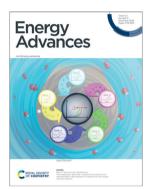
# **Energy Advances**

# rsc.li/energy-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 2753-1457 CODEN EANDBJ 2(11) 1773-1972 (2023)



#### Cover

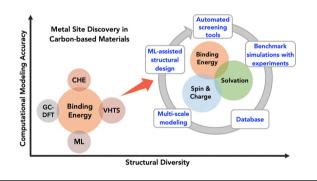
See Marc F. Tesch, Anna K. Mechler et al., pp. 1823-1830. Image reproduced by permission of Marc F. Tesch and Anna K. Mechler from Energy Adv., 2023, **2**, 1823.

# **REVIEWS**

1781

Advancements in computational approaches for rapid metal site discovery in carbon-based materials for electrocatalysis

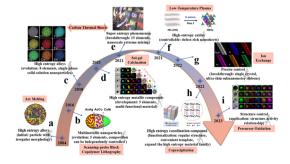
Somayeh Faraji, Zhiyu Wang, Paola Lopez-Rivera and Mingjie Liu\*



1800

# High entropy materials—emerging nanomaterials for electrocatalysis

Hang Li, Li Ling, Shengfa Li, Feng Gao\* and Qingyi Lu\*



**Executive Editor** 

**Editorial Production Manager** Sarah Whitbread

**Deputy Editor** 

Jon Ferrier

**Editorial Assistant** 

Alex Holiday

**Publishing Assistant** 

Lee Colwill

Assistant Editors

Jamie Purcell, Alexander John, Emily Ellison, Jack Pitchers, Clare Fitzgerald

For queries about submitted papers, please contact Sarah Whitbread, Editorial Production Manager in the first instance. E-mail: energyadvances@rsc.org For pre-submission queries please contact Emma Eley, Executive Editor. Email: energyadvances-rsc@rsc.org

Energy Advances (electronic: ISSN 2753-1457) is published 12 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

Energy 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

# **Energy Advances**

# rsc.li/energy-advances

Energy Advances is a multidisciplinary journal that publishes research across a broad scope of topics, and welcomes work that contributes to developments throughout energy science and related fields. We offer an inclusive home to advances across the spectrum of energy science - from central concepts to exciting research at the nexus of subdisciplines.

#### **Editorial Board**

#### Editor-in-Chief

Volker Presser, Leibniz Institute for New Materials, Germany

#### Associate Editors

B. Layla Mehdi, University of Liverpool, UK

Michael Naguib, Tulane University, USA Guang Feng, Huazhong University of Science Kong Polytechnic University, Hong Kong, and Technology (HUST), China Matthew Suss, Form Energy, USA You Han, Tianjin University, China

Wai-Yeung (Raymond) Wong, The Hong

#### **Advisory Board**

Nirmala Grace Andrews, Vellore Institute of Technology, India Sarbajit Banerjee, Texas A&M University, USA

Sudip Chakraborty, Harish-Chandra Research Institute (HRI) Allahabad, India Graeme Cooke, University of Glasgow, UK Benjamin Dietzek, Friedrich Schiller University Jena, Germany Liming Ding, National Center for

Nanoscience and Technology, China Baizeng Fang, The University of British Columbia, Canada

John Gordon, Brookhaven National Laboratory, USA Anita Ho-Ballie, University of Sydney,

Australia

Shaojun Guo, Peking University, China Kui Jiao, Tianjin University, China Dattaray Late, CSIR-National Chemical Laboratory, India

Yan Lu, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Germany Heather MacLean, University of Toronto, Canada

Hoi Ri Moon, Ulsan National Institute of Science and Technology, Korea Thuc-Quyen Nguyen, University of California Santa Barbara, USA

Petr Nikrityuk, University of Alberta, Canada Kenneth Ozoemena, University of the Witwatersrand, South Africa Kristin Persson, University of California,

USA, and Lawrence Berkeley National Laboratory, USA

Jenny Pringle, Deakin University, Australia Jürgen Steimle, Universität des Saarlandes,

Valeska Ting, University of Bristol, UK Shenghao Wang, Shanghai University, China Ajayan Vinu, The University of Newcastle, Australia

Naoaki Yabuuchi, Yokohama National University, Japan

Aldo José Gorgatti Zarbin, Universidade Federal do Paraná (UFPR), Brazil Qiang Zhang, Tsinghua University, China Hongcai Zhou, Texas A&M University, USA

# Information for Authors

Full details on how to submit material for publication in Energy 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/energy-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

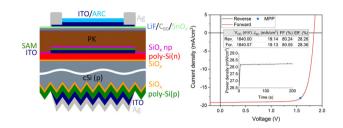


#### COMMUNICATION

#### 1818

Rear textured p-type high temperature passivating contacts and their implementation in perovskite/ silicon tandem cells

Arnaud Walter,\* Brett A. Kamino, Soo-Jin Moon, Patrick Wyss, Juan J. Diaz Leon, Christophe Allebé, Antoine Descoeudres, Sylvain Nicolay, Christophe Ballif, Quentin Jeangros and Andrea Ingenito\*

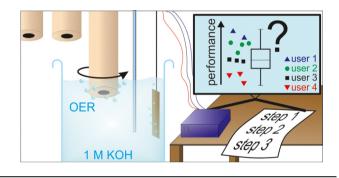


# **PAPERS**

#### 1823

The rotating disc electrode: measurement protocols and reproducibility in the evaluation of catalysts for the oxygen evolution reaction

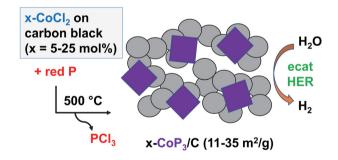
Marc F. Tesch,\* Sebastian Neugebauer, Praveen V. Narangoda, Robert Schlögl and Anna K. Mechler\*



## 1831

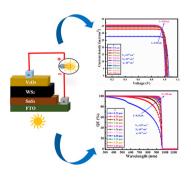
Flexible direct synthesis of phosphorus-rich CoP<sub>3</sub> on carbon black and its examination in hydrogen evolution electrocatalysis

Ishanka A. Liyanage, Hannah Barmore and Edward G. Gillan\*



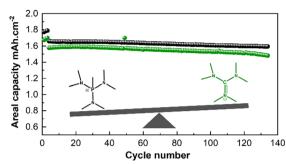
Design and analysis of a SnS<sub>2</sub>/WS<sub>2</sub>/V<sub>2</sub>O<sub>5</sub> double-heterojunction toward high-performance photovoltaics

Jubair Al Mahmud, Md. Ferdous Rahman,\* Abdul Kuddus,\* Md. Hasan Ali, A. T. M. Saiful Islam, Md. Dulal Haque, Sheikh Rashel Al Ahmed, Muhammad Mushtaq and Abu Bakar Md. Ismail



## **PAPERS**

## 1859



# A comparison of the impact of cation chemistry in ionic liquid-based lithium battery electrolytes

Faezeh Makhlooghiazad,\* Colin S. M. Kang, Mojtaba Eftekharnia, Patrick C. Howlett, Öliver Hutt, Maria Forsyth, Luke A. O'Dell and Jennifer M. Pringle\*

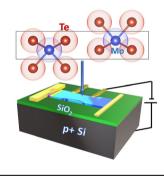
#### 1872



# Semi-solid electrodes based on injectable hydrogel electrolytes for shape-conformable batteries

Mario Borlaf, Matias L. Picchio, Gisela Carina Luque, Miryam Criado-Gonzalez, Gregorio Guzmán-Gonzalez, Daniel Pérez-Antolin, Gabriele Lingua, David Mecerreyes\* and Edgar Ventosa\*

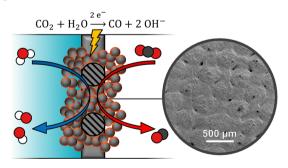
## 1882



# Electrostatic modulation of thermoelectric transport properties of 2H-MoTe<sub>2</sub>

Tianhui Zhu, Sree Sourav Das, Safoura Nayeb Sadeghi, Farjana Ferdous Tonni, Sergiy Krylyuk, Costel Constantin, Keivan Esfarjani, Albert V. Davydov and Mona Zebarjadi\*

#### 1893



# Electrowetting limits electrochemical CO<sub>2</sub> reduction in carbon-free gas diffusion electrodes

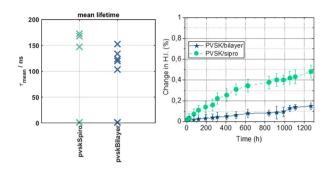
Lorenz M. Baumgartner, Andrey Goryachev, Christel I. Koopman, David Franzen, Barbara Ellendorff, Thomas Turek and David A. Vermaas\*

## **PAPERS**

#### 1905

# An Fe<sub>3</sub>O<sub>4</sub> based hole transport bilayer for efficient and stable perovskite solar cells

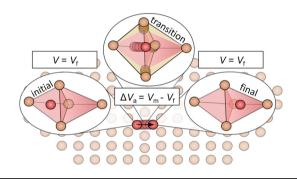
Akbar Ali Qureshi, Emilia R. Schütz, Sofia Javed.\* Lukas Schmidt-Mende and Azhar Fakharuddin\*



#### 1915

# Pressure dependence of ionic conductivity in site disordered lithium superionic argyrodite Li<sub>6</sub>PS<sub>5</sub>Br

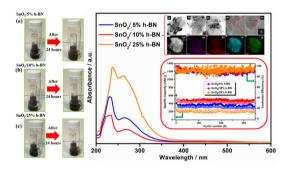
Vasiliki Faka, Matthias T. Agne, Paul Till, Tim Bernges, Marcel Sadowski, Ajay Gautam, Karsten Albe and Wolfgang G. Zeier\*



#### 1926

# SnO<sub>2</sub>/h-BN nanocomposite modified separator as a high-efficiency polysulfide trap in lithium-sulfur batteries

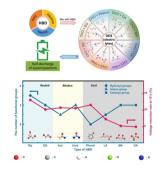
Chandra Sekhar Bongu, Yasmin Mussa, Sara Aleid, Muhammad Arsalan and Edreese H. Alsharaeh\*



#### 1935

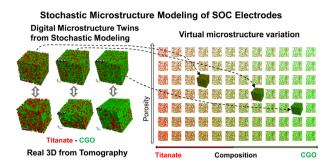
# Screening the deep eutectic electrolytes for supercapacitors with alleviated self-discharge

Wenxia Huang, Xiaohui Yan, Yige Xiong, Qihui Guo, Xin Zhang, Fengyu Huang, Houqiang Shi and Xiang Ge\*



## **PAPERS**

1942



# Stochastic microstructure modeling of SOC electrodes based on a pluri-Gaussian method

Philip Marmet,\* Lorenz Holzer, Thomas Hocker, Vinzenz Muser, Gernot K. Boiger, Mathias Fingerle, Sarah Reeb, Dominik Michel and Joseph M. Brader

## CORRECTION

1968

Correction: Generation of covalent organic framework-derived porous N-doped carbon nanosheets for highly efficient electrocatalytic hydrogen evolution

Sayan Halder, Anup Kumar Pradhan, Soumen Khan and Chanchal Chakraborty\*