

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.

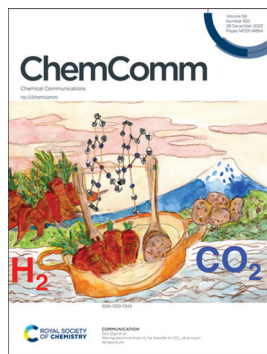
IN THIS ISSUE

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

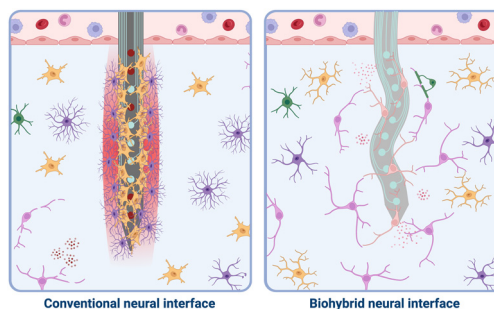


FEATURE ARTICLES

14745

Biohybrid neural interfaces: improving the biological integration of neural implants

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



Conventional neural interface

Biohybrid neural interface



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, Anoushka Handa, Claire Harding, Alan Holder, Charlie Palmer, Rosie Rothwell, Donna Smith, Laura Smith

Editorial Assistant

Jade 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

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 Madrid

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

Ilyong 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 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: rsc.li/chemcomm

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

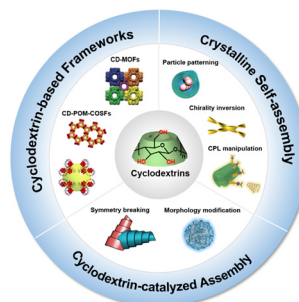


FEATURE ARTICLES

14759

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

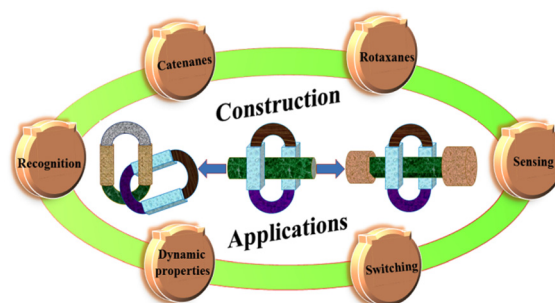
Ting Gu, Jianbin Huang* and Yun Yan*



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*

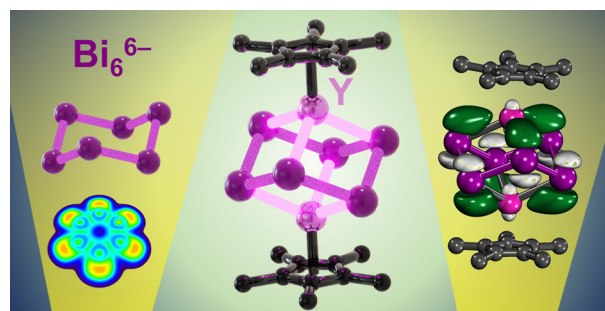


COMMUNICATIONS

14791

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

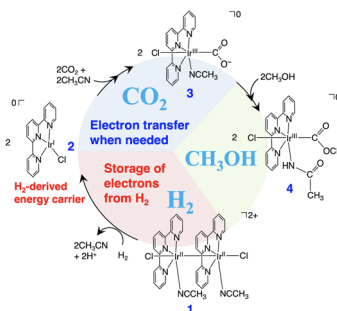
Elizabeth R. Pugliese, Florian Benner and Selvan Demir*



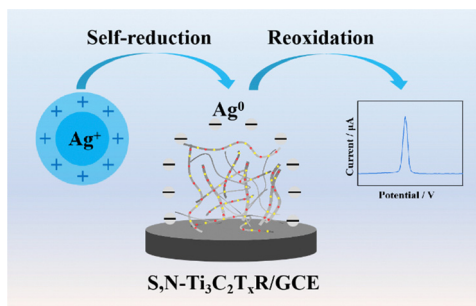
14795

Storing electrons from H₂ for transfer to CO₂, all at room temperature

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



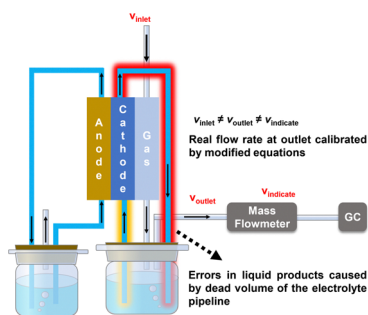
14799



A proof-of-concept electroreduction-free anodic stripping voltammetry analysis of Ag(I) based on S,N-Ti₃C₂T_x MXene nanoribbons

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

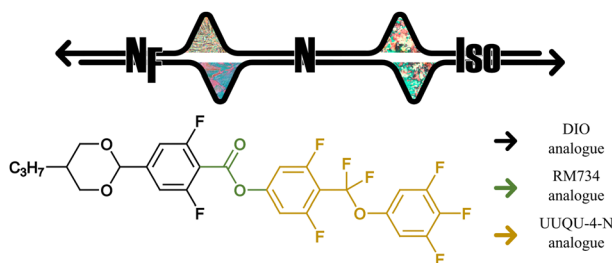
14803



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

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

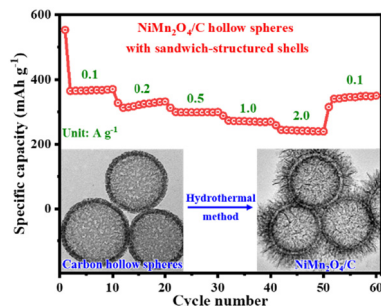
14807



Enantiotropic ferroelectric nematic phase in a single compound

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

14811



Fabrication of NiMn₂O₄/C hollow spheres with a trilaminar shell structure as an anode material for sodium-ion batteries

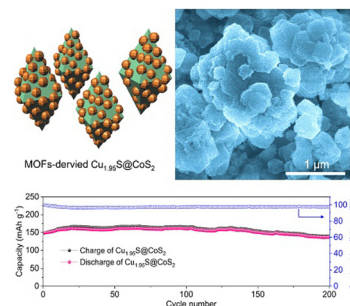
Tao Liu, Xuejie Wang, Yang Han, Yingqi Wu, Liuyang Zhang* and Jiaguo Yu*



14815

A metal organic framework-derived octahedral $\text{Cu}_{1.95}\text{S}@\text{CoS}_2$ for secondary batteries displaying long cycle life and stable temperature tolerance

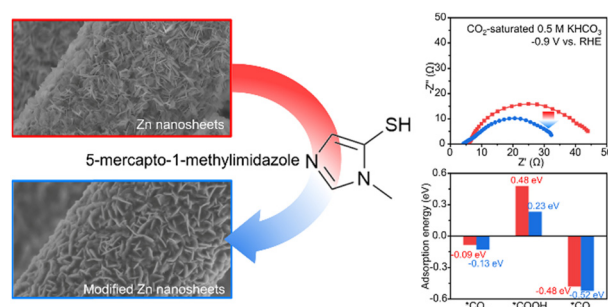
Tianli Han,* Haiyuan Bai, Jing Xu, Yajun Zhu, Xirong Lin and Jinyun Liu*



14819

Organic molecule-assisted intermediate adsorption for conversion of CO_2 to CO by electrocatalysis

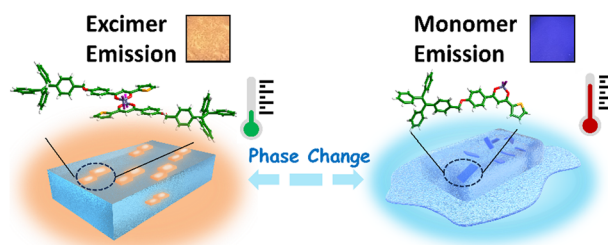
Kai Zhang, Wenyuan Wang, Ying Wang, Wenhui Wang, Nanyang Wang, Jun Pu, Qiulong Li and Yagang Yao*



14823

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

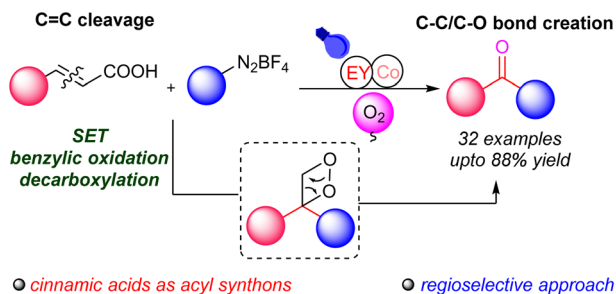
Weixu Feng,* Yanhui Wu, Dong Chen, Sumin Lu, Yan Zhao and Hongxia Yan*



14827

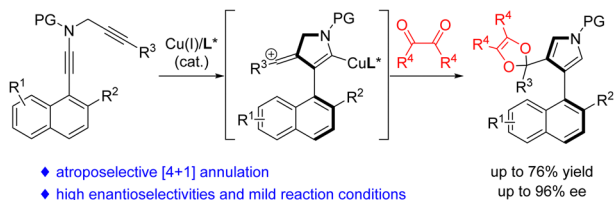
Synthesis of unsymmetrical ketones via dual catalysed cross-coupling of α,β -unsaturated carboxylic acids with aryldiazonium salts

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



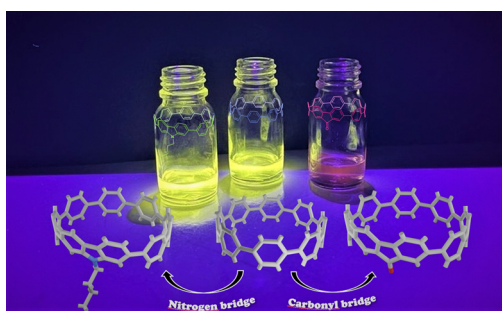
COMMUNICATIONS

14831

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

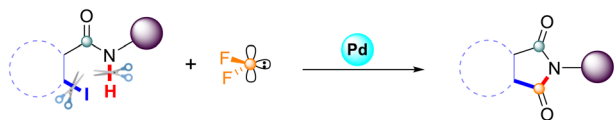
Ze-Shu Wang, Hao-Jin Xu, Yang-Bo Chen, Long-Wu Ye,* Bo Zhou* and Peng-Cheng Qian*

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*

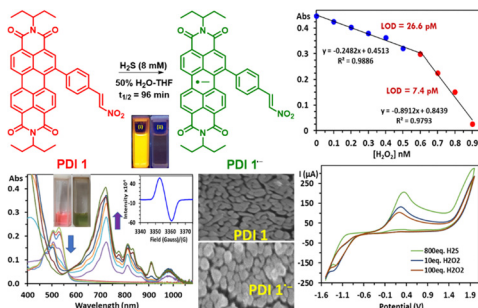
14839

**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*

- Good group tolerances
- Up to 96% yield
- 37 Examples
- Transition-metal catalyzed difluorocarbene transfer carbonylation
- Wide scope of substrates
- Gram scale synthesis

14843

**Perylene diimide-based radical anions for the rapid detection of picomolar H₂O₂ in an aqueous medium**

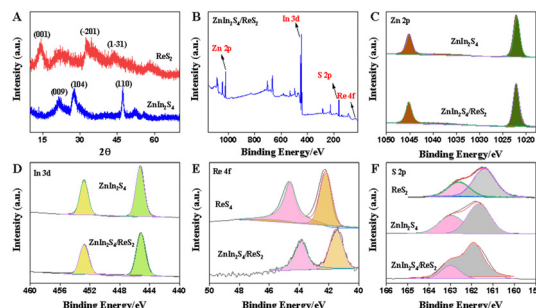
Navdeep Kaur, Sagar Sardana, Aman Mahajan, Subodh Kumar and Prabhpreet Singh*



14847

A ZnIn₂S₄@ReS₂/AgInS₂-based photoelectrochemical aptasensor for the ultrasensitive detection of kanamycin

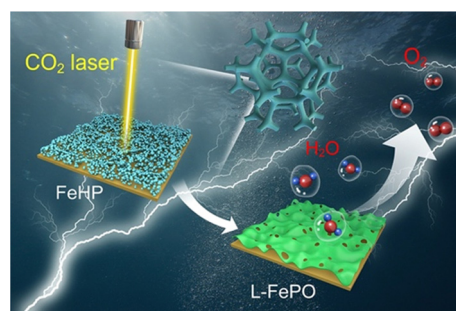
Xing-Pei Liu, Yuan-Yuan Tang, Jing-Shuai Chen, Chang-Jie Mao* and Bao-Kang Jin



14851

Laser-induced immobilization of an amorphous iron-phosphate/Fe₃O₄ composite on nickel foam for efficient water oxidation

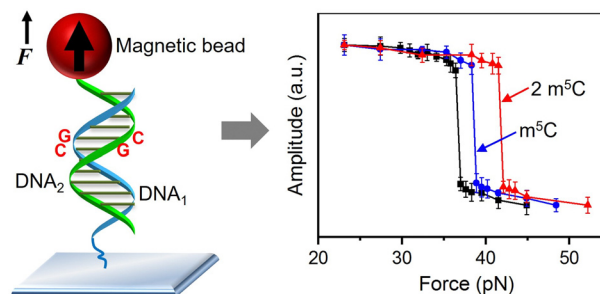
Yan Zou, Man Jin, Dongdong Zhu and Yu-Jia Tang*



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(sp³)-H thiolation by a double S_H2 strategy using thiosulfonates

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

