Dalton Transactions

An international journal of inorganic chemistry incorporating Acta Chemica Scandinavica

rsc.li/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.

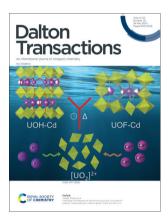
IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 52(20) 6591-6946 (2023)



See Peter C. Junk et al., pp. 6619-6623.

Image reproduced by permission of Peter C. Junk from Dalton Trans., 2023. 52. 6619.



Inside cover

See Yingjie Zhang et al., pp. 6629-6640.

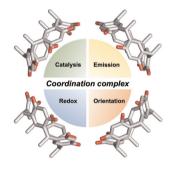
Image reproduced by permission of Yingjie Zhang from Dalton Trans., 2023, 52, 6629.

PERSPECTIVE

6604

Noncovalent tailoring of coordination complexes by resorcin[4]arene-based supramolecular hosts

Shinnosuke Horiuchi,* Mikihiro Hayashi and Keisuke Umakoshi*

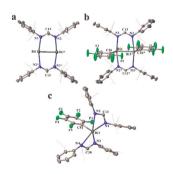


COMMUNICATIONS

6619

Never a dull moment with praseodymium metal

Zhifang Guo, Glen B. Deacon and Peter C. Junk*



Editorial Staff

Executive Editor

Sally Howells

Deputy Editor

Mike Andrews

Development Editors

Michelle Canning, Emily Cuffin-Munday

Editorial Production Manager

Susannah Davies

Publishing Editors

Debora Giovanelli, Helen Lunn, Samuel Oldknow, Kate Tustain

Editorial Assistant

Daphne Houston

Publishing Assistant

Huw Hedges

Publisher

Jeanne Andres

For queries about submitted articles please contact Susannah Davies, Editorial Production Manager in the first instance, E-mail dalton@rsc.org

For pre-submission queries please contact Sally Howells, Editor.

Email dalton-rsc@rsc.org

Dalton Transactions (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 the Royal Society of Chemistry 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

2023 Annual (electronic) subscription price: £4441; US\$7972. 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 Royal Society of Chemistry 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.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

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 high quality, original research in inorganic and organometallic chemistry incorporating Acta Chemica Scandinavica

rsc.li/dalton

Editorial Board

Russell Morris, University of St Andrews, UK

Associate Editors

Paola Ceroni, University of Bologna, Italy Vadapalli Chandrasekhar, Indian Institute of Technology Kanpur, India Maarit Karpinnen, Aalto University, Finland

Mi Hee Lim, Korea Advanced Institute of

Science and Technology, South Korea Neal Mankad, University of Illinois at Chicago, Warren Piers, University of Calgary, Canada

Wolfgang Tremel, Johannes Gutenberg-Universität, Germany Takashi Uemura, University of Tokyo, Japan Li-Min Zheng, Nanjing University, China

Jaqueline Kiplinger, Los Alamos National Laboratory, USA Sascha Ott, Uppsala University, Sweden

Advisory Board

Simon Aldridge, University of Oxford, UK Santiago Alvarez, University of Barcelona, Spain

John Arnold, University of California, Berkeley, USA

Mu-Hyun Baik, KAIST, Korea Jitendra Bera, IIT Kanpur, India Eszter Borbas, Uppsala University, Sweden Holger Braunschweig, Universität Würzburg, Germany

Xian-He Bu, Nankai University, China Raffaella Buonsanti, École Polytechnique Fédérale de Lausanne, Switzerland Claire Carmalt, University College London, UK Eric Clot, University of Montpellier 2, France Catherine Constable-Housecroft, University of Basel, Switzerland

Amitava Das, Indian Institute of Science and Education Research Kolkata, India Jillian Dempsey, University of North Carolina, USA

Anjana Devi, Ruhr-University Bochum, Germany

Rasika Dias, University of Texas at Arlington,

Jairton Dupont, University of Nottingham, UK William Evans, University of California, Irvine, USA

Harry B. Gray, California Institute of Technology, USA

Zijian Guo, Nanjing University, China Michael Hayward, University of Oxford, UK Todd W. Hudnall, Texas State University, USA Ilich Ibarra, National Autonomous University of Mexico, Mexico

Cameron Jones, Monash University, Australia Masako Kato, Hokkaido University, Japan Takahiko Kojima, University of Tsukuba, Japan Christine Thomas, The Ohio State University, Jian-Ping Lang, Suzhou University, China Jennifer Love, University of British Columbia,

Laurent Maron, Université de Toulouse, France Stuart Macgregor, Heriot Watt University, UK Ellen Matson, Rochester University, USA Marinella Mazzanti, Ecole Polytechnique Fédérale de Lausanne (EPFL). Switzerland. Nils Metzler-Nolte, Ruhr-Universität Bochum, Germany

Barbara Milani, Universita di Trieste, Italy Georgii Nikonov, Brock University, Canada Seiji Ogo, Kyushu University, Japan Chris Orvig, University of British Columbia, Canada

Gerard Parkin, Columbia University, USA Eric Rivard, University of Alberta, Canada Douglas Stephan, University of Toronto, Canada

Matthias Tamm, Technische Universität Braunschweig, Germany

Jinkui Tang, Changchun Institute of Applied Chemistry, China

Thomas Teets, University of Houston, USA USA

Ajay Venugopal, Indian Institute of Science Education and Research Thiruvananthapuram, India Claudio N. Verani, Wayne State University, USA Wai-Yeung Wong, Hong Kong Baptist

University, China Zhiguo Xia, South China University of Technology, China

Zuowei Xie, Chinese University of Hong Kong

Lin Xu, East China Normal University, 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: rsc.li/dalton

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, 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 2023.

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.

Registered charity number: 207890

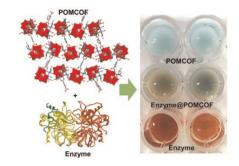


COMMUNICATIONS

6624

A {Cu₆}-added polyoxometalate cluster-organic framework: synthesis, structure and application as a solid support for enzyme immobilization

Zhao-Min Su, Yongchun Wang, Zhikun Xu, Wenhui Shang, Zhiyu Jia* and Guo-Yu Yang*

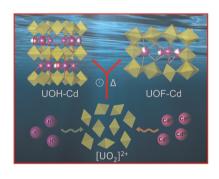


PAPERS

6629

Exploring the influence of pH on the structural intricacies of uranium oxide hydrates containing both Cd(II) and K(I) ions

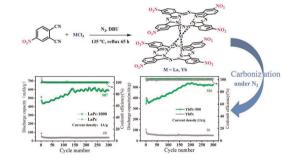
Timothy A. Ablott, Kimbal T. Lu, Tao Wei and Yingjie Zhang*



6641

Carbon skeleton materials derived from rare earth phthalocyanines (MPcs) (M = Yb, La) used as high performance anode materials for lithium-ion batteries

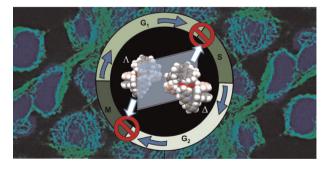
Tingting Jiang, Mihong Cao, Jun Chen,* Luyi Wang, Qian Zhang,* Hua Wang and Jintian Luo



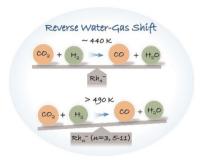
6656

Triplex metallohelices have enantiomer-dependent mechanisms of action in colon cancer cells

J. P. C. Coverdale, H. Kostrhunova, L. Markova, H. Song, M. Postings, H. E. Bridgewater, V. Brabec,* N. J. Rogers* and P. Scott*



6668



Filtration of the preferred catalyst for reverse water-gas shift among Rh_n^- (n = 3-11) clusters by mass spectrometry under variable temperatures

Yun-Zhu Liu, Xing-Yue He, Jiao-Jiao Chen, Zhong-Pu Zhao, Xiao-Na Li* and Sheng-Gui He*

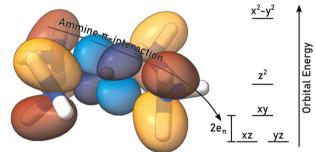
6677



Redox-switchable Pickering emulsion stabilized by hexaniobate-based ionic liquid for oxidation catalysis

Wei Lu, Jing Dong,* Di Zhang, Peng Lei, Yingnan Chi* and Changwen Hu

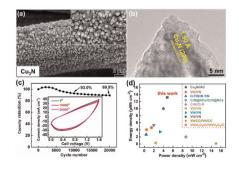
6685



The π -interactions of ammonia ligands evaluated by *ab initio* ligand field theory

Moritz Buchhorn and Vera Krewald*

6693



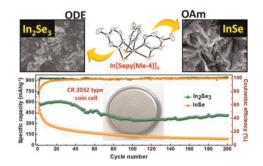
Sputtered binder-free Cu_3N electrode materials for high-performance quasi-solid-state asymmetric supercapacitors

Zhengbing Qi, Binbin Wei,* Hao Shen, Zhuo Hou, Minjie Fang, Jingang Wu, Hanfeng Liang* and Zhoucheng Wang*

6700

Molecular precursor mediated selective synthesis of phase pure cubic InSe and hexagonal In₂Se₃ nanostructures: new anode materials for Li-ion **batteries**

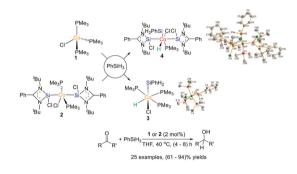
Gourab Karmakar,* Dipa Dutta Pathak, Adish Tyagi,* B. P. Mandal, A. P. Wadawale and G. Kedarnath



6712

Effects of silylene ligands on the performance of carbonyl hydrosilylation catalyzed by cobalt phosphine complexes

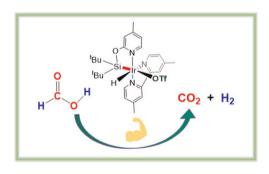
Qingqing Fan, Xinyu Du, Wenjing Yang, Qingshuang Li, Wei Huang, Hongjian Sun, Alexander Hinz* and Xiaoyan Li*



6722

Iridium-(κ²-NSi) catalyzed dehydrogenation of formic acid: effect of auxiliary ligands on the catalytic performance

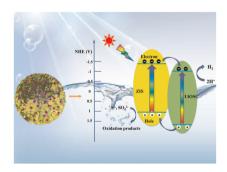
Alejandra Gomez-España, Jorge L. Lopez-Morales, Belinda Español-Sanchez, Pilar García-Orduña, Fernando J. Lahoz, Manuel Iglesias and Francisco J. Fernández-Alvarez*



6730

Methylthio-functionalized UiO-66 to promote the electron-hole separation of ZnIn₂S₄ for boosting hydrogen evolution under visible light illumination

Xiang Li, Qiulin Li, Wenjing Shang, Yongbing Lou and Jinxi Chen*



6739

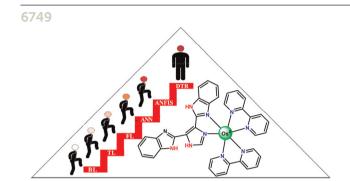
$$R = \text{alkyl, aryl}$$

$$R = \text{alkyl, aryl}$$

$$R = \text{blue}$$

UV induced hydrophosphination of dimethyl 2-vinylcyclopropane-1,1-dicarboxylate towards phosphine chalcogenides

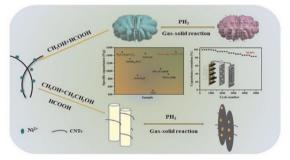
Jeanette A. Adjei, Michael A. Kerr* and Paul J. Ragogna*



Human brain-inspired chemical artificial intelligence tools for the analysis and prediction of the anion-sensing characteristics of an imidazole-based luminescent Os(II)-bipyridine complex

Sohini Bhattacharya, Anik Sahoo and Sujoy Baitalik*

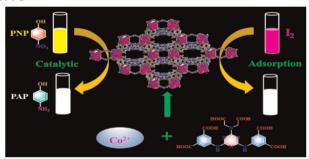




Solvent-induced structural regulation over Ni₂P/CNT hybrids towards boosting the performance of supercapacitors

Xiuli Zhang, Guancheng Xu and Li Zhang*

6773



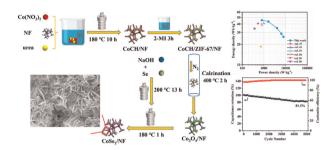
Construction of a triazine polycarboxylate Co-MOF with flexible and rigid coordination arms as well as excellent catalytic reduction and adsorption properties

Min Liu, He Qun Cai, Shan Jiang, Yong Heng Xing* and Feng Ying Bai*

6782

Porous CoSe₂ nanosheet arrays derived from zeolitic imidazolate frameworks on Ni foam for asymmetric supercapacitors

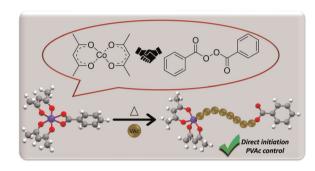
Jincheng Fan, Zhuo Peng, Meilin Chen, Wei Yang, Hanbo Zou* and Shengzhou Chen*



6791

A mononuclear cobalt(III) carboxylate complex with a fully O-based coordination sphere: Co^{III}-O bond homolysis and controlled radical polymerisation from [Co(acac)₂(O₂CPh)]

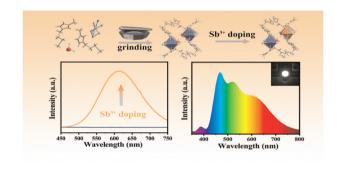
Maxime Michelas, Jean-Claude Daran, Alix Sournia-Saguet, Christophe Fliedel* and Rinaldo Poli*



6799

Facile synthesis of Sb3+-doped (Bmim)2InCl5(H2O) through a grinding method for light-emitting diodes

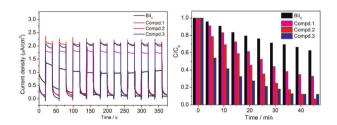
Jiayue Hao, Ran An, Yao Li, Ke Wang, Shuyan Song, Jing Feng,* Xinyu Wang* and Hongjie Zhang*

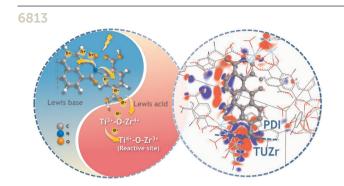


6804

Syntheses, structures, photoelectric properties and photocatalysis of iodobismuthate hybrids with lanthanide complex cations

Jiahua Zhang, Xiao Yang, Taohong Ren and Dingxian Jia*

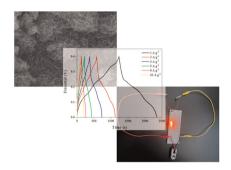




Frustrated Lewis pair boosting photocatalytic antibacterial activity on PDI-bridged bimetallic UiO-66-NH₂

Ruowen Liang,* Shihui Wang, Yuzhou Xia, Ling Wu, Renkun Huang* and Zhoujun He*

6823



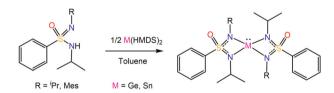
One-step electrodeposited Ni₃S₂/Co₉S₈/NiS composite on Ni foam as high-performance electrode for supercapacitors

Tiansheng Li, Zhifeng Zhao,* Zhanhua Su,* Shuangyan Lin, Rui Sun and Yongchen Shang*

Silicon(IV) complexes of octaaryl-substituted porphyrazines and corrolazines: influence of macrocycle contraction on spectral-luminescence, acid—base, and redox properties

Ekaterina D. Rychikhina, Svetlana S. Ivanova, Veronika Novakova and Pavel A. Stuzhin*

6841



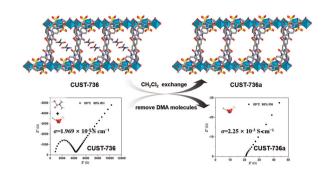
Synthesis and structures of homoleptic germylenes and stannylenes with sulfonimidamide ligands

Nicolas Lentz, Alexandre Sodreau, Alejandra Acuña, Sonia Mallet-Ladeira, Eddy Maerten, Jean-Marc Sotiropoulos, René Segundo Rojas Guerrero and David Madec*

6847

Enhanced proton conductivity by guest molecule exchange in an acylamide-functionalized metal-organic framework

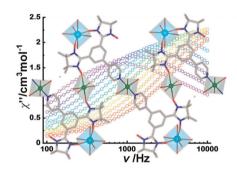
Zhen-Jie Feng, Jun-Jun Li, Jing Sun,* Xue-Song Wu,* Ying Li, Di Wu, Shi-Hao Li, Xin-Long Wang and Zhong-Min Su*



6853

Magnetic relaxation in unique nitronyl nitroxide biradical-Ln-Cu chains with Ln-bis(NIT)-Cu-bis(NIT)-Ln units

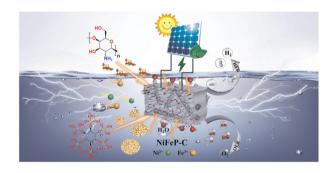
Jing Han, Chaoyi Jin, Xiaotong Wang, Xiaohui Huang, Hongwei Song, Junfang Xie and Licun Li*



6860

Bio-inspired design of NiFeP nanoparticles embedded in (N,P) co-doped carbon for boosting overall water splitting

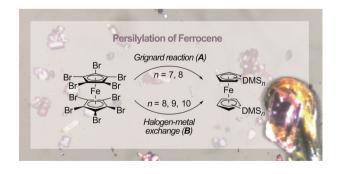
Xiangrui Zhang, Xue-Rong Shi,* Peijie Wang, Zhiyu Bao, Mengru Huang, Yanan Xu and Shusheng Xu*

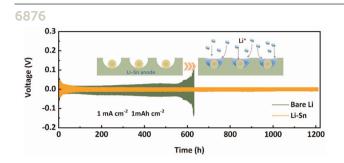


6870

Persilylation of ferrocene: the ultimate discipline in sterically overcrowded metal complexes

Susanne M. Rupf, Robin Sievers, Paulin S. Riemann, Marc Reimann, Martin Kaupp, Carlo Fasting and Moritz Malischewski*

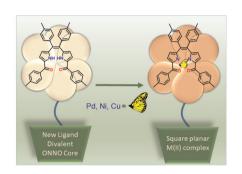




Locally regulating Li⁺ distribution on an electrode surface with Li-Sn alloying nanoparticles for stable lithium metal anodes

Jianzong Man,* Wenlong Liu, Xiaodong Sun and Juncai Sun*

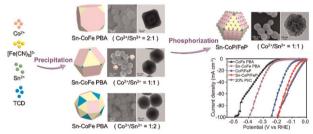
6882



Pd(II), Ni(II), and Cu(II) complexes of α, α' -ditolylmethanone dipyrroethene

Poornenth Pushpanandan, Kanhu Charan Behera and Mangalampalli Ravikanth*

6890



Sn-mediated topological transformation of Archimedean polyhedra of Prussian blue analogues boosts the electrocatalytic performance for alkaline hydrogen production

Yuzhu Hu, Yongqiang Feng,* Weihang Feng, Junsheng Chen, Hai Wang, Tianmi Luo, Chengke Yuan, Liyun Cao, Jianfeng Huang and Xing Lu*

NU-912
Solvothermal
HNTs HNTs@NU-912

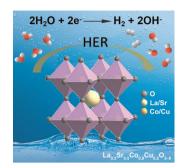
Zirconium-based MOF nanocrystals confined on amphoteric halloysite nanotubes for promoting the catalytic hydrolysis of an organophosphorus nerve agent simulant

Shuwen Li, Heyao Zhang, Gaigai Wu, Jie Wu* and Hongwei Hou*

6906

Cu-doped La_{0.5}Sr_{0.5}CoO_{3- δ} perovskite as a highly efficient and durable electrocatalyst for hydrogen evolution

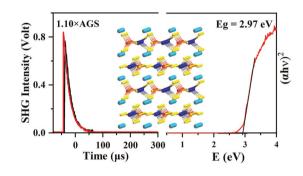
Xue Yang, Fuhe Le, Zikun Zhou, Wei Jia,* Dehuo Zhou and Xianhao Chen



6915

Quaternary alkaline-earth metal thiophosphate SrAgPS₄: syntheses, structures, and optical properties

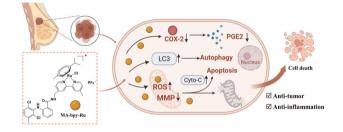
Wenhao Xing, Jian Tang, Fei Liang, Chunlan Tang, Jieyun Wu, Wenlong Yin,* Bin Kang and Jianguo Deng



6922

Selectively attacking tumor cells of Ru/Ir—arene complexes based on meclofenamic acid *via* cyclooxygenase-2 inhibition

Yuanlei Huang, Mengdi Lv, Binglian Guo, Guojing Hu, Yong Qian, Zhi Su, Xuling Xue* and Hong-Ke Liu*



6934

Synthesis, characterization, and *in vivo* evaluation of the anticancer activity of a series of 5- and 6-(halomethyl)-2,2'-bipyridine rhenium tricarbonyl complexes

Sara Nasiri Sovari, Isabelle Kolly, Kevin Schindler, Ana Djuric, Tatjana Srdic-Rajic, Aurelien Crochet, Aleksandar Pavic* and Fabio Zobi*

