

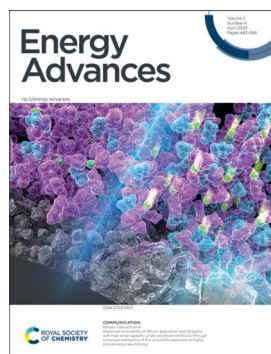
Energy Advances

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(4) 443-566 (2023)



Cover

See Naoaki Yabuuchi
et al., pp. 503–507.
Image reproduced by
permission of
Naoaki Yabuuchi from
Energy Adv., 2023, 2, 503.

REVIEWS

449

Machine learning-inspired battery material innovation

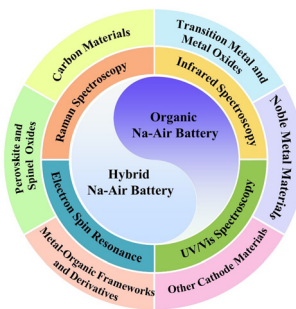
Man-Fai Ng,* Yongming Sun and Zhi Wei Seh*



465

A comprehensive review of cathode materials for Na-air batteries

Pengcheng Mao, Hamidreza Arandiyan,*
Sajjad S. Mofarah, Pramod Koshy, Cristina Pozo-Gonzalo,
Runguo Zheng, Zhiyuan Wang, Yuan Wang,*
Suresh K. Bhargava, Hongyu Sun,* Zongping Shao and
Yanguo Liu*



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, Aphra Murray, Alexander John, Emily Ellison, Jack Pitchers

Publisher

Neil Hammond

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

Michael Naguib, Tulane University, USA
Guang Feng, Huazhong University of Science and Technology (HUST), China

Anita Ho-Ballie, University of Sydney, Australia

Associate Editors

B. Layla Mehdi, University of Liverpool, UK

Matthew Suss, Israel Institute of Technology, Israel

You Han, Tianjin University, China

Advisory Board

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
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
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

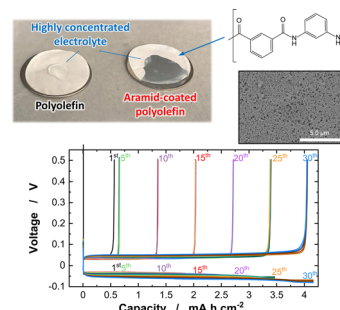


COMMUNICATIONS

503

Improved reversibility of lithium deposition and stripping with high areal capacity under practical conditions through enhanced wettability of the polyolefin separator to highly concentrated electrolytes

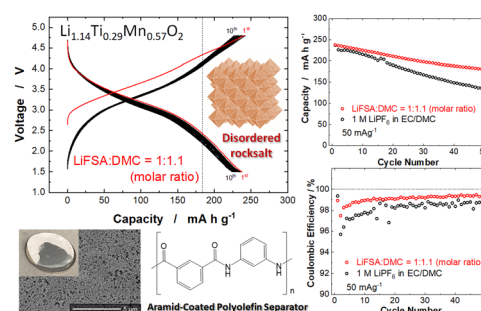
Yosuke Ugata, Chihaya Motoki, Satoshi Nishikawa and Naoaki Yabuuchi*



508

Improved electrode reversibility of anionic redox with highly concentrated electrolyte solution and aramid-coated polyolefin separator

Nanaka Shimada, Yosuke Ugata, Satoshi Nishikawa, Daisuke Shibata, Toshiaki Ohta and Naoaki Yabuuchi*

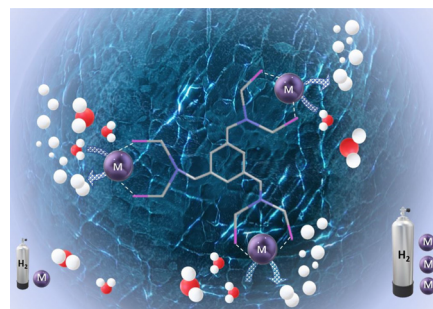


PAPERS

513

The influence of trinuclear complexes on light-induced hydrogen production

Helena Roithmeyer, Richard Pehn, Johann Pann, Wolfgang Viertl, Benedikt Trübenbacher, Julian Dutzler, Holger Kopacka, Thomas Müller and Peter Bruggeller*

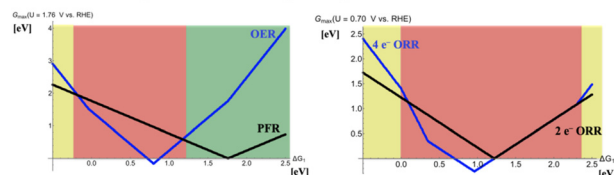


522

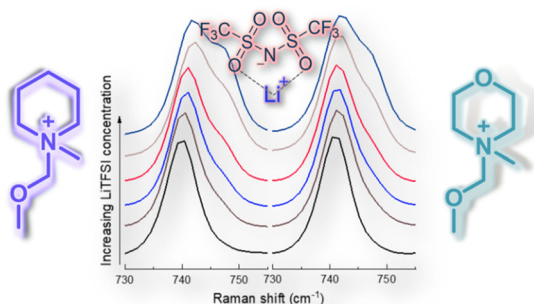
On the concept of metal–hydrogen peroxide batteries: improvement over metal–air batteries?

Kai S. Exner

Selectivity in metal–hydrogen peroxide batteries



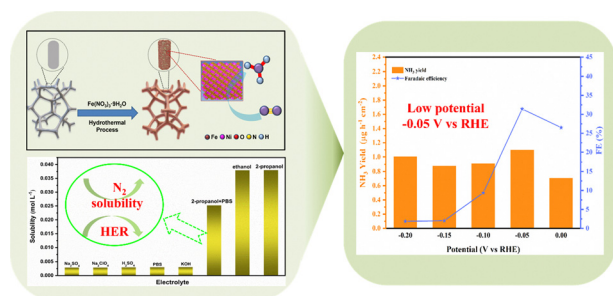
530



Structure and interactions of novel ether-functionalised morpholinium and piperidinium ionic liquids with lithium salts

Anna Warrington, Luke A. O'Dell, Oliver E. Hutt, Maria Forsyth and Jennifer M. Pringle*

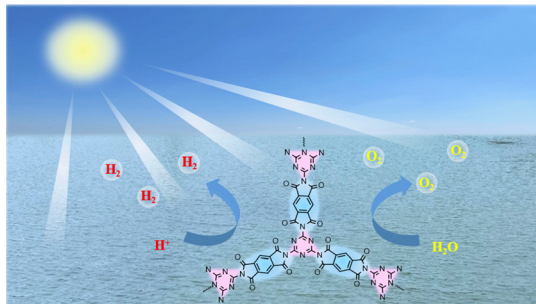
547



Efficient N₂ electroreduction to ammonia in an isopropanol–PBS electrolyte using NiFe₂O₄ *in situ* grown on nickel foam

Chang Chen, Min Cui, Qian Wang,* Penglei Cui, Cong Zhang, Qian Yang and Jujie Ren*

556



Band structure engineering of a polyimide photocatalyst towards enhanced water splitting

Sheng Chu, Xintie Wang, Liu Yang, Huiyan Zhang,* Rui Xiao, Ying Wang* and Zhigang Zou

