

Materials Advances

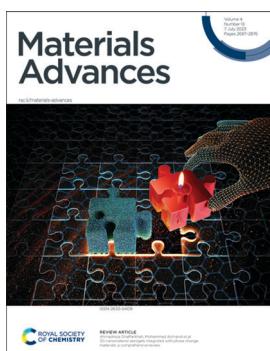
An open access journal publishing across the breadth of materials science

rsc.li/materials-advances

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 2633-5409 CODEN MAADC9 4(13) 2687–2876 (2023)



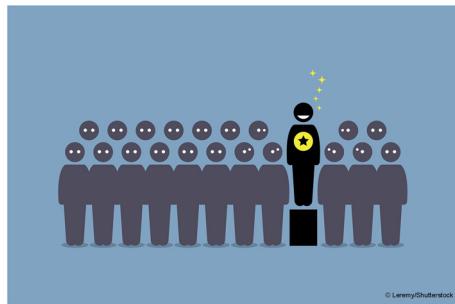
Cover

See Ahmadreza Ghaffarkhah, Mohammad Arjmand *et al.*, pp. 2698–2729. Image reproduced by permission of Mohammad Arjmand from *Mater. Adv.*, 2023, 4, 2698.

EDITORIALS

2694

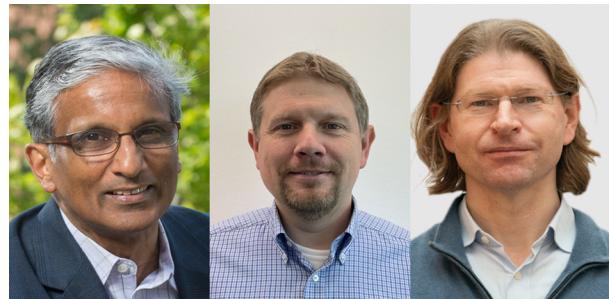
Outstanding Reviewers for *Materials Advances* in 2022



2695

Introduction to Materials Informatics

Krishna Rajan, Jörg Behler and Chris J. Pickard*



Materials Advances

rsc.li/materials-advances

Materials Advances publishes experimental and theoretical work across the breadth of materials science.

Editorial Board

Editors-in-Chief

Anders Hagfeldt, EPFL, Switzerland
Jeroen Cornelissen, University of Twente, The Netherlands
Natalie Stingelin, Georgia Institute of Technology, USA

Associate Editors

A. S. Achalkumar, Indian Institute of Technology, India
Veronica Augustyn, North Carolina State University, USA
Viola Birss, University of Calgary, Canada
Kaushik Chatterjee, Indian Institute of Science, India
Elizabeth Cosgriff-Hernandez, University of Texas at Austin, USA
Rachel Crespo-Otero, Queen Mary University of London, UK
Gemma-Louise Davies, University College London, UK
Goutam De, S N Bose National Centre for Basic Sciences, India
Renaud Demadral, Interdisciplinary Research Institute of Grenoble, France
Håkan Engqvist, Uppsala University, Sweden
Antonio Facchetti, Northwestern University and Flexterra Corporation, USA
Ghim Wei Ho, National University of Singapore, Singapore
Yun Jeong Hwang, Korea Institute of Science and Technology, South Korea
Unyong Jeong, POSTECH, South Korea
Ji Jian, Zhejiang University, China
Oana Jurchescu, Wake Forest University, USA
Kisuk Kang, Seoul National University, South Korea
Subrat Kundu, Central Electrochemical Research Institute (CECRI), India
Dan Li, Jilin University, China
Mingzhu Li, Chinese Academy of Sciences, China
Shaoqin Liu, Harbin Institute of Technology, China
David Lou, Nanyang Technological University, Singapore
Yi-Chun Lu, The Chinese University of Hong Kong, Hong Kong
Martyn McLachlan, Imperial College London, UK
Yoshiko Miura, Kyushu University, Japan
Kasper Moth-Poulsen, Chalmers University of Technology, Sweden
Ana Flavia Nogueira, University of Campinas, Brazil

Shizhang Qiao, University of Adelaide, Australia
Erin Ratcliff, University of Arizona, USA
Neil Robertson, University of Edinburgh, UK
Federico Rosei, University of Trieste, Italy
Jennifer Rupp, Massachusetts Institute of Technology, USA
Miriam Unterlass, Vienna University of Technology, Austria
Yana Vaynzof, Technical University of Dresden, Germany
Jessica Winter, Ohio State University, USA
Lydia Wong, Nanyang Technological University, Singapore
Li-Zhu Wu, Technical Institute of Physics and Chemistry, China
Zhiguo Xia, South China University of Technology, China
Yusuke Yamauchi, University of Queensland, Australia
Chengzhong Yu, University of Queensland, Australia
Haoli Zhang, Lanzhou University, China
Ni Zhao, Chinese University of Hong Kong, Hong Kong
Zhen Zhou, Nankai University, China

Advisory Board

Please see the Materials Advances journal webpage for full details of our advisory board: rsc.li/materials-advances

Information for Authors

Full details on how to submit material for publication in Materials Advances 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/materials-advances

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

Editorial Staff

Executive Editor

Jeremy Allen

Deputy Editor

Hannah Kerr

Editorial Production Manager

Christopher Goodall

Assistant Editors

Zita Zachariah and Serra Arslançan Sengelen

Editorial Assistant

Rosie Hague

Publishing Assistant

Allison Holloway

Publisher

Neil Hammond

For queries about submitted papers, please contact Christopher Goodall, Editorial Production Manager in the first instance. E-mail: materialsadvances@rsc.org

For pre-submission queries please contact Jeremy Allen, Executive Editor.

E-mail: materialsadvances-rsc@rsc.org

Materials Advances (electronic: ISSN 2633-5409) is published 24 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

Materials Advances is a Gold Open Access journal and all articles are free to read. Please email orders@rsc.org to register your interest or contact 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

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

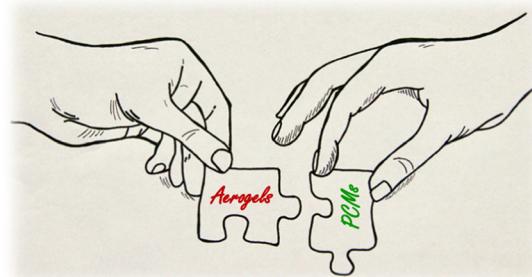


REVIEWS

2698

2D nanomaterial aerogels integrated with phase change materials: a comprehensive review

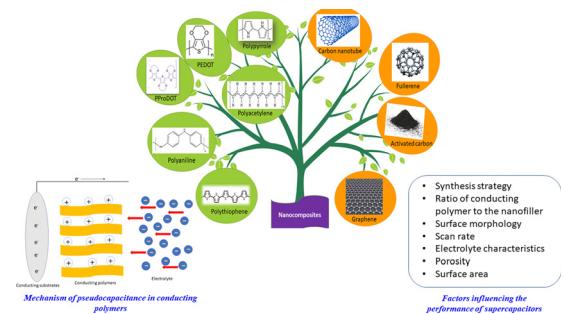
Sara Rostami, Ahmadreza Ghaffarkhah,* Ali Akbar Isari,
Seyyed Alireza Hashemi and Mohammad Arjmand*



2730

A review on fine-tuning of energy storage characteristics of conducting polymers

Bindu M.* and Pradeepan Periyat*

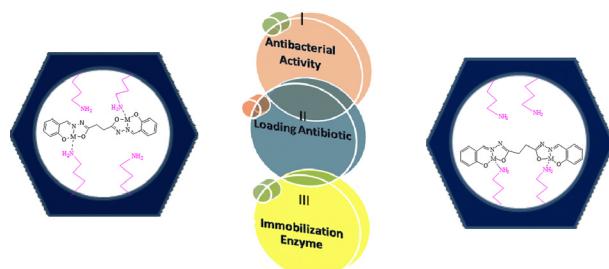


HIGHLIGHT

2770

Synthesis of novel mesoporous silica nanoparticles functionalized with succinic dihydrazone Schiff-base metal complexes and a study of their biological activities

Leila Tahmasbi,* Tahereh Sedaghat, Hossein Motamedizadeh and Mohammad kooti

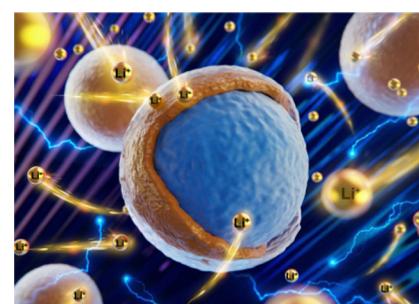


COMMUNICATION

2780

Realizing fast Li-ion conduction of Li_3PO_4 solid electrolyte at low temperature by mechanochemical formation of lithium-containing dual-shells

Shunqin Zeng, Xiaoli Ding,* Liqing He,
Hai-Wen Li,* Qinqan Zhang and Yongtao Li



PAPERS

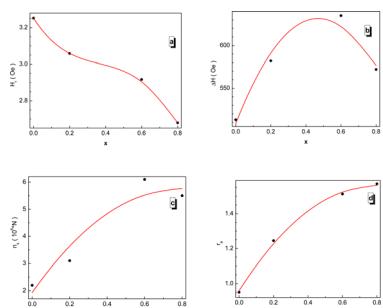
2785



Chemical recycling of poly(ethylene terephthalate) via sequential glycolysis, oleoyl chloride esterification and vulcanization to yield durable composites

Claudia V. Lopez and Rhett C. Smith*

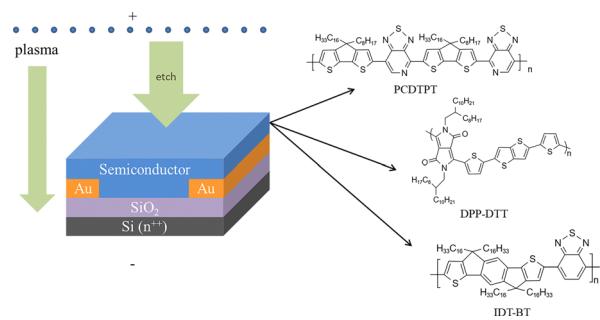
2794



Fabrication of doped ferrites and exploration of their structure and magnetic behavior

Reda E. El-Shater, Hassan El Shimy, Samia A. Saafan, Moustafa A. Darwish, Di Zhou, Kadiyala Chandra Babu Naidu, Mayeen U. Khandaker, Z. Mahmoud, Alex V. Trukhanov, Sergei V. Trukhanov* and Fatma Fakhry

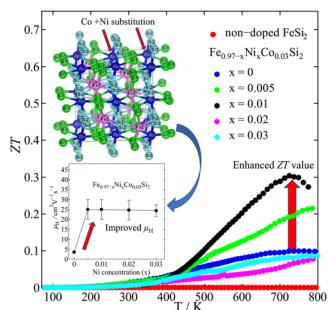
2811



In situ tuning of the performance of polymer field-effect transistors by soft plasma etching

Zhen Hu, Dongfan Li,* Wanlong Lu, Zongze Qin, Yixin Ran, Xin Wang and Guanghao Lu*

2821



Improved thermoelectric performance of Co-doped β -FeSi₂ by Ni substitution

Sopheap Sam, Hiroshi Nakatsugawa* and Yoichi Okamoto

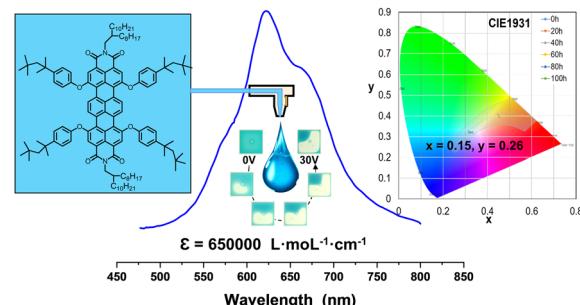


PAPERS

2831

Design and synthesis of a terrylene diimide-based stable cyan dye for printable electrofluidic display

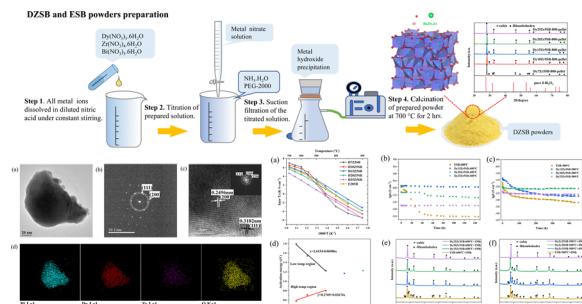
Yong Deng, Yuanyuan Guo, Dechao Ye, Wangqiao Chen* and Guofu Zhou*



2839

Stabilities and performance of single cubic phase dysprosium and zirconium co-doped bismuth oxide electrolytes for low temperature solid oxide fuel cells

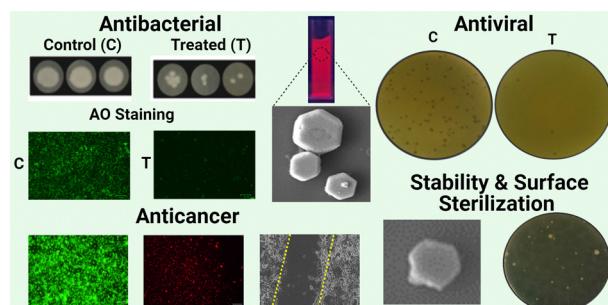
Yuan Gao, Mengxi Zhong, Jianpeng Chen, Shouqi Wang, Binyi Zhang, Qingzhuo Li, Wei Liu, Jiu-Tao Gao,* Cheng-Xin Li* and Chang-Jiu Li



2853

Copper iodide microhexagons: a potential therapeutic agent for surface microbial infection and melanoma

Sunil Venkanna Pogu, Dokkari Nagalaxmi Yadav, Sri Amruthaa Sankaranarayanan, Rupali Srivastava, Shashidhar Thatikonda and Aravind Kumar Rengan*



2868

Macroporous NiMo alloy self-supporting electrodes for efficient hydrogen evolution at ultrahigh current densities

Yudan Chen, Lin Chen, Ying Xiong, Xinxin Yu, Kun Tang,* Lixin Zhang and Mingzai Wu*

