

# 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(50) 7665-7836 (2023)



### Cover

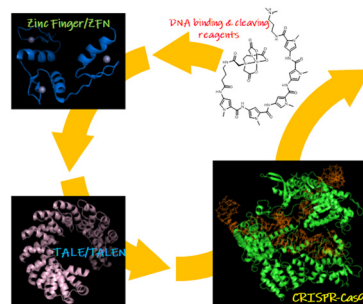
See Prince Ravat,  
Michal Juriček *et al.*,  
pp. 7743–7746.  
Image reproduced  
by permission of  
Daniel Čavlović from  
*Chem. Commun.*,  
2023, 59, 7743.

## HIGHLIGHT

7676

### The history of genome editing: advances from the interface of chemistry & biology

Daisuke Matsumoto and Wataru Nomura\*

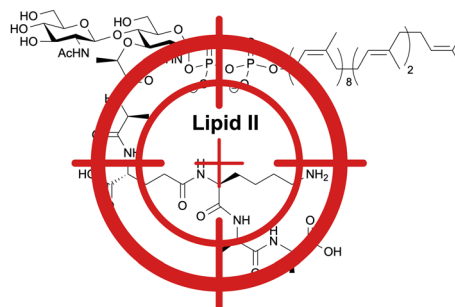


## FEATURE ARTICLES

7685

### Targeting membrane-bound bacterial cell wall precursors: a tried and true antibiotic strategy in nature and the clinic

Ned P. Buijs, Eilidh J. Matheson, Stephen A. Cochrane\*  
and Nathaniel I. Martin\*



## 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 Andres

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

For pre-submission queries please contact

Richard Kelly, Executive Editor.

Email [chemcomm-rsc@rsc.org](mailto: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 0WE.

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](mailto: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](http://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](mailto:advertising@rsc.org)

For marketing opportunities relating to this journal, contact [marketing@rsc.org](mailto:marketing@rsc.org)

# ChemComm

Chemical Communications

[rsc.li/chemcomm](http://rsc.li/chemcomm)

## Editorial Board

### Chair

Douglas Stephan, University of Toronto

### Associate Editors

Lutz Ackermann, University of Göttingen

Daive Bonifazi, University of Vienna

Rachel Caruso, RMIT University

Fengtao Fan, Chinese Academy of Sciences

Itaru Hamachi, Kyoto University

Michael Hardie, University of Leeds

Kim Jelfs, Imperial College London

Chao-Jun Li, McGill University

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

Penny Brothers, Australian National University

Wesley Browne, University of Groningen

Raffaella Buonsanti, EPFL

Luiz Henrique Catalani, University of São Paulo

Xiao-Ming Chen, Sun Yat-Sen University

Lifeng Chi, Soochow 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

Nathan Gianneschi, University of California,

San Diego

Robert Gilliard Jr., University of Virginia

David Gonzalez-Rodriguez, Autonomous

University of Madrid

Rebecca Goss, University of

St Andrews

Mike Greaney, University of Manchester

Shaojun Guo, Peking University

Michael Hardie, University of Leeds

Amanda Hargrove, Duke University

Craig Hawker, University of California, Santa

Barbara

Feihe Huang, Zhejiang University

Todd Hudnall, Texas State University

Ilich A. Ibarra Alvarado, National University

of Mexico

Hiroshi Kageyama, Kyoto 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

Keiji Maruoka, Kyoto University

Alexander Miller, University of North Carolina

at Chapel Hill

Wonwoo Nam, Ewha Womans University

Jean-Francois Nierengarten, University of

Strasbourg

Thalappil Pradeep, Indian Institute of

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 Yu, 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](http://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

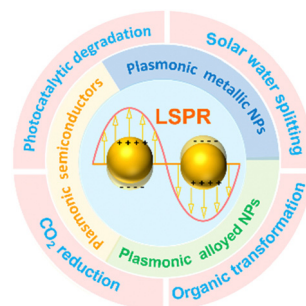


## FEATURE ARTICLES

7704

## Plasmonic nanomaterials for solar-driven photocatalysis

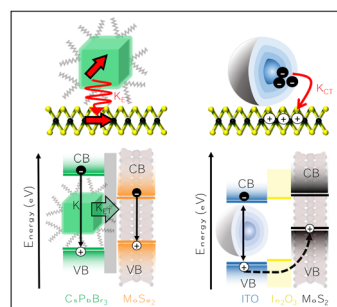
Qingzhe Zhang, Zhihong Zuo and Dongling Ma\*



7717

## Energy transfer and charge transfer between semiconducting nanocrystals and transition metal dichalcogenide monolayers

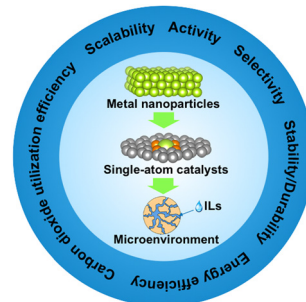
Aswin Asaithambi, Nastaran Kazemi Tofighi, Michele Ghini, Nicola Curreli,\* P. James Schuck and Ilka Kriegel\*



7731

From bulk metals to single-atoms: design of efficient catalysts for the electroreduction of CO<sub>2</sub>

Chen Jia, Qian Sun and Chuan Zhao\*

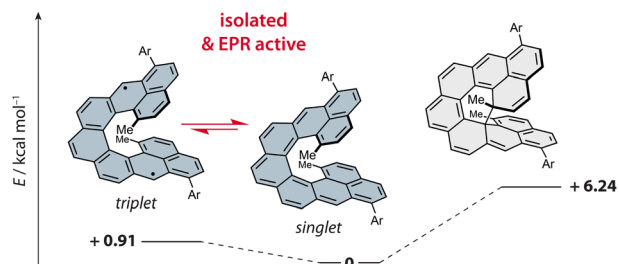


## COMMUNICATIONS

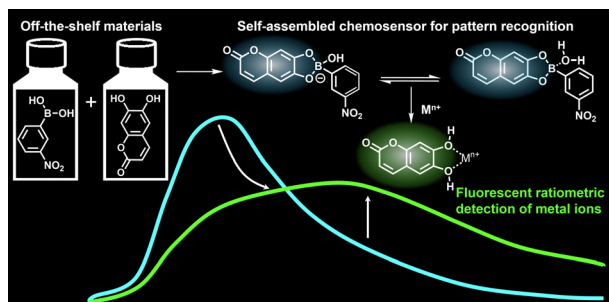
7743

## Dimethylnonacethrene – en route to a magnetic switch

Daniel Čavlović, Olivier Blacque, Ivo Krummenacher, Holger Braunschweig, Prince Ravat\* and Michal Juriček\*



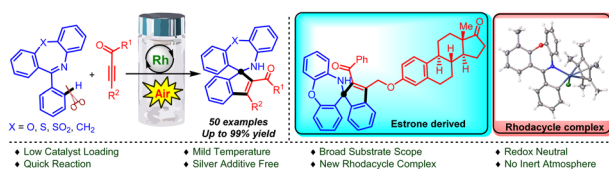
7747



### Spontaneous preparation of a fluorescent ratiometric chemosensor for metal ions using off-the-shelf materials

Yui Sasaki, Kohei Ohshiro, Qi Zhou, Xiaojun Lyu, Wei Tang, Kiyosumi Okabe, Shin-ya Takizawa and Tsuyoshi Minami\*

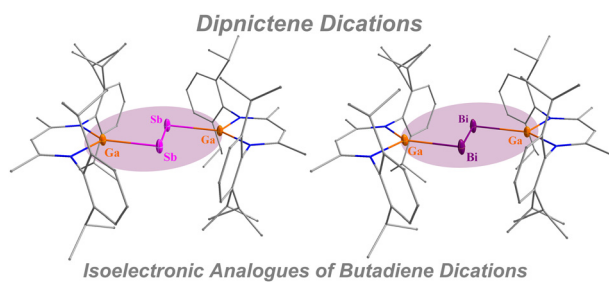
7751



### Synthesis of indene-fused spiro-dibenz(ox)azepines via Rh(III)-catalyzed cascade regioselective C–H activation/annulation

Koushik Naskar, Sudip Karmakar, Intiaj Mondal, Writhabrata Sarkar, Shantonu Roy, Anupam Roy and Indubhusan Deb\*

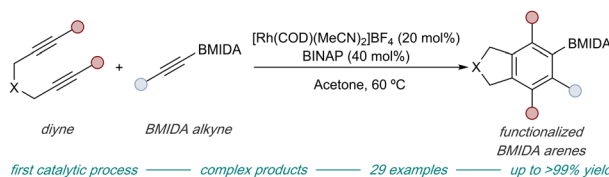
7755



### Metal-coordinated distibene and dibismuthene dications – isoelectronic analogues of butadiene dications

Hanns M. Weinert, Yannick Schulte, Alexander Gehlhaar, Christoph Wölper, Gebhard Haberhauer and Stephan Schulz\*

7759



### Synthesis of complex aryl MIDA boronates by Rh-catalyzed [2+2+2] cycloaddition

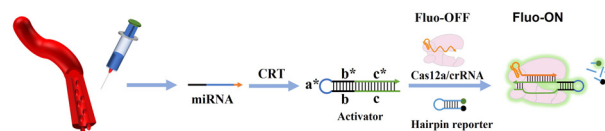
John M. Halford-McGuff, David B. Cordes and Allan J. B. Watson\*



7763

### CRISPR-Cas12a coupled with cyclic reverse transcription for amplified detection of miRNA

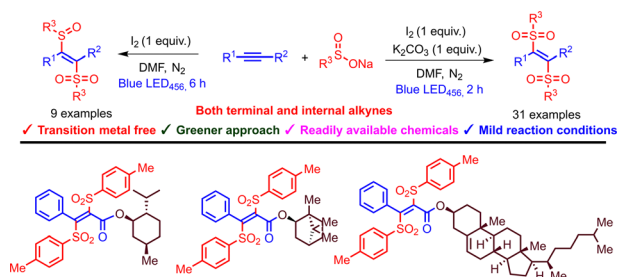
Xi Long, Jiacheng Li, Tong Luo, Hui Liu, Zhiwei Deng, Jiacheng Ding, Zan Gong, Yanjing Yang\* and Shian Zhong\*



7767

### Iodine-mediated photoinduced tuneable disulfonylation and sulfinylsulfonylation of alkynes with sodium arylsulfonates

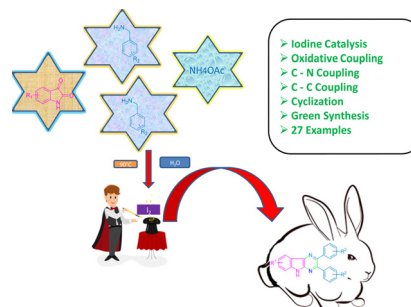
Mandapati Bhargava Reddy and Eoghan M. McGarrigle\*



7771

### Aqueous mediated iodine catalyzed C–N coupling followed by C–C coupling towards 5H-pyrazino[2,3-b]indoles

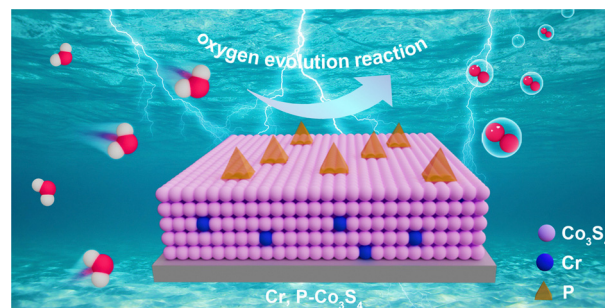
Debasish Bera, Rajib Sarkar, Pinaki Saha, Prasanta Ghosh and Chhanda Mukhopadhyay\*



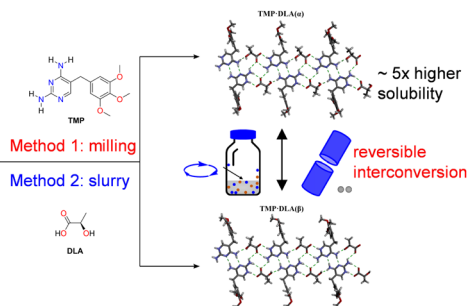
7775

### Modulation of bulk and surface electronic structures for oxygen evolution by Cr, P co-doped Co<sub>3</sub>S<sub>4</sub>

Yiting Chen, Xiaoyun Zhang, Xiaoshuang Ma and Yuqiao Wang\*



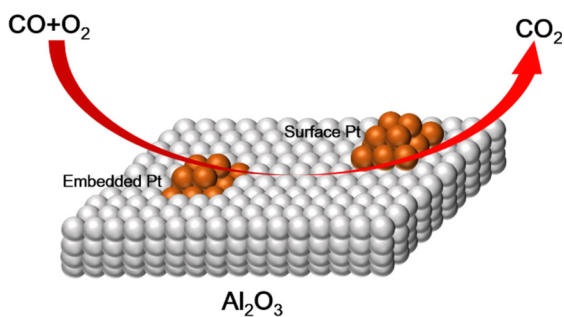
7779



### Reversible interconversion of pharmaceutical salt polymorphs facilitated by mechanical methods

Liulei Ma, Qixuan Zheng, Daniel K. Unruh and Kristin M. Hutchins\*

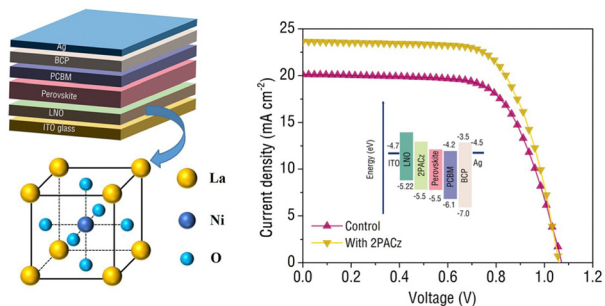
7783



### CO oxidation over embedded Pt nanoparticles on Al<sub>2</sub>O<sub>3</sub> with Al coordination flexibility

Xiang Wang, Shuangqin Zeng, Guodong Qi,\* Qiang Wang, Jun Xu\* and Feng Deng

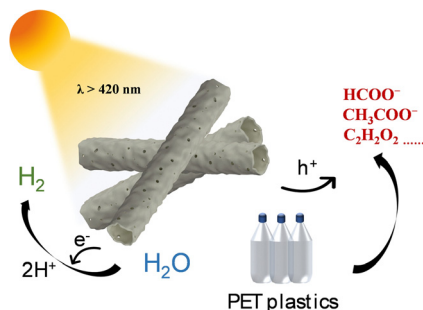
7787



### Low-temperature solution-processed LaNiO<sub>3</sub> hole-transport layer for UV-stable inverted perovskite solar cells

Xiaxia Cui, Junjun Jin, Zhenkun Zhu, Tonghui Guo, Qiang Tang, Yuan Zhou, Lin Li, Zhen Wang, Guanqi Tang\* and Qidong Tai\*

7791



### Visible-light-driven photoreforming of poly(ethylene terephthalate) plastics via carbon nitride porous microtubes

Shuhui Guo, Yuanyong Huang, Di Li, Zhongkai Xie, Yujing Jia, Xiaojie Wu, Dongbo Xu\* and Weidong Shi\*



7795

### MoS<sub>2</sub>@N-doped graphitic carbon/TiO<sub>2</sub> photocatalysts for photocatalytic H<sub>2</sub> production from lignocellulosic biomass

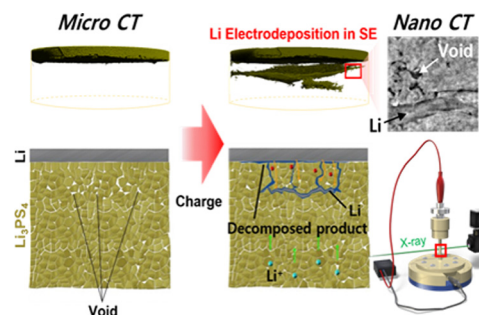
Chi Ma, Quan Cheng, Ze-Xin Huang, Fu-Guang Zhang, Qing-Yu Liu and Yong-Jun Yuan\*



7799

### Unique Li deposition behavior in Li<sub>3</sub>PS<sub>4</sub> solid electrolyte observed via *operando* X-ray computed tomography

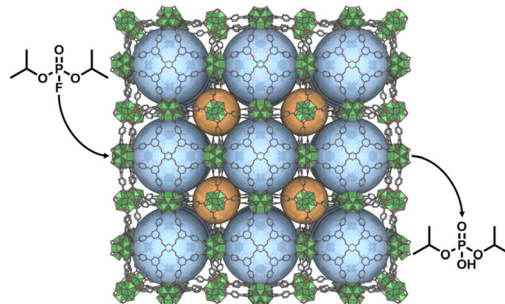
Jaehee Park, Toshiki Watanabe,\* Kentaro Yamamoto, Tomoki Uchiyama, Tsuyoshi Takami, Atsushi Sakuda, Akitoshi Hayashi, Masahiro Tatsumisago and Yoshiharu Uchimoto



7803

### A mesoporous Zr-based metal–organic framework driven by the assembly of an octatopic linker

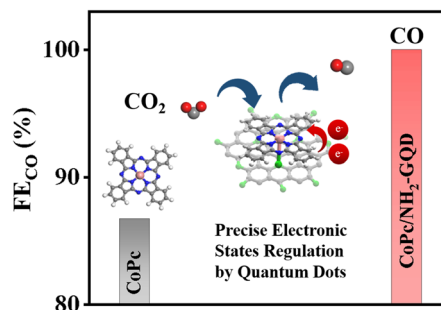
Borja Ortin-Rubio, Cristina Perona-Bermejo, José A. Suárez del Pino, Francisco J. Carmona, Felipe Gándara, Jorge A. R. Navarro, Judith Juanhuix, Inhar Imaz\* and Daniel Maspoch\*



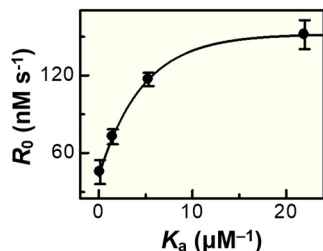
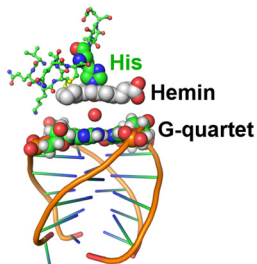
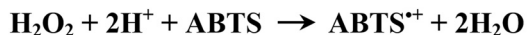
7807

### Enhanced electrochemical CO<sub>2</sub> reduction performance of cobalt phthalocyanine with precise regulation of electronic states

Tong Yao, Lu-Hua Zhang,\* Jiayu Zhan, Zhixiang Zhou, Yang You, Zisheng Zhang and Fengshou Yu\*



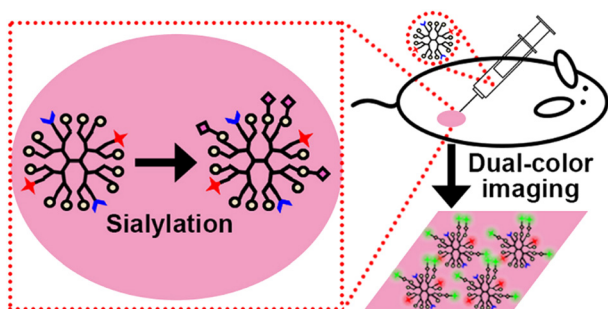
7811



### Construction of "peptide-hemin/DNA" hybrid-complexes and their peroxidase activities

Jing Liu, Taozhe Zhang, Jinyang Feng, Yue Cui, Li Zhang, Yunong Wang, Meiyu Cui, Donghao Li\* and Hulin Tai\*

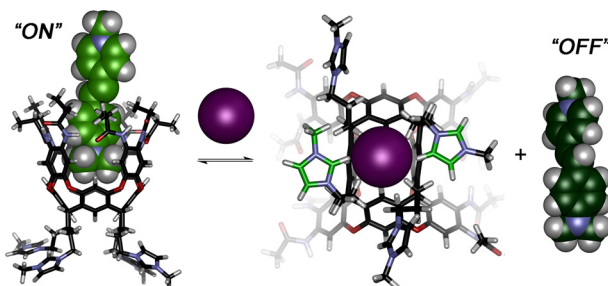
7815



### *In situ* evaluation of *in vivo* sialylation with a dual-color imaging strategy

Shiya Zhao, Yuanjiao Yang, Yuru Wang, Huiyu Liu, Huangxian Ju\* and Yunlong Chen\*

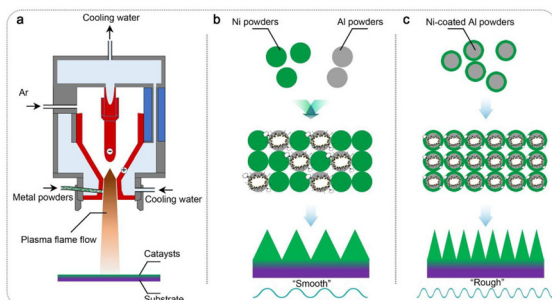
7819



### Selective anion sensing in high salt water *via* a remote indicator displacement assay

Briana L. Hickey, Alexie Andrea P. Raz, Junyi Chen, Jose L. Moreno Jr., Joshua D. Hartman, Wenwan Zhong and Richard J. Hooley\*

7823



### Plasma-spray-enabled microcosmic explosion to construct Ni mesh-based electrodes for water splitting

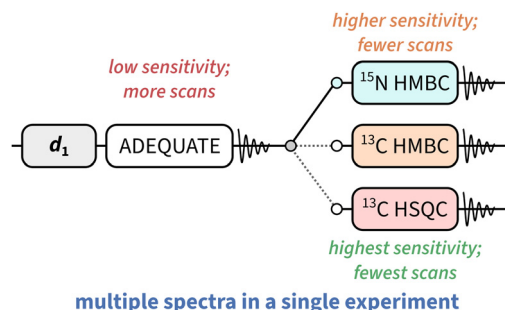
Min Xue, Yanling Guo, Changqing Ye, Zhongqin Pan, Xiao-Lei Huo\* and Qingwen Zhou\*



7827

### A general scheme for generating NMR supersequences combining high- and low-sensitivity experiments

Jonathan R. J. Yong, Ēriks Kupče and Tim D. W. Claridge\*



7831

### Enantioselective synthesis of 3a-azido-pyrroloindolines by copper-catalyzed asymmetric dearomative azidation of tryptamines

Cheng-Zhou Lin, Ling-Feng Jiang, Guang-Yi Zhang, Fang-Shuai Zhou, Shao-Hua Wu, Jing Cao\* and Qing-Hai Deng\*

