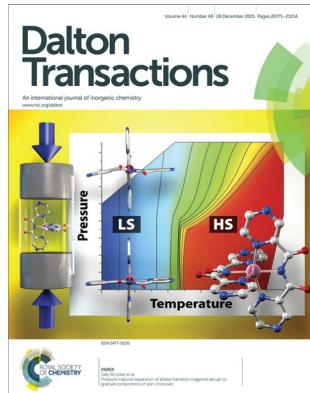
Dalton Transactions

An international journal of inorganic chemistry incorporating Acta Chemica Scandinavica
www.rsc.org/dalton

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

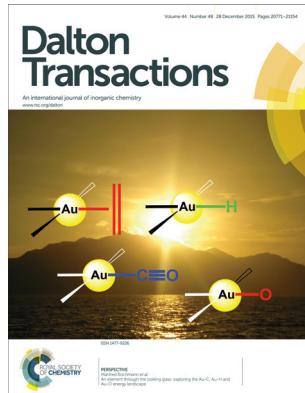
ISSN 1477-9226 CODEN DTARAF 44(48) 20771–21154 (2015)



Cover

See Sally Brooker et al.,
pp. 20843–20849.

Image reproduced by permission of Sally Brooker from *Dalton Trans.*, 2015, **44**, 20843.



Inside cover

See Manfred Bochmann et al., pp. 20785–20807.

The background photograph was taken from the following web site https://en.m.wikipedia.org/wiki/File:Yellow_sunrise.JPG. This work has been released into the public domain by its author, Jpogi at English Wikipedia.

Image reproduced by permission of Manfred Bochmann from *Dalton Trans.*, 2015, **44**, 20785.

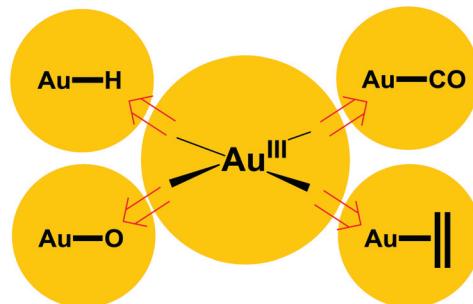
PERSPECTIVE

20785

An element through the looking glass: exploring the Au–C, Au–H and Au–O energy landscape

Dragoş-Adrian Roşca, Joseph A. Wright and Manfred Bochmann*

Gold has seen a remarkable transformation from inert noble metal to highly reactive catalyst. However, its organometallic chemistry contains many unknowns. How certain can we be about the species involved in catalytic cycles? This Perspective summarises recent discoveries.



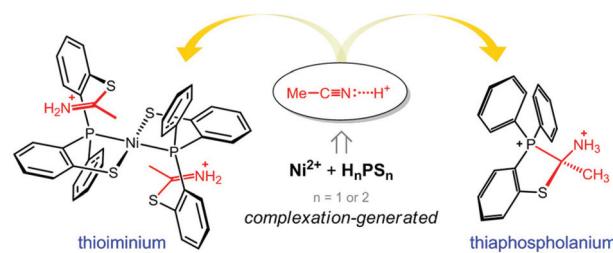
COMMUNICATIONS

20808

Thioiminium and thiaphospholanium derived from acetonitrile via nickel(II)-(2-mercaptophenyl)-phosphine complexation

Hao-Ching Chang, Yu-Chen Hsu, Chia-Hui Chen, Ting-Shen Kuo and Way-Zen Lee*

The acid produced by nickel complexation drives incorporation of acetonitrile to yield uncommon thioiminium/phospholanium species.



Editorial staff**Executive editor**

Andrew Shore

Deputy editor

Guy Jones

Editorial production manager

Rebecca Garton

Development editor

Simon Neil

Publishing editorsPeter Bellham, Rachel Cooper, Debora Giovanelli,
Caroline Knapp, Helen Lunn, Laurent Mathey**Publishing assistants**

Alyia Anwar, Catherine Smith

Publisher

Jamie Humphrey

For queries about submitted articles please contact
Rebecca Garton, Editorial production manager in the
first instance. E-mail dalton@rsc.org

For pre-submission queries please contact
Andrew Shore, Executive Editor.

Email dalton-rsc@rsc.org

Dalton Transactions (print: ISSN 1477-9226;
electronic: ISSN 1477-9234) is published 48 times
a year by the Royal Society of Chemistry,
Thomas Graham House, Science Park, Milton Road,
Cambridge, UK CB4 0WF.

All orders, with cheques made payable to the
Royal Society of Chemistry, should be sent to
RSC Order Department, Royal Society of Chemistry,
Thomas Graham House, Science Park, Milton Road,
Cambridge, CB4 0WF, UK
Tel +44 (0)1223 432398; E-mail orders@rsc.org

2015 Annual (print+electronic) subscription
price: £4021; US\$7504. 2015 Annual (electronic)
subscription price: £3820; US\$7128. 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.

The Royal Society of Chemistry takes reasonable care
in the preparation of this publication but does not
accept liability for the consequences of any errors
or omissions. Inclusion of an item in this publication
does not imply endorsement by
The Royal Society of Chemistry of the content of
the original documents to which that item refers.

Advertisement sales: Tel +44 (0) 1223 432246;
Fax +44 (0) 1223 426017; E-mail advertising@rsc.org

For marketing opportunities relating to this journal,
contact marketing@rsc.org

Dalton Transactions

An international journal for inorganic, organometallic and bioinorganic chemistry
incorporating Acta Chemica Scandinavica

www.rsc.org/dalton

Editorial board

ChairP. Mountford, University of Oxford,
UK**Associate editors**

J. Arnold, University of California,
Berkeley, USA
P. Feng, University of California,
Riverside, USA
G.-X. Jin, Fudan University, China
N. Metzler-Nolte, Ruhr-Universität
Bochum, Germany
R. Morris, University of St Andrews,
UK
W. Piers, University of Calgary,
Canada

C. Thomas, Brandeis University, USA
M. Yamashita, Tohoku University,
Japan

Members

P. Arnold, University of Edinburgh, UK
L. Kloo, Royal Institute of
Technology, Sweden

Advisory board

- | | | |
|---|---|---|
| S. Aldridge, University of Oxford, UK | D. Gregory, University of Glasgow, UK | S. Ogo, Kyushu University, Japan |
| S. Alvarez, University of Barcelona,
Spain | Z. Guo, Nanjing University, China | J. Okuda, RWTH Aachen University,
Germany |
| A. Borovik, University of California,
Irvine, USA | T. S. A. Hor, National University of
Singapore, Singapore | C. Orvig, University of British
Columbia, Canada |
| H. Braunschweig, Universität
Würzburg, Germany | B. Jagirdar, Indian Institute of
Science Bangalore, India | H. Oshio, Tsukuba University, Japan |
| X.-H. Bu, Nankai University, China | C. Jones, Monash University, Australia | G. Parkin, Columbia University, USA |
| C. Carmalt, University College
London, UK | N. Kaltsoyannis, University College
London, UK | P. Power, University of California
Davis, USA |
| G. Christou, University of Florida, USA | J.-P. Lang, Suzhou University, China | J. Protasiewicz, Case University, USA |
| E. Clot, University of Montpellier 2,
France | J. Love, University of British
Columbia, Canada | S. Sabo-Etienne, Université de
Toulouse, CNRS, France |
| D. J. Cole-Hamilton, University of St
Andrews, UK | L. Maron, Université de Toulouse,
France | D. Stephan, University of Toronto,
Canada |
| R. Crabtree, Yale University, USA | K. Mashima, Osaka University, Japan | M. Tamme, Technische Universität
Braunschweig, Germany |
| R. Dias, University of Texas at
Arlington, USA | S. Macgregor, Heriot Watt University,
UK | W.-Y Wong, Hong Kong Baptist
University, China |
| J. Dupont, Universidade Federal do
Rio Grande do Sul, Brazil | B. Milani, Università di Trieste, Italy | |
| W. Evans, University of California,
Irvine, USA | R. Mukherjee, Indian Institute of
Science Education and Research
Kolkata, India | |
| H. Gray, California Institute of
Technology, USA | G. Nikonorov, Brock University, Canada | |
| | H. Nishihara, University of Tokyo,
Japan | Z. Xie, Chinese University of Hong
Kong, China |

Information for authors

Full details on how to submit material for publication
in Dalton Transactions are given in the Instructions for
Authors (available from <http://www.rsc.org/authors>).
Submissions should be made via the journal's homepage:
<http://www.rsc.org/dalton>

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

This journal is ©The Royal Society of Chemistry 2015.
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 Regulation 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
Publishers 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).

Registered Charity No. 207890.

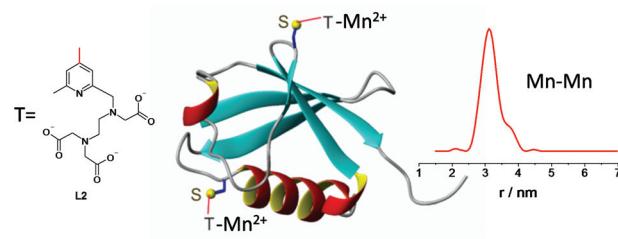


COMMUNICATIONS

20812

Mn(II) tags for DEER distance measurements in proteins via C–S attachment

Andrea Martorana, Yin Yang, Yu Zhao, Qing-Feng Li, Xun-Cheng Su* and Daniella Goldfarb*

Tags for Mn^{2+} – Mn^{2+} distance measurements in proteins with a short and stable linker that generate narrow distance distributions were developed.

20817

Gallium(III)corrole–BODIPY hybrid: novel photophysical properties and first observation of B–F...F interactions

Biju Basumatary, R. V. Ramana Reddy, Subhrajyoti Bhandary and Jeyaraman Sankar*

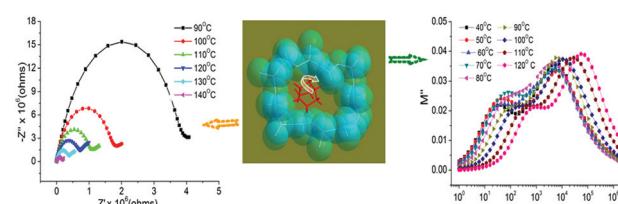
Anchoring a BODIPY onto Ga(III)corrole via a meso- β linkage facilitated PET in polar solvents, which quenched the fluorescence, and is further confirmed by electrochemical studies.

20822

Dielectric response and anhydrous proton conductivity in a chiral framework containing a non-polar molecular rotor

Shan-Shan Yu, Shao-Xian Liu and Hai-Bao Duan*

A chiral 3D framework containing a nonpolar rotor shows two dielectric anomalies and can serve as a proton conductor under high-temperature and anhydrous conditions.

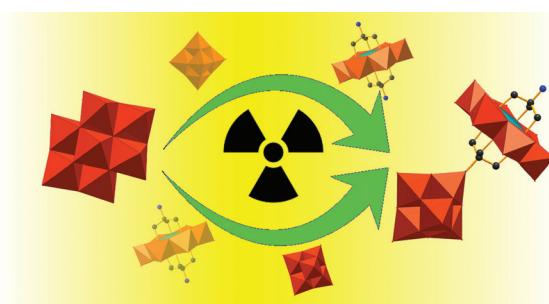


20826

Microwave assisted synthesis of a mono organoimido functionalized Anderson polyoxometalate

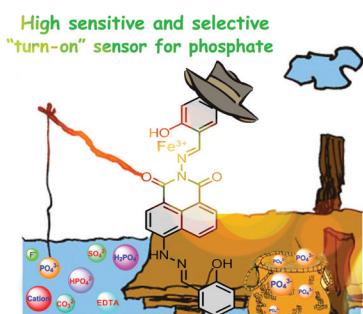
C. Ritchie* and G. Bryant

The synthesis of an aliphatic organoimido functionalized polyoxometalate has been achieved through a microwave assisted reaction protocol in the absence of any activating reagents.



COMMUNICATIONS

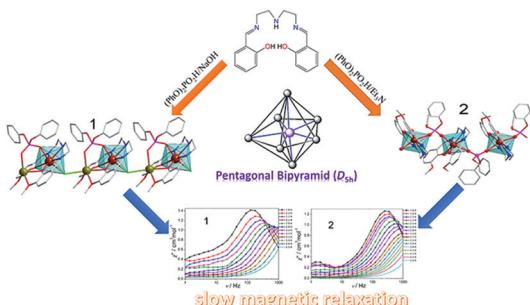
20830

**Rational design of a highly sensitive and selective "turn-on" fluorescent sensor for PO_4^{3-} detection**

Si-Quan Jiang, Zi-Yan Zhou,* Shu-Ping Zhuo, Guo-Gang Shan,* Ling-Bao Xing, Hai-Ning Wang and Zhong-Min Su*

An *in situ*-generated iron(III) complex with a 1,8-naphthalene-based Schiff base unit has been rationally designed, which exhibits a highly selective response and excellent sensitivity for the turn-on detection of PO_4^{3-} anions.

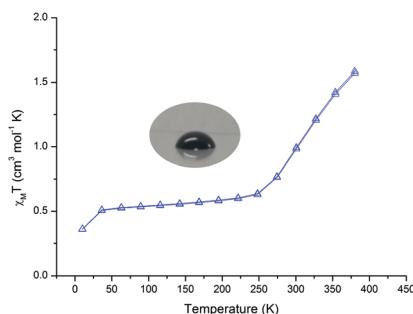
20834

**Single molecule magnet behavior observed in a 1-D dysprosium chain with quasi- D_{5h} symmetry**

Xing-Cai Huang, Ming Zhang, Dayu Wu,* Dong Shao, Xin-Hua Zhao, Wei Huang and Xin-Yi Wang*

Two one-dimensional coordination polymers with pentagonal bipyramidal Dy^{III} centres show slow magnetic relaxation featuring single molecule magnet behavior.

20839

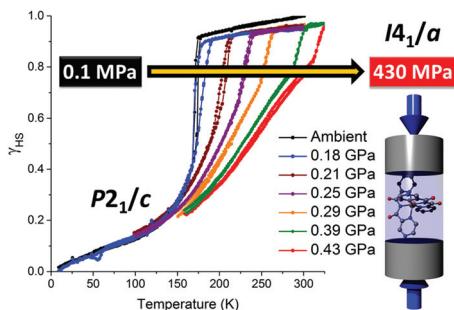
**A room temperature spin crossover ionic liquid**

Anthony J. Fitzpatrick, Helen M. O'Connor and Grace G. Morgan*

Two new paramagnetic ionic liquids (ILs) comprising a mononuclear iron(III) or manganese(III) complex cation, charge balanced by a dicyanamide anion are reported which show a range of spin states including spin crossover.

PAPERS

20843

**Pressure induced separation of phase-transition-triggered-abrupt vs. gradual components of spin crossover**

Reece G. Miller, Suresh Narayanaswamy, Simon M. Clark, Przemslaw Dera, Geoffrey B. Jameson, Jeffery L. Tallon and Sally Brooker*

For the first time, the effects of pressure on cobalt(II) spin crossover are investigated in detail both magnetically and structurally (including structure determinations).

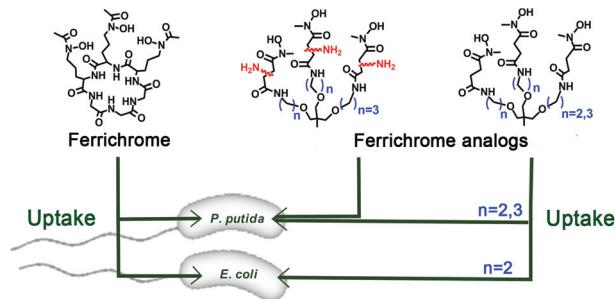
PAPERS

20850

Biomimetic ferrichrome: structural motifs for switching between narrow- and broad-spectrum activities in *P. putida* and *E. coli*

Evgenia Olshvang, Agnieszka Szebesczyk, Henryk Kozłowski, Yitzhak Hadar, Elzbieta Gumienna-Kontecka* and Abraham Shanzer*

Mimics with ferrichrome-like activity allowed the formulation of guidelines for broad-spectrum active compounds. Deviation from these guidelines provided narrow-spectrum active compounds.

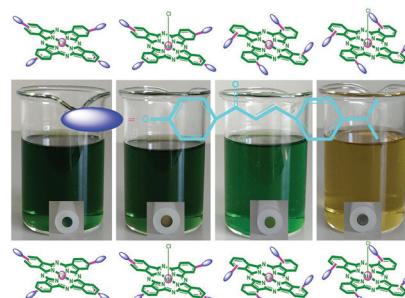


20859

An effect of the substituent position and metal type on the electropolymerization properties of chalcone substituted metallophthalocyanines

Dilek Çakır, Tayfun Arslan and Zekeriya Biyiklioglu*

Cobalt(II) and manganese(III) phthalocyanines bearing peripherally and non-peripherally tetra substituted $\{(2E)-3-[4-(\text{dimethylamino})\text{phenyl}]\text{prop}-2-\text{enyl}\}\text{phenoxy}$ groups were synthesized by cyclotetramerization of the phthalonitrile derivatives and their electrochemical properties were examined using CV and SWV techniques for the first time.

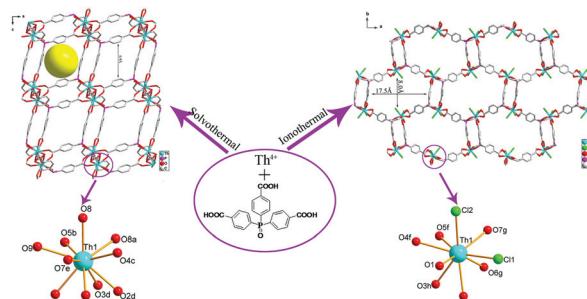


20867

Centrosymmetric and chiral porous thorium organic frameworks exhibiting uncommon thorium coordination environments

Yuxiang Li, Zehui Weng, Yanlong Wang, Lanhua Chen, Daopeng Sheng, Yunhai Liu,* Juan Diwu, Zhifang Chai, Thomas E. Albrecht-Schmitt and Shuo Wang*

The solvothermal reaction of thorium nitrate and tris-(4-carboxylphenyl)phosphine oxide in DMF affords a centrosymmetric porous thorium organic framework compound $[\text{Th}(\text{TPO})(\text{OH})(\text{H}_2\text{O})] \cdot 8\text{H}_2\text{O}$ (**1**).



20874

1,1'-Bis(di-*tert*-butylphosphino)ferrocene copper(I) complex catalyzed C–H activation and carboxylation of terminal alkynes

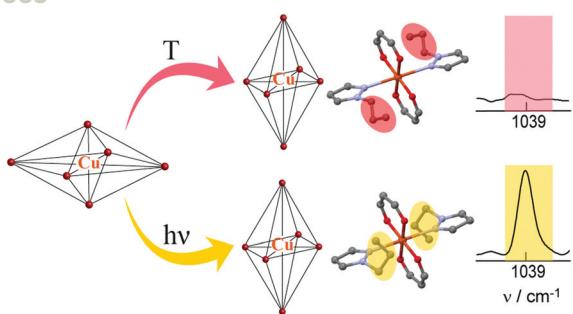
Manoj Trivedi,* Gurmeet Singh,* Abhinav Kumar and Nigam P. Rath*

Reaction of CuX ($\text{X} = \text{Br}, \text{I}$) and 1,1'-bis(di-*tert*-butylphosphino) ferrocene (dtbpf) in 1 : 1, 2 : 1 and 6 : 1 molar ratio in DCM–MeOH (50 : 50 V/V) afforded copper(I) complexes. These complexes were shown to be efficient catalysts in comparison with Cul for the conversion of terminal alkynes into propiolic acids with CO_2 at room temperature.



PAPERS

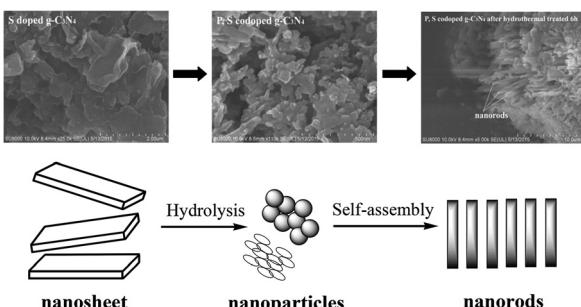
20883

**Structural specifics of light-induced metastable states in copper(II)-nitroxide molecular magnets**

I. Yu. Barskaya, S. L. Veber,* S. V. Fokin, E. V. Tretyakov, E. G. Bagryanskaya, V. I. Ovcharenko and M. V. Fedin*

Although thermally- and light-induced structures of molecular magnets $\text{Cu}(\text{hfac})_2\text{L}^{\text{R}}$ are principally similar, FTIR reveals differences in packing of peripheral groups.

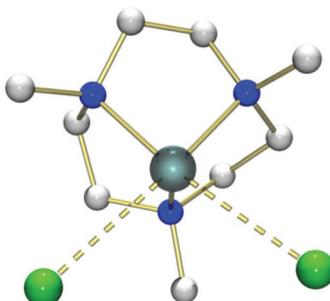
20889

**Hydrothermal synthesis of oxygen functionalized S-P codoped $\text{g-C}_3\text{N}_4$ nanorods with outstanding visible light activity under anoxic conditions**

Shaozheng Hu, Lin Ma, Ying Xie, Fayun Li, Zhiping Fan, Fei Wang, Qiong Wang, Yanjuan Wang, Xiaoxue Kang and Guang Wu*

S-P codoping and oxygen functionalization influence the physical property, structural property, optical property and band gap energy of $\text{g-C}_3\text{N}_4$, which increases the anoxic RhB photo-degradation constant by ~ 13 times.

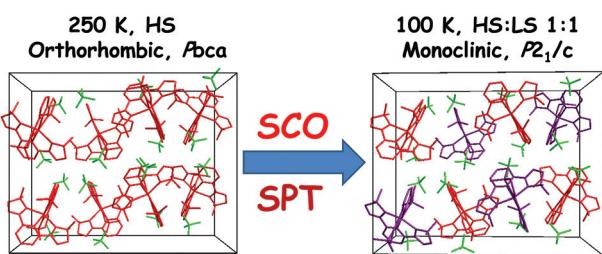
20898

**Cationic aza-macrocyclic complexes of germanium(II) and silicon(IV)**

Matthew Everett, Andrew Jolley, William Levason, Mark E. Light, David Pugh and Gillian Reid*

Unusual cationic Ge(II) and Si(IV) complexes with neutral tri-aza and tetra-aza macrocycles are reported and their structural properties discussed.

20906

**Structural phase transition in a multi-induced mononuclear Fe^{II} spin-crossover complex**

Yuan-Yuan Zhu,* Chang-Wei Liu, Ji Yin, Zhao-Sha Meng, Qian Yang, Junhu Wang, Tao Liu* and Song Gao*

One mononuclear Fe^{II} complex displays a structural phase transition and a multi-induced spin-crossover behavior mediated by heat, light, pressure and solvent.

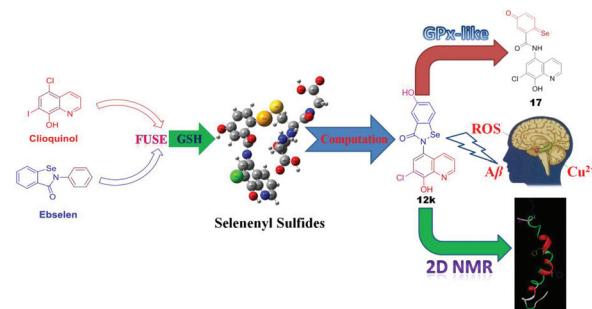
PAPERS

20913

Computer-assisted designed "selenoxy-chinolin": a new catalytic mechanism of the GPx-like cycle and inhibition of metal-free and metal-associated A β aggregation

Z. Wang, Y. Wang, W. Li, Z. Liu, Z. Luo, Y. Sun, R. Wu, L. Huang* and X. Li*

Using support from rational computer-assisted design, a novel series of hybrids designed by fusing the metal-chelating agent CQ and the antioxidant ebselen were synthesized and evaluated as multitarget-directed ligands.

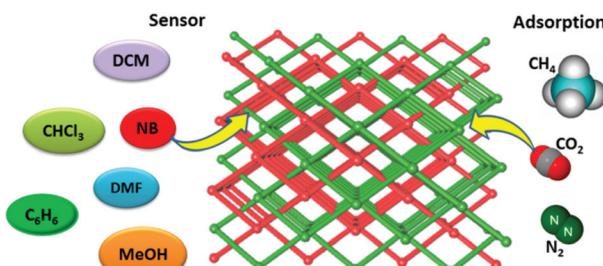


20926

Regulation of the pore size by shifting the coordination sites of ligands in two MOFs: enhancement of CO₂ uptake and selective sensing of nitrobenzene

Srinivasulu Parshamoni, Jyothi Telangae and Sanjit Konar*

Two MOFs were constructed using azine functionalized and pyridyl based neutral ligands along with a V-shaped sdb linker, and exhibit highly efficient luminescence sensing for nitrobenzene and sorption selectivity for CO₂ over CH₄.

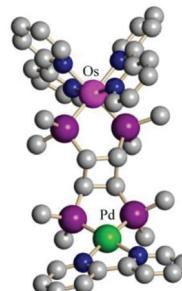


20936

Unusual stability of dyads during photochemical hydrogen production

J. Prock, C. Strabler, W. Viertl, H. Kopacka, D. Obendorf, T. Müller, E. Tordin, S. Salzl, G. Knör,* M. Mauro, L. De Cola* and P. Brüggeller*

Heterodimetallic dyads containing Os and Pd are connected by a bis(bidentate) phosphine and show an excellent stability for the water splitting application.

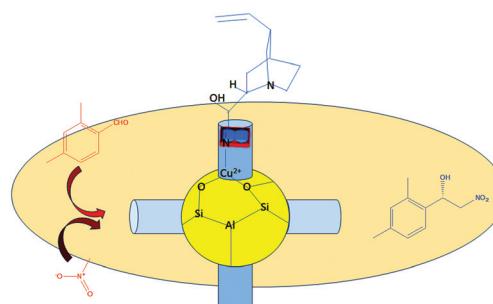


20949

Chiral modification of copper exchanged zeolite-Y with cinchonidine and its application in the asymmetric Henry reaction

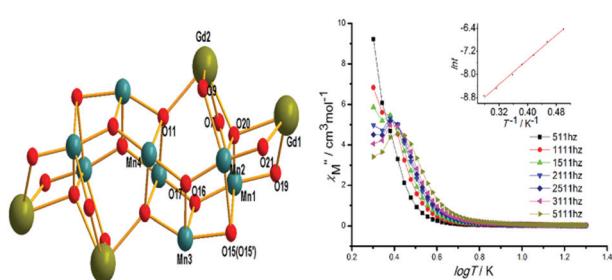
Jogesh Deka, L. Satyanarayana, G. V. Karunakar, Pradip Kr. Bhattacharyya and Kusum K. Bania*

(-)–Cinchonidine is being encapsulated inside copper exchanged zeolite-Y and used as heterogeneous catalyst for the asymmetric Henry reaction.



PAPERS

20964

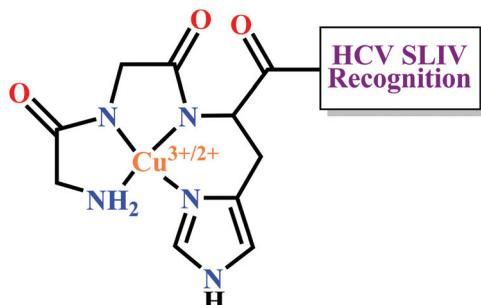


Dodenuclear $[\text{Mn}_8\text{Ln}_4]^{III}$ clusters with 2-(hydroxymethyl)pyridine: syntheses, structures, and magnetic properties

Lei Sun, Hui Chen, Chengbing Ma and Changneng Chen*

Dodenuclear Mn/Ln clusters with 2-(hydroxymethyl)-pyridine as a ligand have been synthesized. Complexes **1** and **5** showed a frequency-dependent decrease in $\chi'_M T$ and an out-of-phase χ''_M peak maximum, indicating slow magnetic relaxation and potential SMM behaviour.

20972

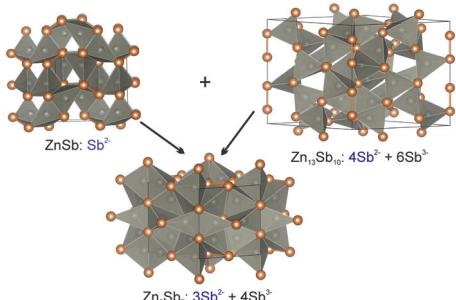


Catalytic metallodrugs based on the LaR2C peptide target HCV SLIV IRES RNA

Martin James Ross, Seth S. Bradford and J. A. Cowan*

Catalytic metallodrugs based on the human La protein demonstrate selected cleavage of stem-loop IV of the Hepatitis C Virus IRES.

20983

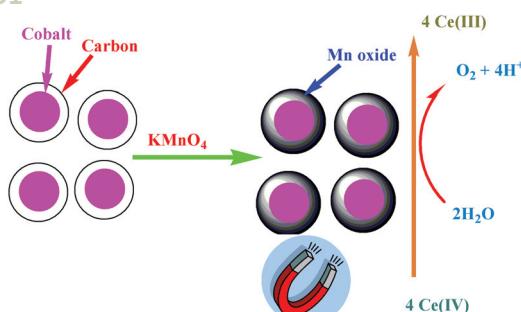


Identification, structural characterization and transformations of the high-temperature $\text{Zn}_{9-\delta}\text{Sb}_7$ phase in the Zn–Sb system

Allan He, Volodymyr Svitlyk, Dmitry Chernyshov and Yurij Mozharivskyj*

The Zn_9Sb_7 phase stable between 514 and 581 °C has structural features of both ZnSb and $\text{Zn}_{13}\text{Sb}_{10}$.

20991



Carbon for engineering of a water-oxidizing catalyst

Mohammad Mahdi Najafpour* and Saeideh Salimi

Herein, we report a conductive, self-healing, recycling, highly dispersible, magnetically separable, environmentally friendly, and nano-sized water-oxidizing catalyst. Carbon has a significant role in engineering of the water-oxidizing catalyst.

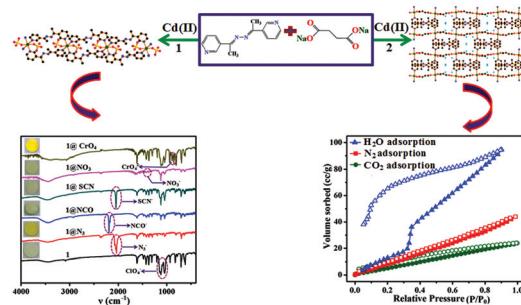
PAPERS

20999

Tuned synthesis of two coordination polymers of Cd(II) using substituted bent 3-pyridyl linker and succinate: structures and their applications in anion exchange and sorption properties

Dilip Kumar Maity, Biswajit Bhattacharya, Arijit Halder and Debajyoti Ghoshal*

Two new coordination polymers of Cd(II) have been synthesized using disodium succinate and a substituted bent N,N'-donor ligand where the substitution on N,N'-donor ligand controlled the formation of the product.

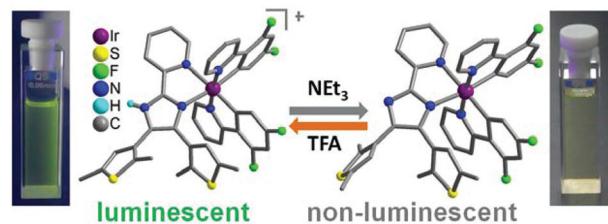


21008

Two bis thiienylethene–Ir(III) complexes showing acid/base-induced structural transformation and on–off luminescence switching in solution

Deng-Ke Cao,* Jiong-Sheng Hu, Min-Qiang Li, Dan-Ping Gong, Xiao-Xiong Li and Michael D. Ward

Compounds $[\text{Ir}(\text{dfppy})_2(\text{pbdtiH})](\text{PF}_6)_2 \cdot 2\text{CHCl}_3$ (**1-H**) and $[\text{Ir}(\text{dfppy})_2(\text{pbdti})]$ (**1**) were synthesized based on bis thiienylethene pbdtiH, showing NEt_3/TFA -induced structural transformation and on–off luminescence switching.

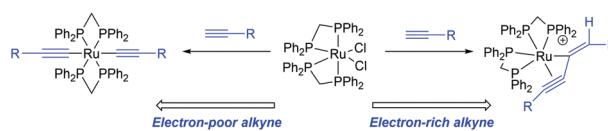


21016

Reactions of alkynes with *cis*-RuCl₂(dppm)₂: exploring the interplay of vinylidene, alkynyl and η^3 -butenynyl complexes

Samantha G. Eaves, Dmitry S. Yufit, Brian W. Skelton, Jason M. Lynam* and Paul J. Low*

The course of reactions between *cis*-RuCl₂(dppm)₂ and terminal alkynes is shown to depend markedly on the electronic character of the alkyne reagent.

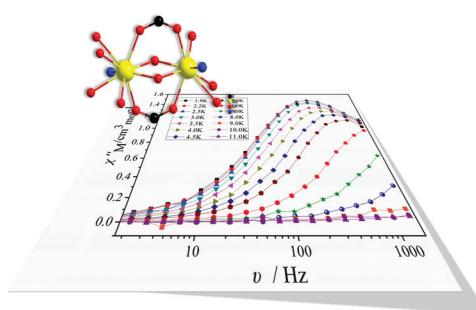


21025

A Dy₂ single-molecule magnet with benzoate anions and phenol-O⁻ bridging groups

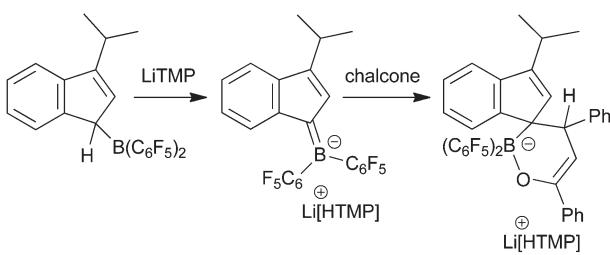
Hongshan Ke, Sheng Zhang, Xin Li, Qing Wei, Gang Xie, Wenyuan Wang and Sanping Chen*

A Dy₂ single-molecule magnet, namely $[\text{Dy}_2(\text{H}_3\text{L})_2(\text{PhCOO})_4] \cdot 4\text{H}_2\text{O}$ (**1**), was obtained from the reaction of $\text{Dy}(\text{PhCOO})_3$ with 1,5-bis(2-hydroxy-3-methoxybenzylidene)carbonohydrazide (H_4L).



PAPERS

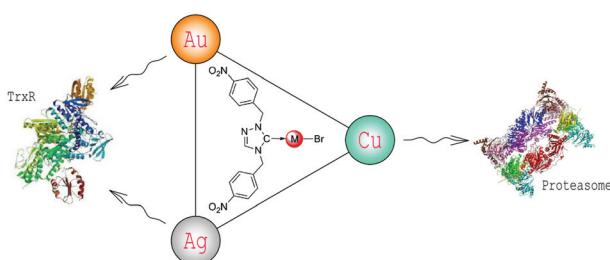
21032

**Stabilized borata-alkene formation: structural features, reactions and the role of the counter cation**

Sonja Kohrt, Steffen Dachwitz, Constantin G. Daniliuc, Gerald Kehr and Gerhard Erker*

A stable borata-alkene was prepared starting from dimethylbenzofulvene and Piers' borane $[\text{HB}(\text{C}_6\text{F}_5)_2]$. It undergoes a cycloaddition reaction with chalcone.

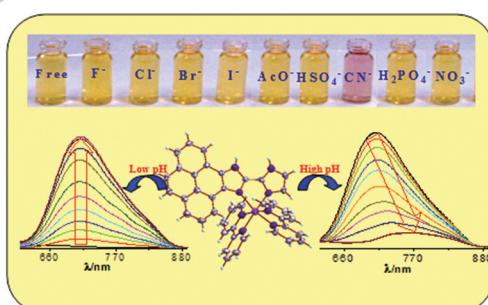
21041

**Novel triazolium based 11th group NHCs: synthesis, characterization and cellular response mechanisms**

M. Pellei, V. Gandin,* M. Marinelli, A. Orsetti, F. Del Bello, C. Santini* and C. Marzano

The novel NHC ligand precursor $1,4\text{-bis}(4\text{-nitrobenzyl})-1H\text{-}1,2,4\text{-triazol}-4\text{-ium bromide}$, $[\text{HTz}^{(\rho\text{NO}_2\text{Bz})_2}\text{Br}]$, has been synthesized and used in the synthesis of the corresponding metal complexes $\text{M}[\text{Tz}^{(\rho\text{NO}_2\text{Bz})_2}\text{Br}]$ ($\text{M} = \text{Cu}(\text{i}), \text{Ag}(\text{i})$ or $\text{Au}(\text{i})$).

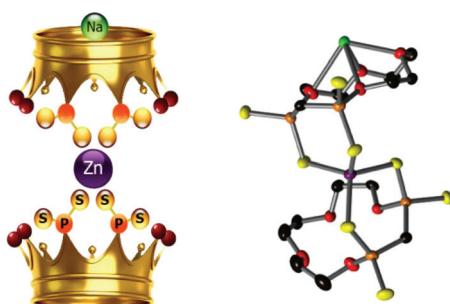
21053

**Pyrene-biimidazole based Ru(II) and Os(II) complexes as highly efficient probes for the visible and near-infrared detection of cyanide in aqueous media**

Sourav Mardanya, Srikanta Karmakar, Manoranjan Bar and Sujoy Baitalik*

Pyrenyl-biimidazole based Ru(II) and Os(II) complexes are used as highly efficient cyanide sensors in aqueous media.

21073

**Novel crown-ether–methylenediphosphono-tetrathioate hybrids as Zn(II) chelators**

Diana Meltzer, Hugo E. Gottlieb, Aviran Amir, Linda J. W. Shimon and Bilha Fischer*

A 13-membered methylenediphosphonotetrathioate–crown ether hybrid is a water-soluble, air-stable, high-affinity Zn(II)-chelator, exhibiting selectivity to Zn(II) vs. Mg(II), Na(I), and Li(I).

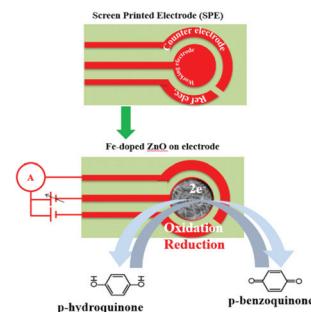
PAPERS

21081

Fabrication and characterization of a highly sensitive hydroquinone chemical sensor based on iron-doped ZnO nanorods

Ahmad Umar,* Ali Al-Hajry, Rafiq Ahmad, S. G. Ansari, Mohammed Sultan Al-Assiri and Hamed Algarni

Herein, we report the development of a simple and highly sensitive hydroquinone (HQ) chemical sensor based on an electrochemically activated iron-doped zinc oxide nanorod modified screen-printed electrode.

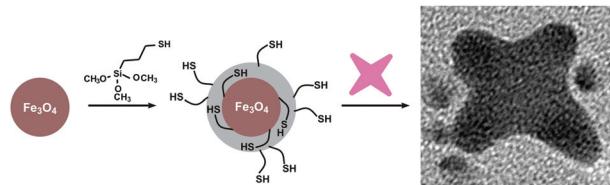


21088

Silane-coated magnetic nanoparticles with surface thiol functions for conjugation with gold nanostars

Piersandro Pallavicini,* Elisa Cabrini, Alberto Casu, Giacomo Dacarro, Yuri Antonio Diaz-Fernandez, Andrea Falqui, Chiara Milanese and Francesco Vita

Superparamagnetic magnetite nanoparticles are coated with a tunable number of free surface –SH, enabling them to decorate gold nanostars.

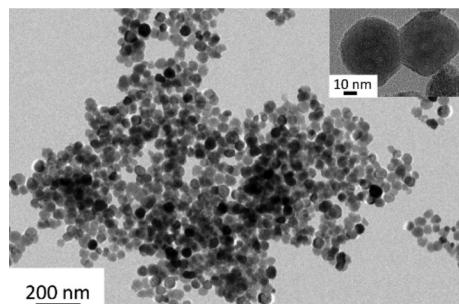


21099

The formation mechanism of iron oxide nanoparticles within the microwave-assisted solvothermal synthesis and its correlation with the structural and magnetic properties

Z. Kozakova,* I. Kuritka, N. E. Kazantseva, V. Babayan, M. Pastorek, M. Machovsky, P. Bazant and P. Saha

Iron oxide nanoparticles were prepared by MW assisted solvothermal synthesis. A reaction mechanism was elucidated that allowed us to tailor the properties of particles.

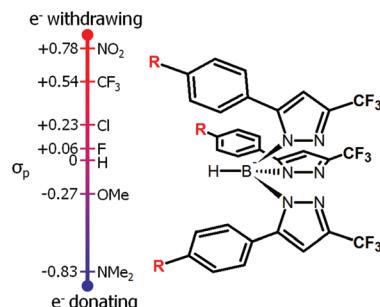


21109

Highly tunable fluorinated trispyrazolylborates $[\text{HB}(3\text{-CF}_3\text{-}5\text{-}\{\text{4-RPh}\}\text{pz})_3]^-$ ($\text{R} = \text{NO}_2, \text{CF}_3, \text{Cl}, \text{F}, \text{H}, \text{OMe}$ and NMe_2) and their copper(i) complexes

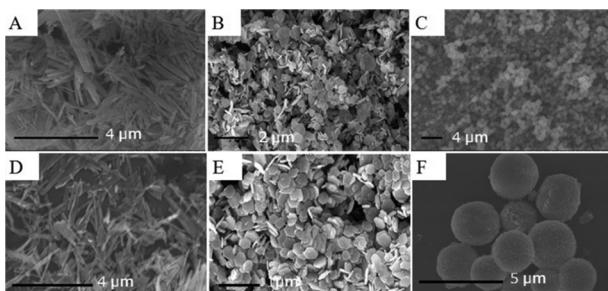
Thomas F. van Dijkman, Maxime A. Siegler and Elisabeth Bouwman*

A spectroscopic series of fluorinated trispyrazolylborate ligands was used to make copper(i) complexes with carbon monoxide and ethene. The tunable ligands induce clear trends in infrared and NMR spectra of the copper compounds.



PAPERS

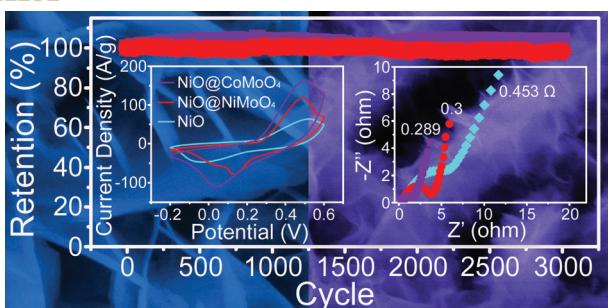
21124

**Investigation of ZnCo_2O_4 -Pt hybrids with different morphologies towards catalytic CO oxidation**

Fan Wang, Xiao Wang, Dapeng Liu,* Jiangman Zhen, Junqi Li and Hongjie Zhang*

In this work, three kinds of ZnCo_2O_4 morphologies, that is, rod, plate and sphere, have been successfully prepared and further used to support Pt nanoparticles (NPs) via *in situ* deposition.

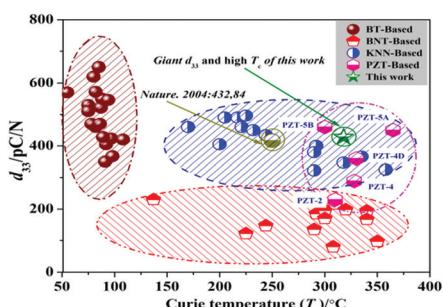
21131

**Comprehending the effect of MMoO_4 ($\text{M} = \text{Co, Ni}$) nanoflakes on improving the electrochemical performance of NiO electrodes**

Lei An, Wenyao Li, Yunjiu Cao, Kaibing Xu, Rujia Zou, Tao Ji, Li Yu and Junqing Hu*

The hierarchical heterostructures of a NiO@MMoO₄ ($\text{M} = \text{Co, Ni}$) nanosheet array electrode demonstrated remarkable electrochemical performance with a high specific capacitance and predominant cycling stability.

21141

**Modification of both d_{33} and T_C in a potassium–sodium niobate ternary system**

Bo Wu, Jiagang Wu,* Dingquan Xiao* and Jianguo Zhu

In this work, we simultaneously achieved a giant d_{33} and a high T_C in a lead-free piezoelectric ternary system of $(1-x-y)\text{K}_{0.48}\text{Na}_{0.52}\text{NbO}_3-x\text{BiFeO}_3-y\text{Bi}_{0.5}\text{Na}_{0.5}\text{ZrO}_3$ $\{(1-x-y)\text{KNN}-x\text{BF}-y\text{BNZ}\}$.