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(71) 10563-10678 (2023)



Cover See Evangelos Miliordos et al., pp. 10572–10587. Image reproduced by permission of Evangelos Miliordos from Chem. Commun., 2023, **59**, 10572.



Inside cover

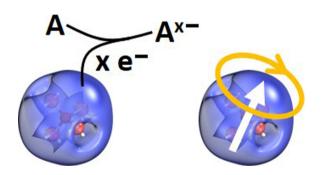
See Takahiro Tsuchiya, Yasuhiro Mazaki et al., pp. 10604–10607. Image reproduced by permission of Takahiro Tsuchiya from *Chem. Commun.*, 2023, **59**, 10604.

FEATURE ARTICLES

10572

A fresh perspective on metal ammonia molecular complexes and expanded metals: opportunities in catalysis and quantum information

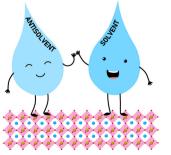
Benjamin A. Jackson, Shahriar N. Khan and Evangelos Miliordos*



10588

Solvent-antisolvent interactions in metal halide perovskites

Jose Roberto Bautista-Quijano, Oscar Telschow, Fabian Paulus and Yana Vaynzof*



Editorial Staff

Executive Editor Richard Kelly

Deputy Editor

Harriet Riley Editorial Production Manager

Helen Saxton

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

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

1ei +44 (0)1225 452598; E-man orders@isc.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

Advisory Board

Raffaella Buonsanti, EPFL

Paulo

Chair

Douglas Stephan, University of Toronto Associate Editors Lutz Ackermann, University of Göttingen Davide Bonifazi, University of Vienna Rachel Caruso, RMIT University

Brendan Abrahams, University of Melbourne

Louise Berben, University of California, Davis

Wesley Browne, University of Groningen

Luiz Henrique Catalani, University of São

Xiao-Ming Chen, Sun Yat-Sen University

Arindam Chowdhury, Indian Institute of

Seth Cohen, University of California, San Diego

Marcetta Darensbourg, Texas A&M University

Jyotirmayee Dash, Indian Association for the

Gautam R. Desiraju, Indian Institute of

Abhishek Dey, Indian Association for the

Josh Figueroa, University of California, San

Lutz Gade, University of Heidelberg

Sujit Ghosh, Indian Institute of Science

Robert Gilliard Jr., University of Virginia

David Gonzalez-Rodriguez, Autonomous

Nathan Gianneschi, University of California,

Lifeng Chi, Soochow University

Derrick Clive, University of Alberta

. Technology Bombay

Cultivation of Science

Cultivation of Science (IACS)

Education of Research, India

Science, Bangalore

Diego

San Diego

University of Madrid

Penny Brothers, Australian National University

Polly Arnold, University of Edinburgh

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

Rebecca Goss, University of

Shaojun Guo, Peking University

Mike Greaney, University of Manchester

Craig Hawker, University of California, Santa

Ilich A. Ibarra Alvarado, National University

Michaele Hardie, University of Leeds

Amanda Hargrove, Duke University

Feihe Huang, Zhejiang University

Todd Hudnall, Texas State University

Hiroshi Kageyama, Kyoto University

Jong Seung Kim, Korea University

Science and Technology (UNIST)

Teck-Peng Loh, Nanyang

Technological University

Shu Kobayashi, University of Tokyo

Mi Hee Lim, Ulsan National Institute of

Tien-Yau Luh, National Taiwan University

Hiromitsu Maeda, Ritsumeikan University

Nazario Martin, Complutense University of

Alexander Miller, University of North Carolina

Wonwoo Nam, Ewha Womans University

Jean-Francois Nierengarten, University of

Thalappil Pradeep, Indian Institute of

Doug MacFarlane, Monash University

Silvia Marchesan, University of Trieste

Keiji Maruoka, Kyoto University

St Andrews

Barbara

of Mexico

Madrid

at Chapel Hill

Strasbourg

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

Technology Madras

S Ramakrishnan, Indian Institute of Science Erwin Reisner, University of Cambridge Robin Rogers, McGill University Paolo Samori, University of Strasbourg Ellen Sletten, University of California, Los Angeles David Smith, University of York Mizuki Tada, Nagoya University Christine Thomas, Ohio State University Zhong-Qun Tian, Xiamen University Tomas Torres, Autonomous University of Madrid Helma Wennemers, ETH Zurich 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 Atsuo Yamada, University of Tokyo 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.

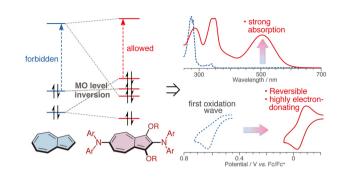
Registered charity number: 207890



10604

Intense absorption of azulene realized by molecular orbital inversion

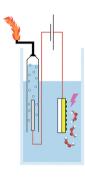
Takahiro Tsuchiya,* Tomohiro Hamano, Masahiro Inoue, Tomoya Nakamura, Atsushi Wakamiya and Yasuhiro Mazaki*



10608

Towards the quantification of the chemical mechanism of light-driven water splitting on GaN photoelectrodes

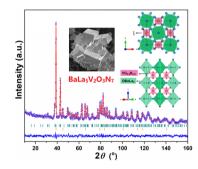
Artem Shushanian, Daisuke Iida, Yu Han and Kazuhiro Ohkawa*



10612

$BaLa_5V_2O_3N_7$: a novel anti-perovskite oxynitride for electrode applications

Shi-Rui Zhang, Xiao-Ming Wang,* Lei-Ming Fang, Jia-Chen Li, Ying-Ying Xu, Zi-Han Ren, Zu-Pei Yang, Xiao-Jun Kuang* and Huan Jiao*



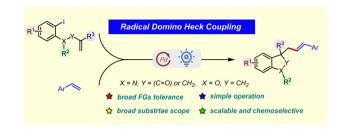
10616

Bimetallic liquid crystal blends based on structurally related 3d-metal coordination complexes

Carmen Cretu, Evelyn Popa, Giuseppe Di Maio, Angela Candreva, Ildiko Buta, Alexandru Visan, Massimo La Deda, Bertrand Donnio* and Elisabeta I. Szerb*



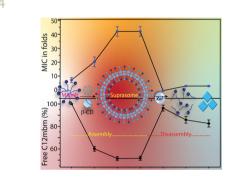
10620



Photoinduced radical cascade domino Heck coupling of *N*-aryl acrylamide with vinyl arenes enabled by palladium catalysis

Pei-shang Li, Qiao-qiao Teng* and Ming Chen*

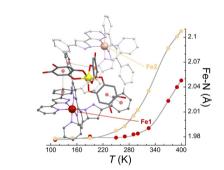
10624



Stimuli-responsive assembly and disassembly of anionic suprasomes with tunable antibacterial activity

Biswa Mohan Prusty, Rama Karn, Anjali Patel, Priyanka Mazumder, Sachin Kumar and Debasis Manna*

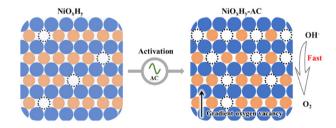
10628



A supramolecular helicate with two independent Fe(n) switchable centres and a $[Fe(anilate)_3]^{3-}$ guest

Leoní A. Barrios,* Simon. J. Teat, Olivier Roubeau* and Guillem $\mbox{Arom}i^*$

10632



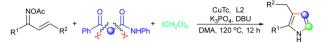
Symmetrical-waveform alternating current-promoted NiO_xH_y electrocatalysis for the oxygen evolution reaction

Zhihao Qi, Jinwei Zhuang, Wantong Yang, Yonggang Yang, Ling Wang, Chenyang Cai, Zhilin Zhang, Yutao Hua, Dilnur Abdirazik, Longhua Li, Weidong Shi* and Jinhui Hao*

10636

Copper-catalyzed three-component annulation toward pyrroles via the cleavage of two C-C bonds in 1,3-dicarbonyls

Gaochen Xu, Luchao Li, Binyan Xu, Zheng Fang, Jindian Duan* and Kai Guo



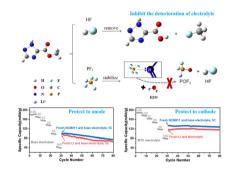
Broad substrate scope • Two C-C bonds cleavage

• 1,3-Dicarbonyl directly as a single-carbon synthon

10640

Multifunctional electrolyte additive for realizing high-temperature and high-voltage lithium metal batteries

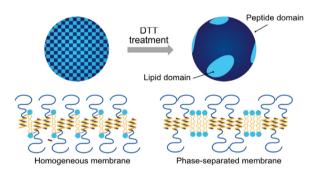
Erlei Zhang, Huijie Tian, Meng Li, Shiru Le, Lijun Wu, Bingjiang Li, Lishuang Fan* and Naiqing Zhang*



10644

Peptide-lipid hybrid vesicles with stimuli-responsive phase separation for controlled membrane functions

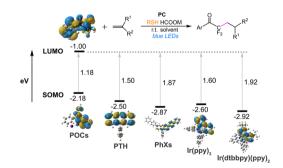
Avanashiappan Nandakumar, Yoshihiro Ito and Motoki Ueda*



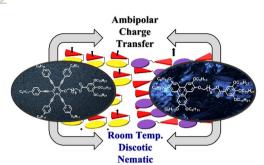
10648

Photocatalytic C-F alkylation of trifluoromethyls using o-phosphinophenolate: mechanistic insights and substrate prediction

Rongrong Li, Xinzheng Yang* and Wei Guan*



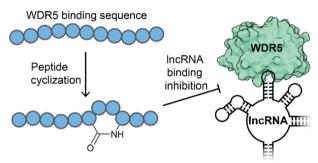




First examples of room-temperature discotic nematic liquid crystals exhibiting ambipolar charge carrier mobilities

Monika Gupta,* Abhinand Krishna KM, Simran Sony, Shallu Dhingra, Asmita Shah and Dharmendra Pratap Singh

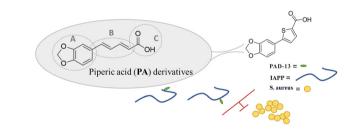
10656



Macrocyclic peptides as inhibitors of WDR5–lncRNA interactions

Jen-Yao Chang, Cora Neugebauer, Stefan Schmeing, Gulshan Amrahova and Peter 't Hart*

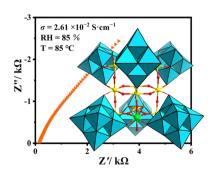
10660



Piperic acid derivative as a molecular modulator to accelerate the IAPP aggregation process and alter its antimicrobial activity

Ai-Ci Chan, Pei-Ya Shan, Men-Hsin Wu, Pin-Han Lin, Chang-Shun Tsai, Chia-Chien Hsu, Ting-Hsiang Chiu, Ting-Wei Hsu, Yi-Cheun Yeh, Yun-Ju Lai,* Wei-Min Liu* and Ling-Hsien Tu*

10664



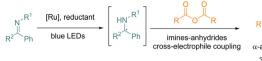
Hexameric polyoxotantalate with proton conduction properties

Hanhan Chen, Mingyang Zhang, Yuyan Li, Pengtao Ma, Jingping Wang* and Jingyang Niu*

10668

Visible-light induced cross-electrophile coupling of imines and anhydrides to synthesize α -amino ketones

Renxu Cao, Yu Liu, Xiaoxin Shi* and Jun Zheng*





α-amino ketones 35 examples up to 95% yield

10672

Seaweed-like phosphates/MOF heterostructures as a synergistic electrocatalyst for alcohol oxidation

Ya-Ya Sun, Jia-Yang Luo, Xue-Qian Wu,* Ya-Pan Wu, Shuang Li, Ya-Meng Yin, Hui-Juan Ma, Ruan Chi and Dong-Sheng Li*



RETRACTION

10676

Retraction: Achieving near-Pt hydrogen production on defect nanocarbon *via* the synergy between carbon defects and heteroatoms

Hao Wu* and Yuting Luan