ChemComm

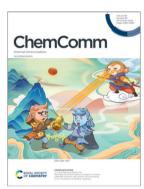
Chemical Communications

rsc.li/chemcomm

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 1359-7345 CODEN CHCOFS 59(83) 12357-12516 (2023)



Cover

See Yu Jiang, Daohong Zhang et al., pp. 12423-12426. Image reproduced by permission of Yu Jiang from Chem. Commun., 2023, 59, 12423.

PROFILE

12368

Contributors to the Emerging Investigators collection 2023: Part 1

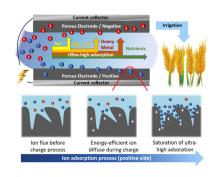


HIGHLIGHT

12376

Capacitive deionization system with ultra-high salt adsorption performance: from lab design to agricultural applications

Rui He, Yongchang Yu, Lingchen Kong, Xitong Liu* and Pei Dong*



Editorial Staff

Executive Editor

Richard Kelly

Deputy Editor

Harriet Riley

Editorial Production Manager Helen Saxton

Development Editors

Danny Andrews, Ershad Abubacker

Senior Publishing Editor

Becky Webb

Publishing Editors

Kirstine Anderson, Matthew Bown, Laura Cooper, Hannah Fielding, Clare Fitzgerald, Anoushka Handa, Claire Harding, Alan Holder, Charlie Palmer, Rosie Rothwell, Donna Smith, Laura Smith

Editorial Assistant

Jade Holliday

Publishing Assistant

Natalie Ford

Publisher

Jeanne Andre

For queries about submitted papers, please contact Helen Saxton, Editorial Production Manager in the first instance. E-mail chemcomm@rsc.org

For pre-submission queries please contact Richard Kelly, Executive Editor. Email chemcomm-rsc@rsc.org

Chemical Communications (print: ISSN 1359-7345; electronic: ISSN 1364-548X) is published 100 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 OWF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £3,553 / US\$6,258. 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

ChemComm

Chemical Communications

rsc.li/chemcomm

Editorial Board

Chair

Douglas Stephan, University of Toronto

Associate Editors

Lutz Ackermann, University of Göttingen Davide Bonifazi, University of Vienna Fengtao Fan, Chinese Academy of Sciences Itaru Hamachi, Kyoto University Michaele Hardie, University of Leeds Kim Jelfs, Imperial College London Chao-Jun Li, McGill University David Lou, City University of Hong Kong Connie Lu, University of Minnesota, US Marinella Mazzanti, EPFL, Switzerland Amy Prieto, Colorado State University Yang Tian, East China Normal University Sandeep Verma, Indian Institute of Technology Kanpur

Advisory Board

Brendan Abrahams, University of Melbourne Polly Arnold, University of Edinburgh Louise Berben, University of California, Davis Akkattu T. Biju, Indian Institute of Science, Bangalore

Penny Brothers, Australian National University Wesley Browne, University of Groningen Raffaella Buonsanti, EPFL

Hong Chen, Soochow University Xiao-Ming Chen, Sun Yat-Sen University Arindam Chowdhury, Indian Institute of Technology Bombay

Derrick Clive, University of Alberta Seth Cohen, University of California, San Diego Marcetta Darensbourg, Texas A&M University Jyotirmayee Dash, Indian Association for the Cultivation of Science

Gautam R. Desiraju, Indian Institute of Science, Bangalore

Abhishek Dey, Indian Association for the Cultivation of Science (IACS) Josh Figueroa, University of California, San

Lutz Gade, University of Heidelberg Sujit Ghosh, Indian Institute of Science Education of Research, India

Robert Gilliard Jr., Massachusetts Institute of Technology, USA David Gonzalez-Rodriguez, Autonomous

University of Madrid Rebecca Goss, University of St Andrews Mike Greaney, University of Manchester Shaojun Guo, Peking University Michaele Hardie, University of Leeds Amanda Hargrove, Duke University Hongyan He, Institute of Process Engineering, Chinese Academy of Sciences, China Eva Hevia, University of Bern, Switzerland Feihe Huang, Zhejiang University Todd Hudnall, Texas State University Ilich A. Ibarra Alvarado, National University of Mexico

Ajeet Kaushik, Florida Polytechnic University Jong Seung Kim, Korea University Shu Kobayashi, University of Tokyo Mi Hee Lim, Ulsan National Institute of Science and Technology (UNIST) Teck-Peng Loh, Nanyang Technological University

Tien-Yau Luh, National Taiwan University Doug MacFarlane, Monash University Hiromitsu Maeda, Ritsumeikan University Silvia Marchesan, University of Trieste Nazario Martin, Complutense University of Modrid

Alexander Miller, University of North Carolina at Chapel Hill

Wonwoo Nam, Ewha Womans University Kenneth Ozoemena, University of the Witwatersrand Johannesburg Thalappil Pradeep, Indian Institute of Technology Madras S Ramakrishnan, Indian Institute of Science Erwin Reisner, University of Cambridge Robin Rogers, McGill University Ilhyong Ryu, Osaka Metropolitan University Paolo Samori, University of Strasbourg David Scanlon, University of Birmingham Ellen Sletten, University of California, Los Angeles

David Smith, University of York Mizuki Tada, Nagoya University Zhong-Qun Tian, Xiamen University, China Tan Tianwei, Beijing University of Chemical Technology

Tomas Torres, Autonomous University of Madrid

Judy Wu, University of Houston Yi Xie, University of Science and Technology of China

Xianran Xing, University of Science and Technology Beijing Shuli You, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences Yan Yu, University of Science and Technology

of China Fan Zhang, Fudan University Qiang Zhang, Tsinghua University Xi Zhang, Tsinghua University Wenwan Zhong, University of California, Riverside

Eli Zysman-Colman, University of St. Andrews

Information for Authors

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

ree li/chemeomm

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.

⊕ The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Registered charity number: 207890

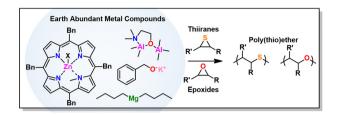


FEATURE ARTICLES

12390

A guide to modern methods for poly(thio)ether synthesis using Earth-abundant metals

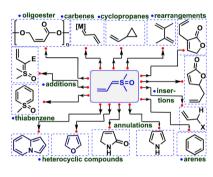
Robert C. Ferrier Jr.* Gouree Kumbhar. Shaylynn Crum-Dacon and Nathaniel A. Lynd



12411

Insights into the multifaceted applications of vinyl sulfoxonium ylides

Raju Sen, Srashti Bhardwaj, Krishnendu Bar, Shalu Deshwal and Janakiram Vaitla*

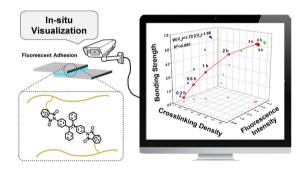


COMMUNICATIONS

12423

Reversible fluorescent adhesives based on covalent adaptable networks with dynamic AIE crosslinking: in situ visualization of adhesion capability

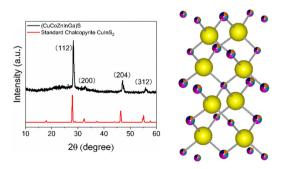
Yu Jiang,* Ziyu Ran, Yangfei Wu, Meng Zhang, Ying Ma and Daohong Zhang*



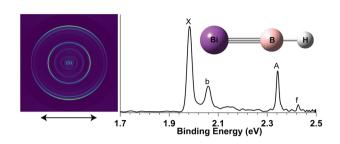
12427

Deposition of a high entropy thin film by aerosol-assisted chemical vapor deposition

Weichen Xiao, Mark A. Buckingham, Yi Li, Kerry Hazeldine, Bing Han, Sarah H. Cartmell, Alexander S. Eggeman, Alex S. Walton and David J. Lewis*



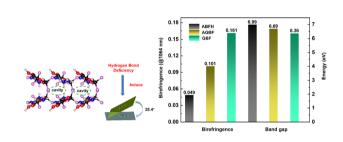
12431



Observation of an electron-precise metal boryne complex: [Bi≡BH]⁻

Han-Wen Gao, Jie Hui and Lai-Sheng Wang*

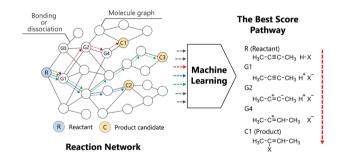
12435



Hydroxyfluorooxoborate $(NH_4)[C(NH_2)_3][B_3O_3F_4(OH)]$ for exploring the effects of cation substitution on structure and optical properties

Ziqi Chen, Fuming Li, Zhihua Yang, Shilie Pan* and Miriding Mutailipu*

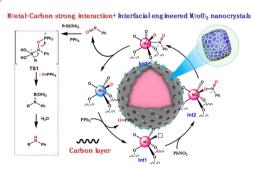
12439



Predicting and analyzing organic reaction pathways by combining machine learning and reaction network approaches

Tomonori Ida,* Honoka Kojima and Yuta Hori

12443



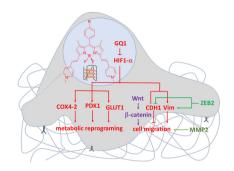
Enhancing reductive C-N coupling of nitrocompounds through interfacial engineering of MoO₂ in thin carbon layers

Mengting Liu, Xuexue Dong, Xiu Zhong, Zhenxiao Wang, Juanjuan Gong, Heng Song, Chao Yu, Aihua Yuan, Fu Yang* and Edison Huixiang Ang*

12447

Reprograming cancer cells by a BODIPY G-quadruplex stabiliser

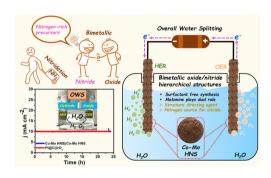
Aminesena Baser, Beyza Basar, Hanim Beyza Dogan, Gulnur Sener, Nezahat Gokce Ozsamur, Fatma Secer Celik, Safaa Altves and Sundus Erbas-Cakmak*



12451

Nitridation-free preparation of bimetallic oxide-nitride bifunctional electrocatalysts for overall water splitting

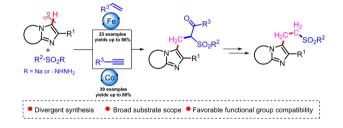
Sulakshana Shenoy, Chitiphon Chuaicham, Keiko Sasaki,* Sungkyun Park, Muthuchamy Nallal,* Kang Hyun Park* and Karthikeyan Sekar*



12455

Ketosulfonylmethylenation and sulfonylethyleneation of imidazoheterocycles with dimethylformamide as a methylene source

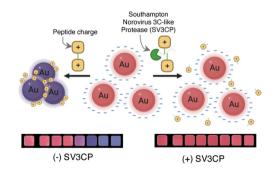
Tao Guo, Penghua Hu, Yu Liu, Panke Zhang,* Yunhui Zhao* and Congjun Zhu*



12459

Valence-driven colorimetric detection of norovirus protease via peptide-AuNP interactions

Chuxuan Ling, Zhicheng Jin, Justin Yeung, Elany Barbosa da Silva, Yu-Ci Chang, Tengyu He, Wonjun Yim, Anthony J. O'Donoghue and Jesse V. Jokerst*



12463

Ruthenium-catalysed cross-coupling reaction of ketones with transformable directing groups as alkenyl electrophiles

Yuya Kogure, Kohei Hatakeyama, Kai Tsuchiya, Yuta Kunii and Satoshi Ueno*

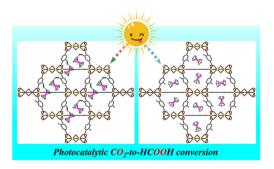
12467

- Visible-Light Mediated Aza Paternò-Büchi Reaction
- Synthesis of Benzo[f][1,2]thiazepine 1,1-Dioxides

Synthesis of benzo[f][1,2]thiazepine 1,1-dioxides based on the visible-light-mediated aza Paternò-Büchi reaction of benzo[d]isothiazole 1,1-dioxides with alkenes

Yi-Lin Wang, Peng-Xiang Liu, Huan-Huan Zhang, Peng-Fei Xu and Yong-Chun Luo*

12471



A ferrocene-modified stable metal-organic framework for efficient CO₂ photoreduction reaction

Gui-Qi Lai, Ning Li, Jun He* and Ya-Qian Lan*

12475



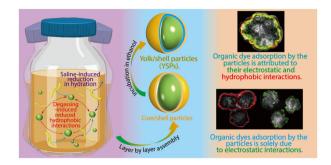
Boosting the methanol selectivity in CO₂ hydrogenation over a MOF-derived CuZn@CN catalyst via Rb incorporation

Jyoti Gahtori, Jyotishman Kaishyop, Gaje Singh, Tuhin S. Khan, Flavio C. Vicentin, Tulio C.R. Rocha and Ankur Bordoloi*

12479

Layer-by-layer assembly of polyelectrolytes on hydrophobic particles in aqueous milieu for efficient dye removal

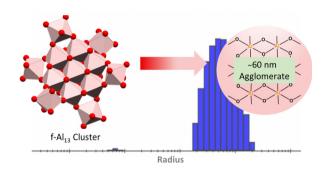
Bo Wang, Tengyue Fu, Chongling Cheng* and Dayang Wang*



12483

Observation of alumina nanoparticles generated from aqueous solutions of a "flat" aluminum-13 cluster

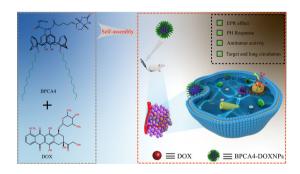
Alex Q. Rosen, Victor Salpino and Darren W. Johnson*



12487

Novel biotin-linked amphiphilic calix[4] arene-based supramolecular micelles as doxorubicin carriers for boosted anticancer activity

Dan Du, Yu-dun Liu, Jun-bing Lan, Xue-li Hou, Jia-dong Liu, Qing-hua Shi, Qing-wen Huang, Yun-sheng Xue, Chao-Guo Yan* and Lin An*

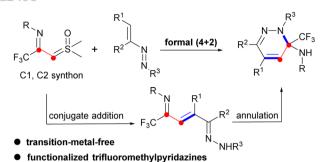


12491

Site-selective ring opening of bicyclo[n.1.0]alkanols: an Fe(II)-catalyzed 1,6-conjugate addition to p-quinone methides

Neha Jha, Subhadip Mondal and Manmohan Kapur*

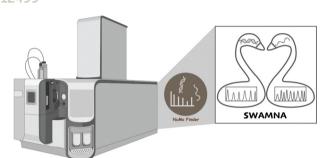
12495



Formal (4+2) cycloaddition of azoalkenes with trifluoromethylimidoyl sulfoxonium ylides: synthesis of trifluoromethyl pyridazine derivatives

Jie Wang, Shan-Shan Wang, Jun Xiao, Yu-Jie He, Xin-Yan Wu, Xingguang Li* and Pei-Nian Liu*

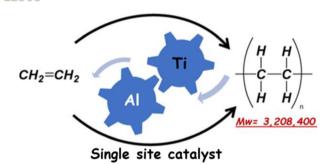
12499



SWAMNA: a comprehensive platform for analysis of nucleic acid modifications

Yixuan Xie, Francisca N. De Luna Vitorino, Ye Chen, Joanna K. Lempiäinen, Chenfeng Zhao, Robert T. Steinbock, Zongtao Lin, Xingyu Liu, Emily Zahn, Arabella L. Garcia, Matthew D. Weitzman and Benjamin A. Garcia*

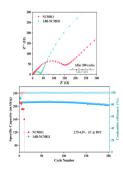
12503



A strategy for high ethylene polymerization performance using titanium single-site catalysts

Lujain Alrais, Walid Al Maksoud, Baraa Werghi, Anissa Bendjeriou-Sedjerari, Edy Abou-Hamad, Mohamed N. Hedhili and Jean-Marie Basset*

12507



Improving the cycling stability of LiNi_{0.8}Co_{0.1}Mn_{0.1}O₂ by boron doping to inhibit Li/Ni mixing

Ziru Hu, Donghong Duan, Haorui Wang, Shoudong Xu, Liang Chen and Ding Zhang*

12511

Significant cell uptake of Gd(III)-diphenylphosphoryldiphenylphosphonium complexes: evidence for a new conformationally-dependent tumour cell targeting vector

Andrew J. Hall, Amy G. Robertson, Robert W. Baker, Leila R. Hill and Louis M. Rendina*