# ChemComm

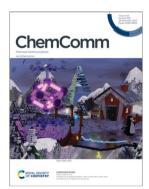
# Chemical Communications

# 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.

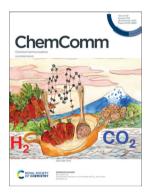
# IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 59(100) 14729-14864 (2023)



#### Cover

See Selvan Demir et al., pp. 14791-14794. Image reproduced by permission of Selvan Demir from Chem. Commun., 2023, 59, 14791.



#### Inside cover

See Seiji Ogo et al., pp. 14795-14798. Image reproduced by permission of Seiji Ogo from Chem. Commun., 2023, **59**, 14795.

## **PROFILE**

14738

**Contributors to the Emerging Investigators** collection 2023: Part 2

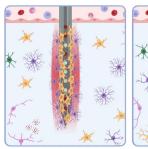


### **FEATURE ARTICLES**

14745

Biohybrid neural interfaces: improving the biological integration of neural implants

Marjolaine Boulingre, Roberto Portillo-Lara and Rylie A. Green\*





#### **Editorial Staff**

Executive Editor

Richard Kelly

**Deputy Editor** 

Harriet Riley

**Editorial Production Manager** Helen Saxton

Development Editors

Danny Andrews, Ershad Abubacker

Senior Publishing Editor

**Publishing Editors** 

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

Editorial Assistant

Iade Holliday

**Publishing Assistant** Natalie Ford

Publisher

Jeanne Andres

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 0WF, 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 Diego

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

Aieet 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

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 & NYCU

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

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 Zvsman-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:

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.

 $\mathop{\otimes}$  The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Registered charity number: 207890

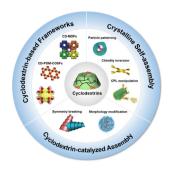


### FEATURE ARTICLES

#### 14759

New opportunities for cyclodextrins in supramolecular assembly: metal organic frameworks, crystalline self-assembly, and catalyzed assembly

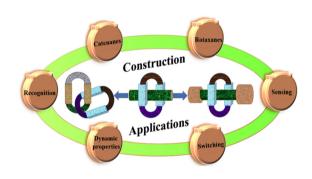
Ting Gu, Jianbin Huang\* and Yun Yan\*



### 14776

From construction to application of a new generation of interlocked molecules composed of heteroditopic wheels

Mandira Nandi, Somnath Bej, Tarun Jana and Pradyut Ghosh\*

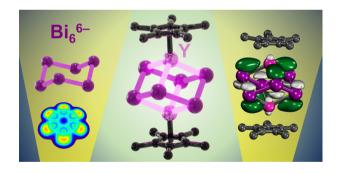


### **COMMUNICATIONS**

### 14791

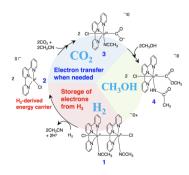
Isolation of an organometallic yttrium bismuth cluster and elucidation of its electronic structure

Elizabeth R. Pugliese, Florian Benner and Selvan Demir\*

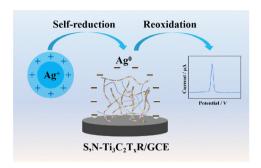


Storing electrons from H<sub>2</sub> for transfer to CO<sub>2</sub>, all at room temperature

Daiki Shimauchi, Takeshi Yatabe, Yuka Ikesue, Yuu Kajiwara, Taro Koide, Tatsuya Ando, Ki-Seok Yoon, Hidetaka Nakai and Seiji Ogo\*



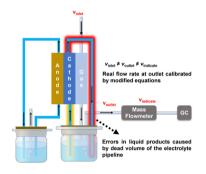
#### 14799



A proof-of-concept electroreduction-free anodic stripping voltammetry analysis of Ag(ı) based on S,N-Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene nanoribbons

Yifan Zhou, Yinhui Yi, Yong He and Gangbing Zhu\*

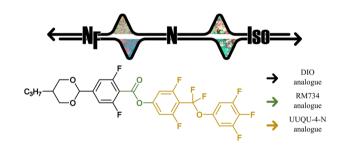
#### 14803



# Accurate assessment of electrocatalytic carbon dioxide reduction products at industrial-level current density

Xin Zi, Qiuwen Liu, Li Zhu, Qin Chen, Xianggiong Liao, Ziwen Mei, Xiaojian Wang, Xiqing Wang, Kang Liu, Junwei Fu\* and Min Liu\*

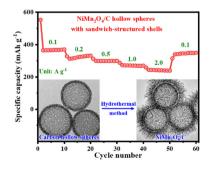
#### 14807



# Enantiotropic ferroelectric nematic phase in a single compound

Jakub Karcz,\* Natan Rychłowicz, Małgorzata Czarnecka, Antoni Kocot, Jakub Herman and Przemysław Kula

#### 14811



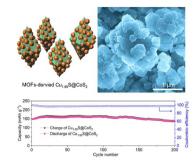
# Fabrication of NiMn<sub>2</sub>O<sub>4</sub>/C hollow spheres with a trilaminar shell structure as an anode material for sodium-ion batteries

Tao Liu, Xuejie Wang, Yang Han, Yingqi Wu, Liuyang Zhang\* and Jiaguo Yu\*

#### 14815

A metal organic framework-derived octahedral Cu<sub>1.95</sub>S@CoS<sub>2</sub> for secondary batteries displaying long cycle life and stable temperature tolerance

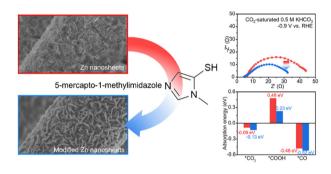
Tianli Han,\* Haiyuan Bai, Jing Xu, Yajun Zhu, Xirong Lin and Jinyun Liu\*



#### 14819

Organic molecule-assisted intermediate adsorption for conversion of CO<sub>2</sub> to CO by electrocatalysis

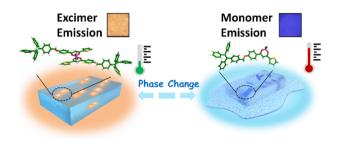
Kai Zhang, Wenyuan Wang, Ying Wang, Wenhui Wang, Nanyang Wang, Jun Pu, Qiulong Li and Yagang Yao\*



# 14823

An ultra-sensitive ratiometric fluorescent thermometer based on monomer and excimer dual emission

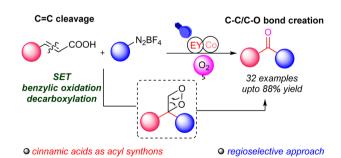
Weixu Feng,\* Yanhui Wu, Dong Chen, Sumin Lu, Yan Zhao and Hongxia Yan\*



#### 14827

Synthesis of unsymmetrical ketones via dual catalysed cross-coupling of  $\alpha,\beta$ -unsaturated carboxylic acids with aryldiazonium salts

Shiv Chand, Anup Kumar Sharma, Anand Kumar Pandey and Krishna Nand Singh\*



#### 14831

Cu(I)/L3 (cat.) up to 76% yield ♦ atroposelective [4+1] annulation

• high enantioselectivities and mild reaction conditions

up to 96% ee

Copper-catalyzed atroposelective formal [4+1] annulation of 1,2-diketones with vinyl cations

Ze-Shu Wang, Hao-Jin Xu, Yang-Bo Chen, Long-Wu Ye,\* Bo Zhou\* and Peng-Cheng Qian\*

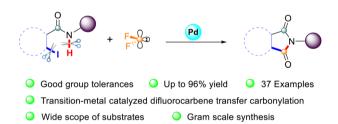
# 14835



# Modulation of [8]CPP properties by bridging two phenylene units

Denis Ari, Elodie Dureau, Olivier Jeannin, Joëlle Rault-Berthelot, Cyril Poriel and Cassandre Quinton\*

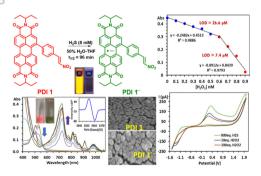
#### 14839



# Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction

Chengxian Hu, Lu Wang, Yuanyuan Wu, Yonglong Zheng, Ying Fu\* and Zhengyin Du\*

# 14843



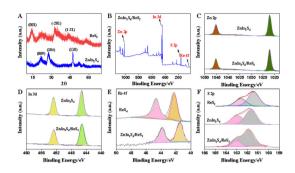
# Perylene diimide-based radical anions for the rapid detection of picomolar H<sub>2</sub>O<sub>2</sub> in an aqueous medium

Navdeep Kaur, Sagar Sardana, Aman Mahajan, Subodh Kumar and Prabhpreet Singh\*

#### 14847

A ZnIn<sub>2</sub>S<sub>4</sub>@ReS<sub>2</sub>/AgInS<sub>2</sub>-based photoelectrochemical aptasensor for the ultrasensitive detection of kanamycin

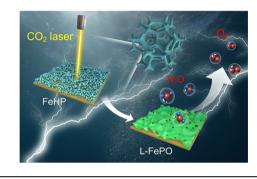
Xing-Pei Liu, Yuan-Yuan Tang, Jing-Shuai Chen, Chang-Jie Mao\* and Bao-Kang Jin



#### 14851

Laser-induced immobilization of an amorphous iron-phosphate/Fe<sub>3</sub>O<sub>4</sub> composite on nickel foam for efficient water oxidation

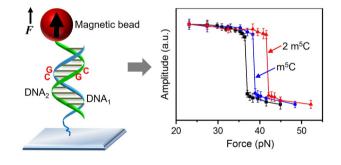
Yan Zou, Man Jin, Dongdong Zhu and Yu-Jia Tang\*



# 14855

DNA methylation induces subtle mechanical alteration but significant chiral selectivity

Yi Zeng, Yujia Mao, Yanjun Chen, Yuhong Wang\* and Shoujun Xu\*



# 14859

Photocatalytic C(sp<sup>3</sup>)-H thiolation by a double S<sub>H</sub>2 strategy using thiosulfonates

Nobukazu Taniguchi,\* Mamoru Hyodo,\* Lin-Wei Pan and Ilhyong Ryu\*

