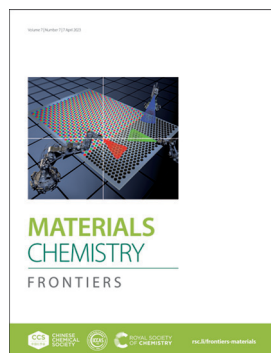


IN THIS ISSUE

ISSN 2052-1537 CODEN MCFAC5 7(7) 1157-1454 (2023)



Cover

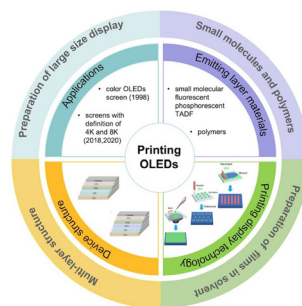
See Jian-Xin Tang, Yan-Qing Li *et al.*, pp. 1166–1196.
Image reproduced by permission of Jian-Xin Tang from *Mater. Chem. Front.*, 2023, 7, 1166.

REVIEWS

1166

Solution-processed OLEDs for printing displays

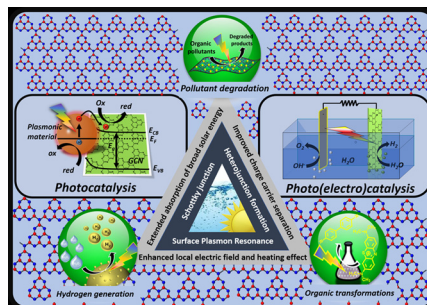
Xin-Yi Zeng, Yan-Qing Tang, Xiao-Yi Cai, Jian-Xin Tang* and Yan-Qing Li*



1197

Frontier nanoarchitectonics of graphitic carbon nitride based plasmonic photocatalysts and photoelectrocatalysts for energy, environment and organic reactions

Ajay Kumar, Priyanka Choudhary, Tripti Chhabra, Harpreet Kaur, Ashish Kumar, Mohammad Qamar and Venkata Krishnan*



EDITORIAL STAFF

Executive Editor

Wenjun Liu

Deputy Editor

Kailin Deng

Development Editor

Cheng Du

Editorial Production Manager

Helen Saxton

Senior Publishing Editor

Becky Webb

Publishing Editors

Kirstine Anderson, Matthew Bown, Laura Cooper, Emily Cuffin-Munday, Hannah Fielding, Clare Fitzgerald, Anoushka Handa, Claire Harding, Alan Holder, Donna Smith, Laura Smith

Assistant Editors

Jie Gao, Yu Zhang

Publisher

Jeanne Andres

For queries about submitted papers, please contact Helen Saxton, Editorial Production Manager, in the first instance. E-mail: MaterChemFrontiersPROD@rsc.org

For pre-submission queries please contact Wenjun Liu, Executive Editor. Email: MaterChemFrontiersED@rsc.org

Materials Chemistry Frontiers (electronic: ISSN 2052-1537) is published 24 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 RSC 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: £1,369; US\$2,247. 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

MATERIALS CHEMISTRY

FRONTIERS

An international, high impact journal for cutting-edge researches from all disciplines of materials chemistry.



CHINESE
CHEMICAL
SOCIETY



rsc.li/frontiers-materials

Published in collaboration with the Chinese Chemical Society and Institute of Chemistry, Chinese Academy of Sciences

Editorial Board

Editor-in-Chief

Shu-Hong Yu, University of Science and Technology of China, China

Associate Editors

Shu Seki, Kyoto University, Japan
Andrea Tao, University of California, San Diego, USA

Dan Wang, Institute of Process Engineering, Chinese Academy of Sciences, China
Guillaume Wantz, Université de Bordeaux, France
Huanghao Yang, Fuzhou University, China

Members

Feihe Huang, Zhejiang University, China
Zhen Li, Wuhan University, China
Marina A. Petrunkina, University at Albany, USA
Emilie Ringe, University of Cambridge, UK
Kazuo Tanaka, Kyoto University, Japan

Advisory Board

Takuzo Aida, The University of Tokyo, Japan
J Paul Attfield, University of Edinburgh, UK
Guillermo C Bazan, UC Santa Barbara, USA
Liming Ding, National Center for Nanoscience and Technology, China
Xinliang Feng, Technische Universität Dresden, Germany
Jiaxing Huang, Northwestern University, USA
Parameswar K. Iyer, Indian Institute of Technology Guwahati, India
Samson Jenekhe, University of Washington, USA
Hua Kuang, Jiangnan University, China
Mario Leclerc, Université Laval, Canada
Xingjie Liang, National Center for Nanoscience and Technology, China
Bin Liu, National University of Singapore, Singapore
Dongsheng Liu, Tsinghua University, China
Shaoqin Liu, Harbin Institute of Technology, China
Xianjun Loh, Institute of Materials Research

and Engineering, Singapore
Mark J MacLachlan, University of British Columbia, Canada
Krzysztof Matyjaszewski, Carnegie Mellon University, USA
Klaus Mullen, Max Planck Institute for Polymer Research, Germany
Thuc Quyen Nguyen, University of California, Santa Barbara, USA
Kyoko Nozaki, The University of Tokyo, Japan
Anjun Qin, South China University of Technology, China
Olof Ramström, University of Massachusetts Lowell, USA
John Reynolds, Georgia Institute of Technology, USA
Ulrich Scherf, University of Wuppertal, Germany
Patrick Théato, Karlsruhe Institute of Technology, Germany
Christoph Weder, University of Fribourg, Switzerland

Karen L. Wooley, Texas A&M University, USA
James Wuest, Université de Montréal, Canada
Dongsheng Xu, Peking University, China
Jiannian Yao, Institute of Chemistry, Chinese Academy of Sciences, China
Juyoung Yoon, Ewha Womans University, South Korea
Jihong Yu, Jilin University, China
Deqing Zhang, Institute of Chemistry, Chinese Academy of Sciences, China
Hua Zhang, City University of Hong Kong, China
Qichun Zhang, City University of Hong Kong, China
Tierui Zhang, Technical Institute of Physics and Chemistry, China
Xi Zhang, Tsinghua University, China
Yuliang Zhao, National Center for Nanoscience and Technology, China
Wei Hong Zhu, East China University of Science & Technology, China

Community Board

Tayeb Ameri, University of Munich, Germany
Derya Baran, King Abdullah University of Science and Technology, Saudi Arabia
Xiaoyu Cao, Xiamen University, China
Changle Chen, University of Science and Technology of China, China
Sijie Chen, Karolinska Institutet, Hong Kong, China
Dan Ding, Nankai University, China
Kenneth Graham, University of Kentucky, USA

Xinggui Gu, Beijing University of Chemical Technology, China
Yuning Hong, La Trobe University, Australia
Zhong'an Li, Huazhong University of Science and Technology, China
Yingying Lu, Zhejiang University, China
T. N. Narayanan, Tata Institute of Fundamental Research, India
Shohei Saito, Kyoto University, Japan
Youhong Tang, Flinders University, Australia
Takaya Terashima, Kyoto University, Japan
Reji Varghese, Indian Institute of Science Education and Research, India

Jiangyan Wang, Institute of Process Engineering, Chinese Academy of Sciences, China
Yan Wei, Peking University School and Hospital of Stomatology, China
Haihua Xiao, Institute of Chemistry, Chinese Academy of Sciences, China
Yurui Xue, Shandong University, China
Jing Yu, Nanyang Technological University, Singapore
Guoqing Zhang, University of Science and Technology of China, China

Information for Authors

Full details on how to submit material for publication in Materials Chemistry Frontiers 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/frontiers-materials

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 Partner Organisations 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

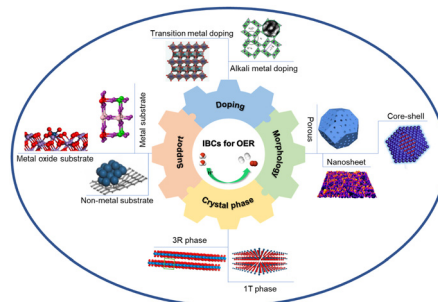


REVIEWS

1248

Iridium-based electrocatalysts for the acidic oxygen evolution reaction: engineering strategies to enhance the activity and stability

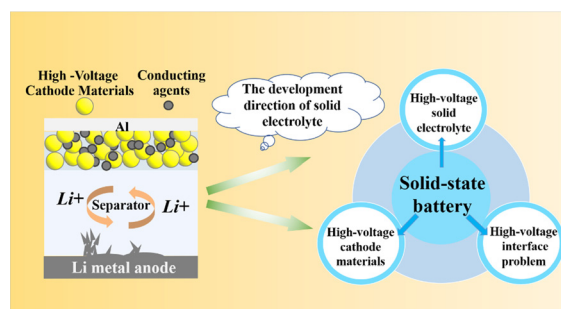
Hongzhe Xu, Yun Han, Qilong Wu, Yi Jia, Qin Li,*
Xuecheng Yan* and Xiangdong Yao



1268

A review of all-solid-state electrolytes for lithium batteries: high-voltage cathode materials, solid-state electrolytes and electrode–electrolyte interfaces

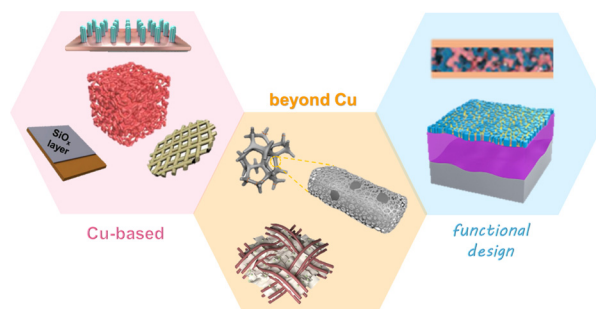
Mingming Ma, Menghui Zhang, Bitao Jiang, Yang Du,
Bingcheng Hu* and Chengguo Sun*



1298

Recent developments in current collectors for lithium metal anodes

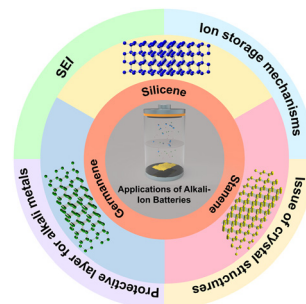
Qitao Shi, Chen Lu, Yutong Cao, Yufeng Hao,
Alicja Bachmatiuk and Mark H. Rummeli*



1312

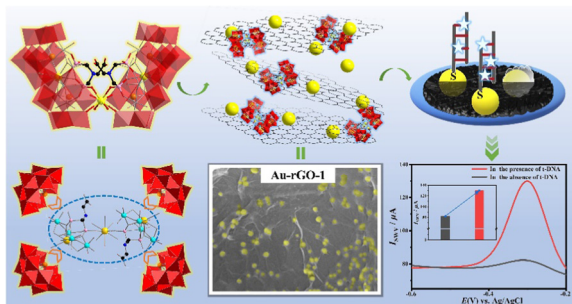
Group IV elemental 2D materials beyond graphene used as electrodes for alkali-ion batteries

Hsu-Sheng Tsai, Jing Li, Zhengguang Shi, Mingxue Huo*
and Shih-Hsin Ho*



RESEARCH ARTICLES

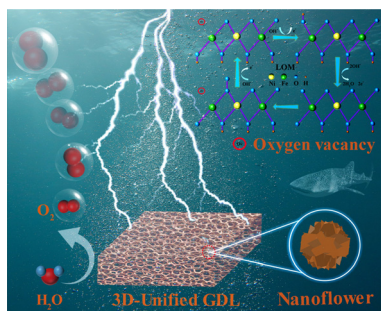
1321



Organophosphonic acid and cerium functionalized antimonotungstate with electrochemical promise in biosensing bacterial dissimilatory sulfite reductase gene sequence

Zhigang Tang, Wenshu Zhang, Yalun Hu, Xiaodan Jia, Lina Meng, Dan Wang,* Lijuan Chen* and Junwei Zhao*

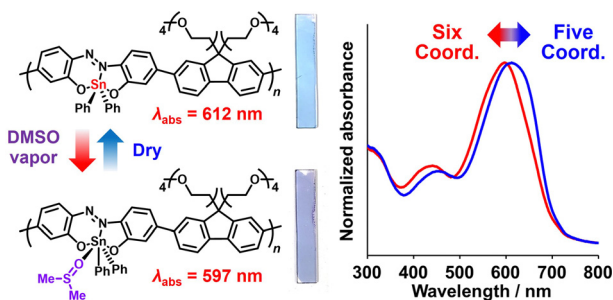
1335



Construction of a NiFe-LDH catalyst with a three-dimensional unified gas diffusion layer structure via a facile acid etching route for the oxygen evolution reaction

Dong Shi, Yajun Ji,* Faxue Lu, Junnan Yao and Lijun Pei

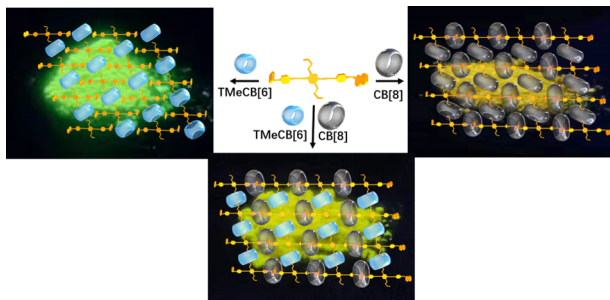
1345



Vapochromic films of π -conjugated polymers based on coordination and desorption at hypervalent tin(IV)-fused azobenzene compounds

Masayuki Gon, Yusuke Morisaki, Kazuya Tanimura, Kazuo Tanaka* and Yoshiki Chujo

1354



2D supramolecular organic framework with tunable luminescence via cucurbit[n]uril-based hydrogen bonds, outer-surface interactions and host-guest interactions

Shuai-Peng Jin, Huai-Li Wu, Le-Ping Zhang, Guan-Yu Yang and Bo Yang*

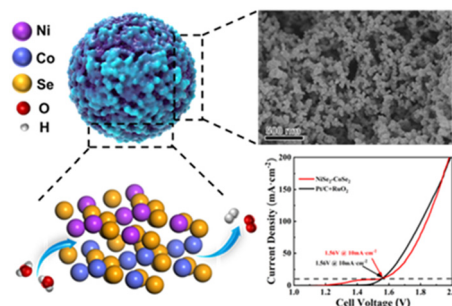


RESEARCH ARTICLES

1365

Bimetallic Ni–Co selenide heterostructure aerogel for highly efficient overall water splitting

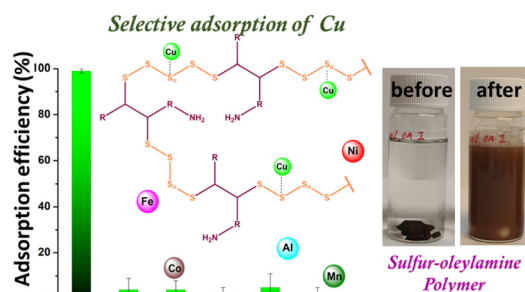
Hongchen Liu, Fan Yang,* Fengjiang Chen, Sai Che, Neng Chen, Chong Xu, Ni Wu, Wenkai Wei and Yongfeng Li*



1374

Sulfur–oleylamine copolymer synthesized via inverse vulcanization for the selective recovery of copper from lithium-ion battery E-waste

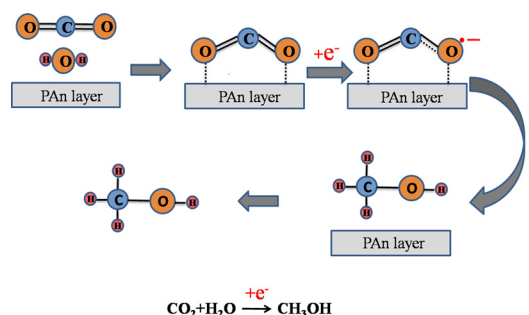
Suchithra Ashoka Sahadevan, Xiong Xiao, Yiqian Ma, Kerstin Forsberg, Richard T. Olsson and James M. Gardner*



1385

Nano-polyaniline enables highly efficient electrocatalytic reduction of CO₂ to methanol in supporting electrolyte-free media and the detection of free-radical signals

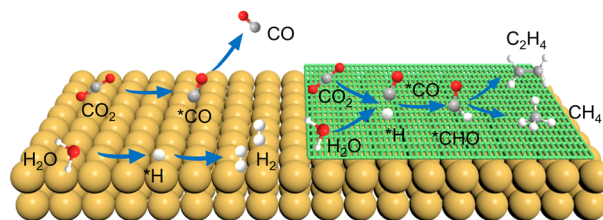
Shaolin Mu,* Qiaofang Shi, Chong Chen, Xiangxiang Gong and Huaiguo Xue



1395

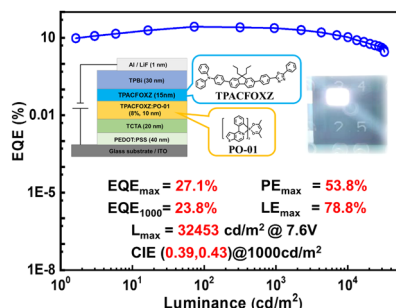
Steering CO₂ electroreduction selectivity towards CH₄ and C₂H₄ on a tannic acid-modified Cu electrode

Keqiang Xu, Jinhan Li, Fangming Liu, Wence Xu, Tete Zhao and Fangyi Cheng*



RESEARCH ARTICLES

1403



Highly efficient white organic light-emitting diodes based on balanced bipolar-transporting blue hybridized local charge transfer fluorophores

Tengyue Li, Shian Ying, Huayi Zhou, Runze Wang, Chenglin Ma, Mizhen Sun, Mingliang Xie, Qikun Sun, Wenjun Yang and Shanfeng Xue*

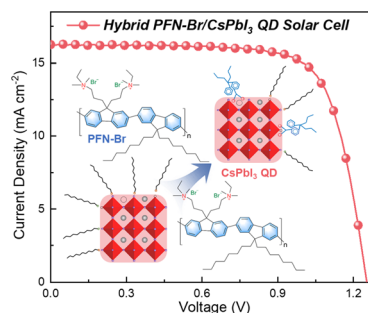
1411



Morphology-controllable bimetallic MOFs/textile composite electrodes with high areal capacitance for flexible electronic devices

Shixiong Zhai, Zhendong Jin, Chengcheng Li, JiaFeng Sun, Hong Zhao, Zhehai Jin, Zaisheng Cai and Yaping Zhao*

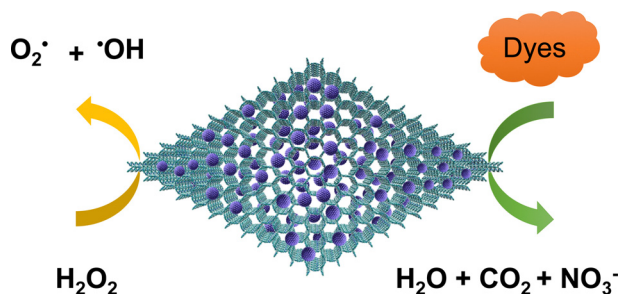
1423



Efficient and stable hybrid conjugated polymer/perovskite quantum dot solar cells

Hehe Huang, Xuliang Zhang, Chenyu Zhao and Jianyu Yuan*

1431



An FeS_x doped three-dimensional covalent organic framework for degradation of dyes

Jialong Song, Chengyang Yu, Yaozu Liu, Junxia Ren, Jianchuan Liu, Zitao Wang, Liangkui Zhu, Jing Fu, Bin Tang, Shilun Qiu, Yujie Wang* and Qianrong Fang*

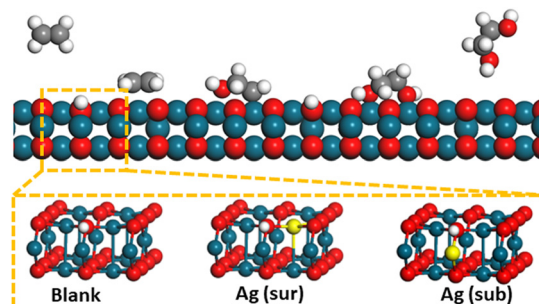


RESEARCH ARTICLES

1437

Ag-doped Pd nano-dendritic for promoting the electrocatalytic oxidation of ethylene to ethylene glycol

Xinwei Li, Xiaoyu You, Zhuang Yan, Caoyu Yang, Lulu Zuo, Xuewei Huang, Lin Chang, Siyu Lu and Zhiyong Tang*



1446

Dinuclear coumarin-containing alkynylplatinum(II) terpyridine complexes with supramolecular assembly-assisted photodimerization

Shishi Fang, Michael Ho-Yeung Chan and Vivian Wing-Wah Yam*

