

**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.*

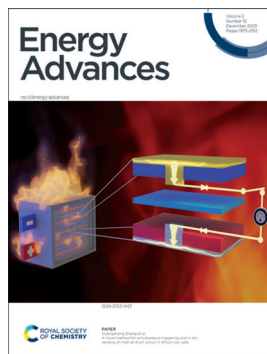
## IN THIS ISSUE

ISSN 2753-1457 CODEN EANDBJ 2(12) 1973-2152 (2023)



## Cover

See Puiki Leung, Lin Zeng,  
Tianshou Zhao, Lei Wei  
*et al.*, pp. 2006–2017.  
Image reproduced  
by permission of Lei Wei  
from *Energy Adv.*,  
2023, **2**, 2006.



## Inside cover

See Guangsheng Zhang  
et al., pp. 2018–2028.

Image reproduced  
by permission of  
Guangsheng Zhang  
from *Energy Adv.*,  
2023, 2, 2018.

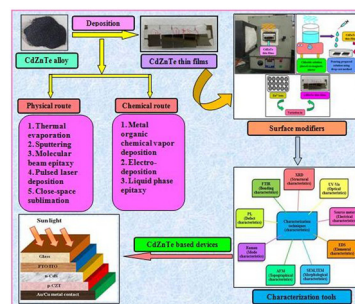
We would like to acknowledge that Madeline Liu supported in making the image and that the software Blender was used in making the image.

## REVIEW

1980

# CdZnTe thin films as proficient absorber layer candidates in solar cell devices: a review

Ritika Sharma, Sakshi Chuhadiya, Kamlesh, Himanshu  
and M. S. Dhaka\*

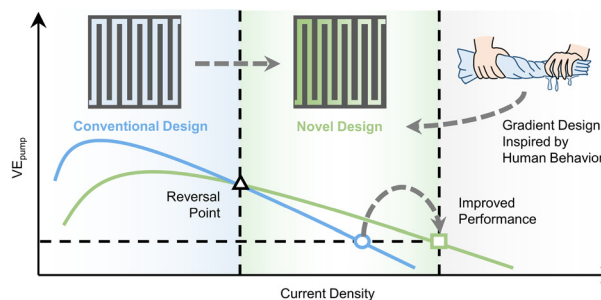


## PAPERS

2006

## In-plane gradient design of flow fields enables enhanced convections for redox flow batteries

Lyuming Pan, Jianyu Xie, Jincang Guo, Dongbo Wei,  
Honghao Qi, Haoyao Rao, Puiki Leung,\* Lin Zeng,\*  
Tianshou Zhao\* and Lei Wei\*



**Executive Editor**

Emma Eley

**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

**Publisher**

Neil Hammond

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

For pre-submission queries please contact

Emma Eley, Executive Editor.

Email: [energyadvances-rsc@rsc.org](mailto: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](mailto: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](mailto: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](mailto:advertising@rsc.org)

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

# Energy Advances

[rsc.li/energy-advances](http://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 and Technology (HUST), China  
Matthew Suss, Form Energy, USA  
You Han, Tianjin University, China

Wai-yeung (Raymond) Wong, The Hong Kong Polytechnic University, Hong Kong, China

## Advisory Board

Nirmala Grace Andrews, Vellore Institute of Technology, India  
Sarbjit 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, Germany  
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](http://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

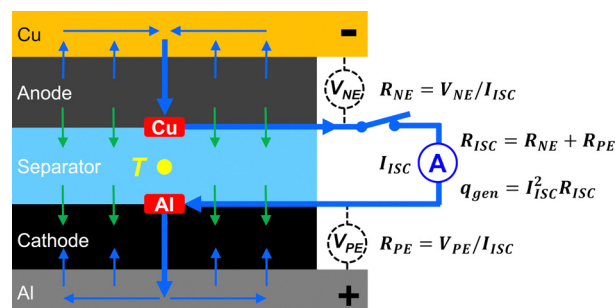


## PAPERS

2018

# A novel method for simultaneous triggering and *in situ* sensing of internal short circuit in lithium-ion cells

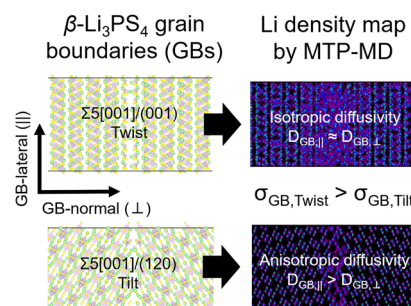
Mary K. Long, Siyi Liu and Guangsheng Zhang\*



2029

# Lithium dynamics at grain boundaries of $\beta$ -Li<sub>3</sub>PS<sub>4</sub> solid electrolyte

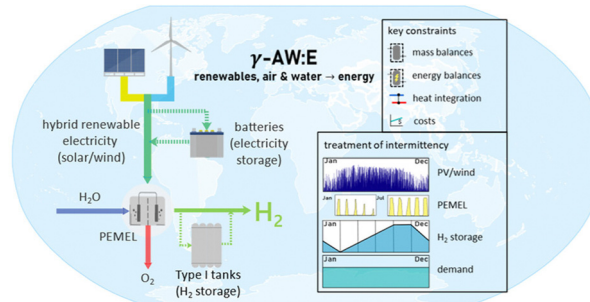
Randy Jalem, Manas Likhit Holekevi Chandrappa, Ji Qi, Yoshitaka Tateyama and Shyue Ping Ong\*



2042

# Quantifying global costs of reliable green hydrogen

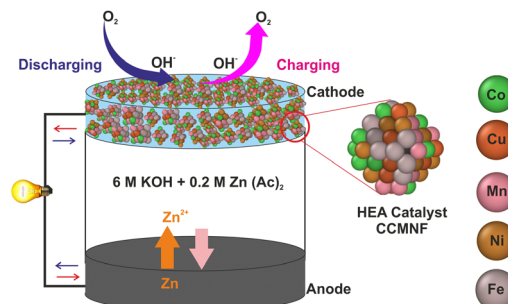
D. Freire Ordóñez, C. Ganzer, T. Halfdanarson, A. González Garay, P. Patrizio, A. Bardow, G. Guillén-Gosálbez, N. Shah and N. Mac Dowell\*



2055

# Understanding the evolution of catalytically active multi-metal sites in a bifunctional high-entropy alloy electrocatalyst for zinc–air battery application

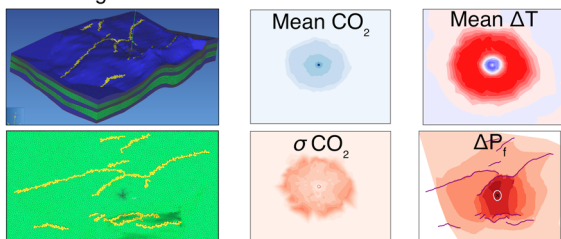
Chetna Madan, Saumya R. Jha, Nirmal Kumar Katiyar, Arkaj Singh, Rahul Mitra, Chandra Sekhar Tiwary,\* Krishanu Biswas\* and Aditi Halder\*



2069

Offshore CO<sub>2</sub> Storage

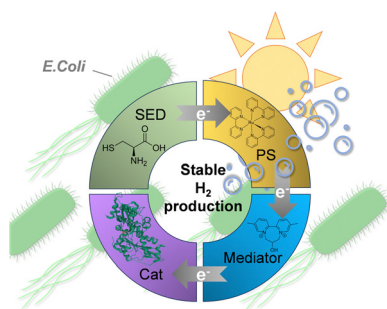
Geologic Model



## Assessing reservoir performance for geologic carbon sequestration in offshore saline reservoirs

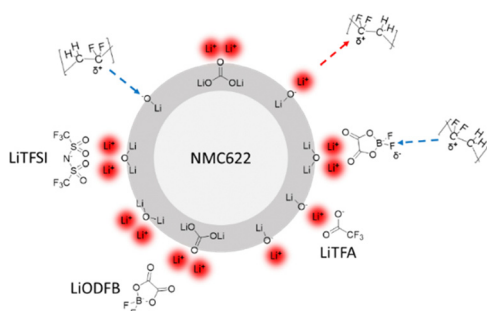
Lars Koehn,\* Brian W. Romans and Ryan M. Pollyea

2085

*E. coli*-based semi-artificial photosynthesis: biocompatibility of redox mediators and electron donors in [FeFe] hydrogenase driven hydrogen evolution

Mira T. Gamache, Larissa Kurth, Dawit T. Filmon, Nicolas Plumeré and Gustav Berggren\*

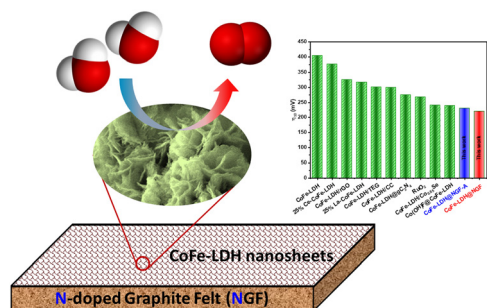
2093



## Electrochemical investigation of fluorine-containing Li-salts as slurry cathode additives for tunable rheology in super high solid content NMP slurries

Francesco Colombo,\* Marcus Müller, Andreas Weber, Noah Keim, Fabian Jeschull, Werner Bauer and Helmut Ehrenberg

2109



## Cobalt–iron layered double hydroxide nanosheet-wrapped nitrogen-doped graphite felt as an oxygen-evolving electrode

Noor Fatima Shahid, Ahsan Jamal, Gulfam-ul Haq, Maham Javed, Muhammad Saifullah and Mohsin Ali Raza Anjum\*

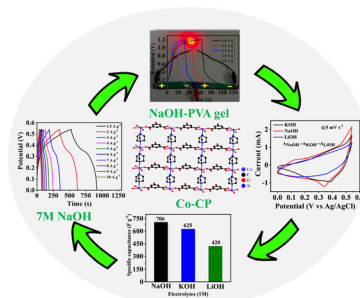


## PAPERS

2119

### Exploring the feasibility of a two-dimensional layered cobalt-based coordination polymer for supercapacitor applications: effect of electrolytic cations

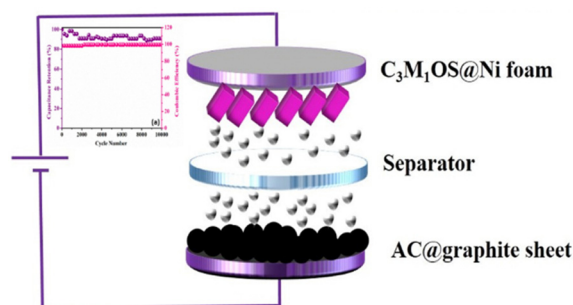
Rakesh Deka, Shashank Rath and Shaikh M. Mobin\*



2129

### Compositionally variant bimetallic Cu–Mn oxysulfide electrodes with meritorious supercapacitive performance and high energy density

Heba M. El Sharkawy, Abdussalam M. Elbanna, Ghada E. Khedr and Nageh K. Allam\*



2140

### Efficient procedure for biodiesel synthesis from waste oil and *t*-butylation of resorcinol using a porous microtube polymer-based solid acid

Zhijin Guo and Xuezheng Liang\*

