ChemComm

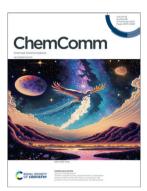
Chemical Communications

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(88) 13073-13228 (2023)



Cover

See Tsutomu Yokozawa et al., pp. 13139-13142. Image reproduced by permission of Yu Tokita from Chem. Commun., 2023, 59, 13139.

CONFERENCE REPORT

13083

Highlights from Faraday Discussion: Astrochemistry at high resolution, Baltimore, USA, May 2023

Olivia Wilkins,* Divita Gupta and Mathieu Bertin

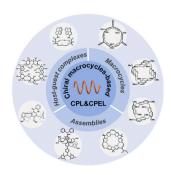


FEATURE ARTICLES

13089

Advances in circularly polarized luminescence materials based on chiral macrocycles

Jia-Qi Wang, Xiao-Ni Han, Ying Han* and Chuan-Feng Chen*



Editorial Staff

Executive Editor

Richard Kelly

Deputy Editor

Harriet Riley

Editorial Production Manager Helen Saxton

Development Editors

Danny Andrews, Ershad Abubacker

Senior Publishing Editor

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

Iade Holliday

Publishing Assistant

Natalie Ford

Publisher

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

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.

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

Registered charity number: 207890

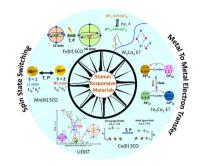


FEATURE ARTICLES

13107

Stimuli-responsive magnetic materials: impact of spin and electronic modulation

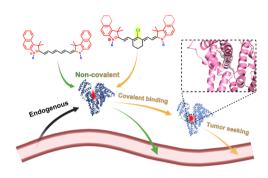
Krishna Kaushik. Sakshi Mehta.* Mayurika Das. Sounak Ghosh, Sujit Kamilya and Abhishake Mondal*



13125

Site-specific albumin tagging with chloridecontaining near-infrared cyanine dyes: molecular engineering, mechanism, and imaging applications

Qi Su, Yuewei Zhang* and Shoujun Zhu*



COMMUNICATIONS

13139

Tandem Kumada-Tamao catalyst-transfer condensation polymerization and Suzuki-Miyaura coupling for the synthesis of end-functionalized poly(3-hexylthiophene)

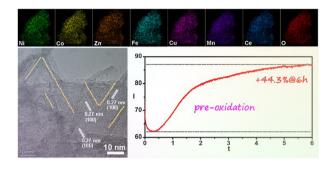
Yu Tokita, Tatsuya Uchida, Takeru Kamigawara, Kenta Hoka, Reo Nitto, Yoshihiro Ohta and Tsutomu Yokozawa*

13143

Visible light-mediated C (sp³)-H bond functionalization inside an all-organic nanocavity

Debojyoti Roy, Sunandita Paul and Jyotishman Dasgupta*

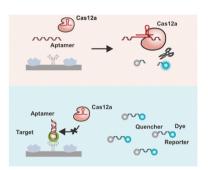
13147



High-entropy wire-on-sheet nanoarray catalyst with boosted pre-oxidation for efficient oxygen evolution reaction

Min Hao, Jing Chen, Zimeng Liu, Xiaoning Sun, Shanshan Liu, Fengcai Lei, Xu Sun, Junfeng Xie* and Bo Tang

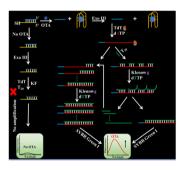
13151



trans-Cleavage of the CRISPR-Cas12a-aptamer system for one-step antigen detection

Hongxuan Fan, Shi-hua Luo, Ying Zhu, Jiye Shi, Fangfei Yin* and Jiang Li*

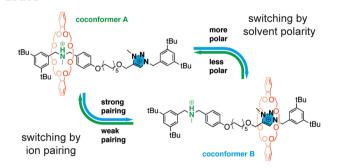
13155



Target-initiated fluorescent aptasensor based on multisite strand displacement amplification for label-free detection of ochratoxin A

Dandan Zhang, Xiangyue Cai, Qian Zhang and Chunyang Zhang*

13159



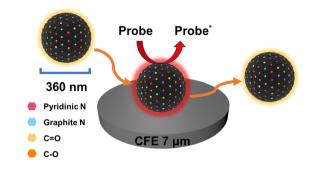
Controlling molecular shuttling in a rotaxane with weak ring recognition sites

Nina Bukhtiiarova, Alberto Credi* and Stefano Corra*

13163

Insight into active sites of nitrogen-doped carbon catalyst by stochastic collision electrochemistry

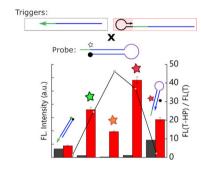
Jianwei Zong, Wenjie Wu, Langun Mao and Ping Yu*



13167

Design strategies for countering the effect of fluorophore-quencher labelling on DNA hairpin thermodynamics

Yan Shan Ang and Lin-Yue Lanry Yung*



13171

Selective and benign alkylation of sulfido-oxo stannate clusters with propyl, pentyl, or hexyl substituents

Gina Stuhrmann, Jannik Schneider, Kilian Schmidt and Stefanie Dehnen*

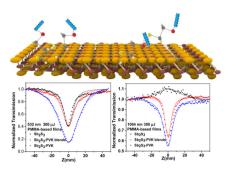


13175

NHC-catalyzed radical acylation of cycloalkyl silyl peroxides to access 1,6-,1,7-, and 1,8-diketones

Chaolei Liu, Jingyi Wang, Xinlong Liu, Jie Feng* and Ding Du*

13179



Covalent functionalization of Sb₂S₃ with poly(N-vinylcarbazole) for solid-state broadband laser protection

Guangwei Li, Ningning Dong, Xinzhu Wang,* Xibin Shen, Jun Wang* and Yu Chen*

13183



Constructing a carboxyl-rich angstrom-level trap in a metal-organic framework for the selective capture of lithium

Xinxin Gao, Rui Ding, Hongliang Huang,* Baosheng Liu* and Xudong Zhao*

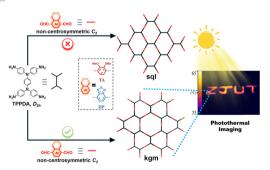
13187



Enaminone-directed ruthenium(II)-catalyzed C-H activation and annulation of arenes with diazonaphthoguinones for polycyclic benzocoumarins

Sudeshna Mondal, Chandan Kumar Giri and Mahiuddin Baidya*

13191



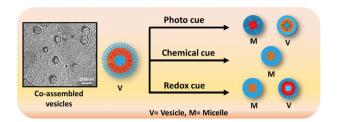
Kagome-topology 2D covalent organic frameworks assembled from D_{2h} -symmetric and non-centrosymmetric C2-symmetric blocks for photothermal imaging

Jiahao Li, Guinan Chen, Chunhong Chen, Yuanyuan Lou, Zhihao Xing, Tao Zhang, Chengtao Gong and Yongwu Peng*

13195

Orthogonal chain collapse in stimuli-responsive di-block polymers leading to self-sorted nanostructures

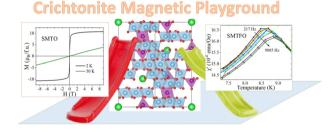
Chirag Miglani, Maqsuma Banoo, Debasish Nath, Jahanvi Ralhan, Soma Sil, Jojo P. Joseph, Santanu K. Pal, Ujjal Gautam* and Asish Pal*



13199

Ferrimagnetic and spin glass behaviour in $SrMn^{2+}_{3}Ti^{4+}_{14}M^{3+}_{4}O_{38}$ (M = Ti and Fe) synthetic crichtonites

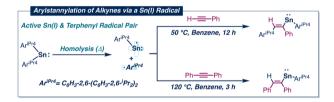
José Luis Rosas-Huerta,* Ruigi Chen, Clemens Ritter, Oleg Siidra, Marie Colmont and Angel M. Arévalo-López*



13203

Sn(II)—carbon bond reactivity: radical generation and consumption via reactions of a stannylene with alkynes

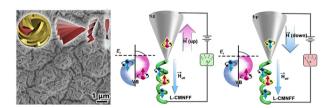
Wenxing Zou, Kristian L. Mears, James C. Fettinger and Philip P. Power*



13207

Chiral mesostructured NiFe₂O₄ films with chirality induced spin selectivity

Yiping Zhou, Te Bai and Yingying Duan*

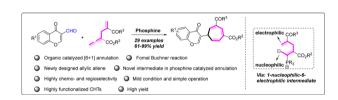


13211

Brønsted acid-catalyzed annulation reaction of hydroxamic acids: synthesis of cyclopentane-fused isoxazolidines and their benzilic amide rearrangement

Swati Lekha Mondal, Vinod Bhajammanavar, Isai Ramakrishna and Mahiuddin Baidya*

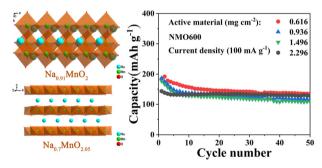
13215



Phosphine-catalyzed formal Buchner [6+1] annulation: de novo construction of cycloheptatrienes

Jingxiong Lai and You Huang*

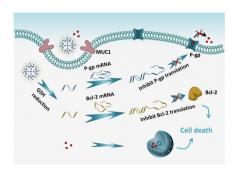
13219



High-performance heterostructure Na_{0.7}MnO_{2.05}-Na_{0.91}MnO₂ as a lithium-free cathode for lithium-ion batteries

Tianfeng Gao, Yanjun Cai,* Qingrong Kong, Hualing Tian, Xiang Yao and Zhi Su*

13223



High-order framework nucleic acid for targeted-delivery of antisense peptide nucleic acids to overcome drug resistance

Shu Xing, Xiaoqian Lan, Jiaqian Zhang, Meng Li and Bing Wang*