

Energy & Environmental Science

rsc.li/ees

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 1754-5706 CODEN EESNBY 17(1) 1-356 (2024)



Cover

See Yu Wang, Zaiping Guo *et al.*, pp. 123-133. Image reproduced by permission of Yu Wang from *Energy Environ. Sci.*, 2024, 17, 123.



Inside cover

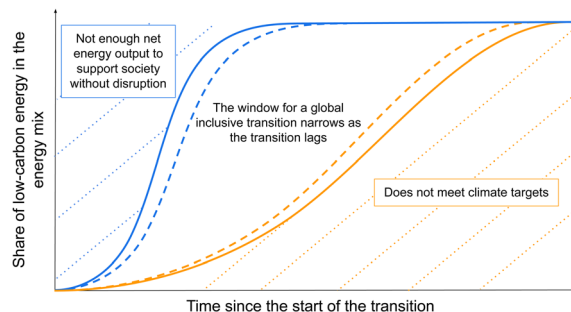
See Cheolmin Park *et al.*, pp. 134-148. Image reproduced by permission of Cheolmin Park from *Energy Environ. Sci.*, 2024, 17, 134.

OPINION

11

Emerging consensus on net energy paves the way for improved integrated assessment modeling

Louis Delannoy,* Matthieu Auzanneau, Baptiste Andrieu, Olivier Vidal, Pierre-Yves Longaretti, Emmanuel Prados, David J. Murphy, Roger W. Bentley, Michael Carbajales-Dale, Marco Raugei, Mikael Höök, Victor Court, Carey W. King, Florian Fizaine, Pierre Jacques, Matthew Kuperus Heun, Andrew Jackson, Charles Guay-Boutet, Emmanuel Aramendia, Jianliang Wang, Hugo Le Boulzec and Charles A.S. Hall

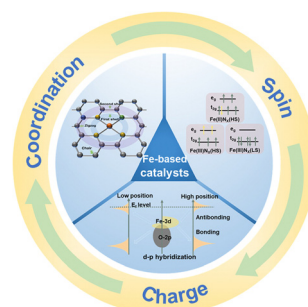


REVIEW

27

Unified ORR mechanism criteria via charge-spin-coordination of Fe functional units

Kexin Song, Binbin Yang, Xu Zou, Wei Zhang* and Weitao Zheng*



Fuelling your energy research



Energy & Environmental Science

Agenda-setting research in energy science and technology

Chair of the Editorial Board

Jenny Nelson, Imperial College London, UK

Impact factor 2021: 39.714, median time to first decision (peer reviewed articles only): 46 days*.

rsc.li/ees



EES Catalysis

Exceptional research on energy and environmental catalysis

Editor-in-Chief

Shizhang Qiao, University of Adelaide, Australia

Median time to first decision (peer reviewed articles only): 24 days*.

rsc.li/ees-catalysis



Sustainable Energy & Fuels

Driving the development of sustainable energy technologies through cutting edge research

Editor-in-Chief

Garry Rumbles, National Renewable Energy Laboratory and University of Colorado Boulder, USA

Impact factor 2021: 6.813, median time to first decision (peer reviewed articles only): 28 days*.

rsc.li/sustainable-energy



Energy Advances

Embracing research at the nexus of energy science and sustainability

Editor-in-Chief

Volker Presser, Leibniz Institute for New Materials, Germany

Median time to first decision (peer reviewed articles only): 32 days*.

rsc.li/energy-advances

Submit your work today

rsc.li/energy

*Visit rsc.li/metrics-explainer for more information

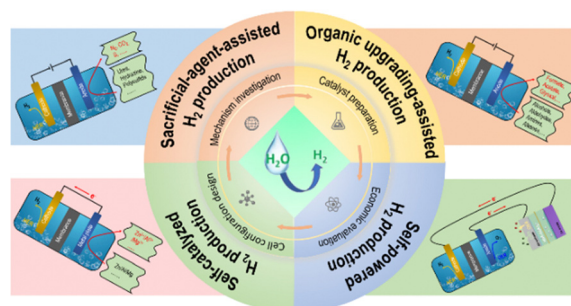
Registered charity number: 207890

PERSPECTIVE

49

Water electrolysis for hydrogen production: from hybrid systems to self-powered/catalyzed devices

Jin-Tao Ren, Lei Chen, Hao-Yu Wang, Wen-Wen Tian and Zhong-Yong Yuan*

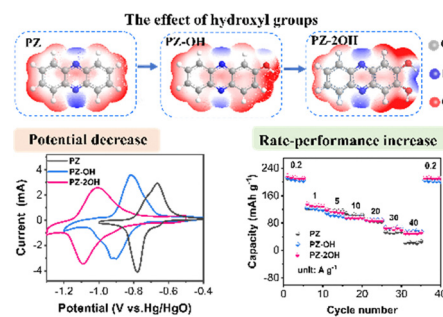


COMMUNICATION

114

Tailoring hydroxyl groups of organic phenazine anodes for high-performance and stable alkaline batteries

Huilin Cui, Dechao Zhang, Zhuoxi Wu, Jiexiong Zhu, Pei Li, Chuan Li, Yue Hou, Rong Zhang, Xiaoqi Wang, Xu Jin, Shengchi Bai and Chunyi Zhi*

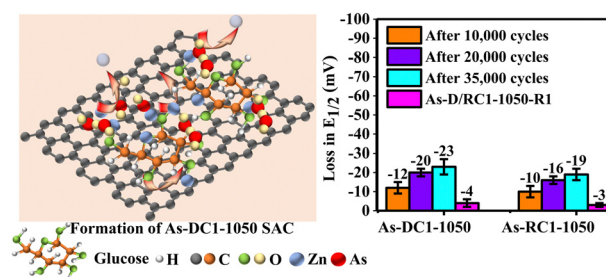


PAPERS

123

High-loading As single-atom catalysts harvested from wastewater towards efficient and sustainable oxygen reduction

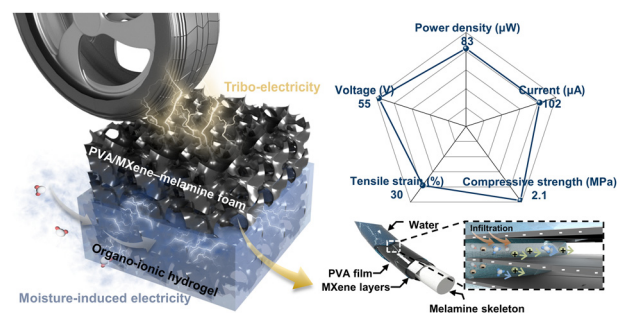
Yangjun Luo, Yanwei Wang, Huijuan Zhang, Youyuan Wang, Jin Wan, Chuanzhen Feng, Lingmei Liu, Zaiping Guo,* Jian Li and Yu Wang*



134

A deformable complementary moisture and tribo energy harvester

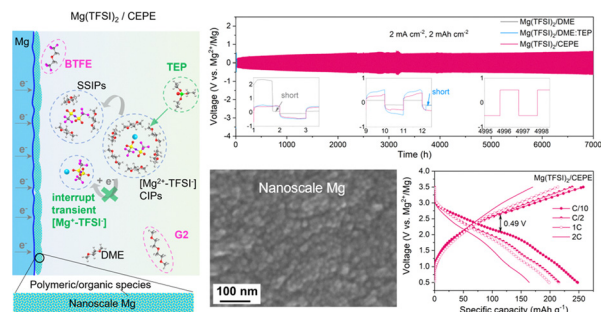
Gwanho Kim, Jae Won Lee, Kaiying Zhao, Taebin Kim, Woojoong Kim, Jin Woo Oh, Kyuho Lee, Jihye Jang, Guangtao Zan, Jong Woong Park, Seokyeong Lee, Yeonji Kim, Wei Jiang, Shengyou Li and Cheolmin Park*



190

A weakly ion pairing electrolyte designed for high voltage magnesium batteries

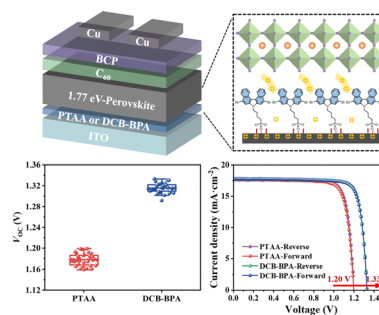
Chang Li, Rishabh D. Guha, Abhinandan Shyamsunder, Kristin A. Persson* and Linda F. Nazar*



202

Achieving a high open-circuit voltage of 1.339 V in 1.77 eV wide-bandgap perovskite solar cells via self-assembled monolayers

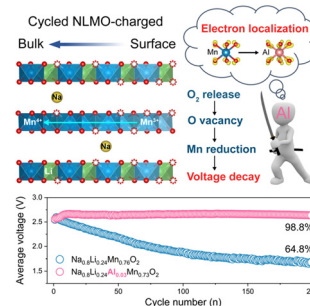
Zongjin Yi, Wanhai Wang, Rui He, Jingwei Zhu, Wenbo Jiao, Yi Luo, Yuliang Xu, Yunfan Wang, Zixin Zeng, Kun Wei, Jinbao Zhang, Sai-Wing Tsang, Cong Chen, Weihua Tang* and Dewei Zhao*



210

Unraveling and suppressing the voltage decay of high-capacity cathode materials for sodium-ion batteries

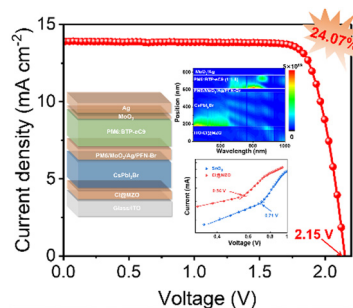
Luoran Sun, Zhonghan Wu, Machuan Hou, Youxuan Ni, Haoxiang Sun, Peixin Jiao, Haixia Li, Wei Zhang, Liang Zhang, Kai Zhang,* Fangyi Cheng and Jun Chen



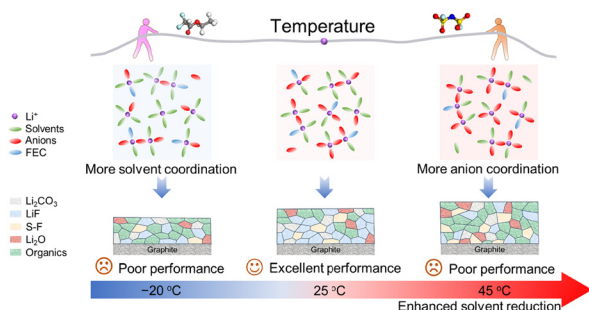
219

Synergistic electrical and light management enables efficient monolithic inorganic perovskite/organic tandem solar cells with over 24% efficiency

Shan Jiang, Ruyue Wang, Minghua Li,* Runnan Yu, Fuzhi Wang and Zhan'ao Tan*



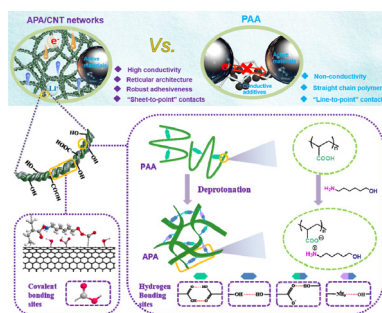
227



Unraveling the temperature-responsive solvation structure and interfacial chemistry for graphite anodes

Yanbing Mo, Gaopan Liu, Jiawei Chen, Xiao Zhu, Yu Peng, Yonggang Wang, Congxiao Wang, Xiaoli Dong* and Yongyao Xia*

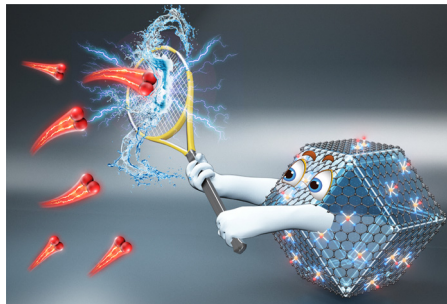
238



A new universal aqueous conductive binder *via* esterification reinforced electrostatic/H-bonded self-assembly for high areal capacity and stable lithium-ion batteries

Farong Zhang, Hongyu Xia, Tongye Wei,* Huaming Li, Mei Yang* and An-Min Cao*

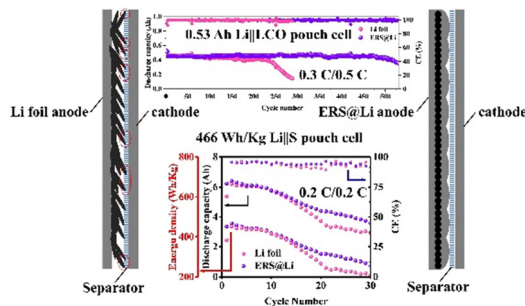
249



High-coordination Fe–N₄SP single-atom catalysts *via* the multi-shell synergistic effect for the enhanced oxygen reduction reaction of rechargeable Zn–air battery cathodes

Jiaqi Liu, Weibin Chen, Shuang Yuan,* Tie Liu and Qiang Wang*

260



Green mechanochemical Li foil surface reconstruction toward long-life Li–metal pouch cells

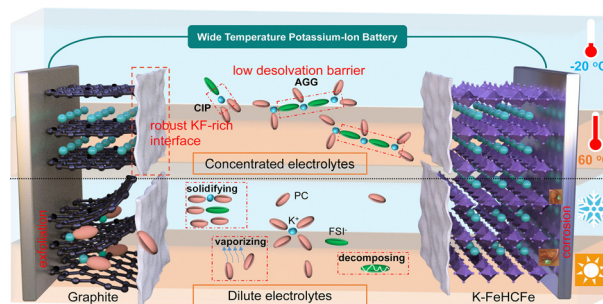
Kecheng Long, Shaozhen Huang, Han Wang, Anbang Wang, Yuejiao Chen, Zhijian Liu, Yu Zhang, Zhibin Wu, Weikun Wang* and Libao Chen*



274

Rejuvenating propylene carbonate-based electrolytes by regulating the coordinated structure toward all-temperature potassium-ion batteries

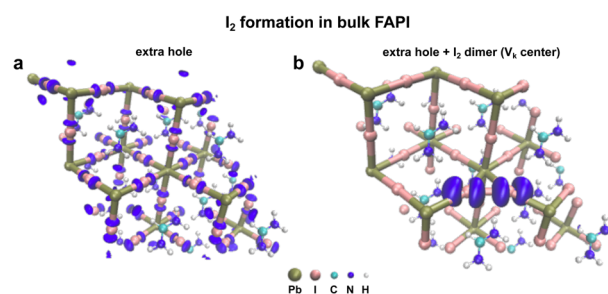
Zixing Wang, Kang Luo, Jian-Fang Wu, Peng Gao, Kexuan Wang, Shi Chen, Jian Tu, Xiulin Fan and Jilei Liu*



284

Understanding and decoupling the role of wavelength and defects in light-induced degradation of metal-halide perovskites

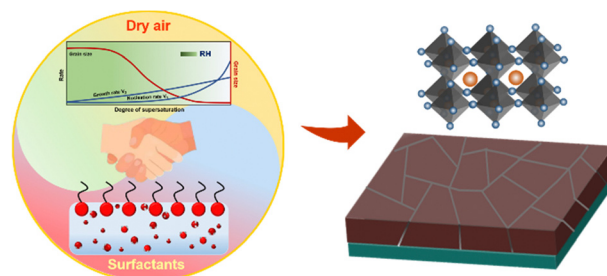
Jeremy Hieulle, Anurag Krishna, Ariadni Boziki, Jean-Nicolas Audinot, Muhammad Uzair Farooq, Joana Ferreira Machado, Marko Mladenović, Himanshu Phirke, Ajay Singh, Tom Wirtz, Alexandre Tkatchenko, Michael Graetzel, Anders Hagfeldt and Alex Redinger*



296

The synergistic effect of dry air and surfactants enables water to be a promising green solvent for stable and efficient perovskite solar cells

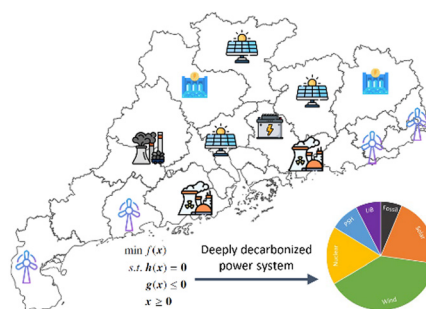
Yanrui Zhang, Lixia Ren, Peng Zhai,* Jingjing Xin, Jiarong Wu, Qi Zhang, Xin Chen, Kui Zhao, Lu Zhang and Shengzhong (Frank) Liu*



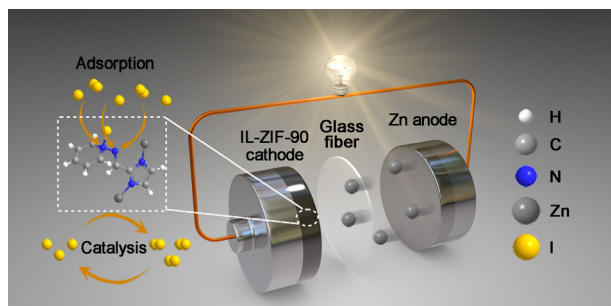
307

Low-carbon transition pathways of power systems for Guangdong–Hongkong–Macau region in China

Zuming Liu,* Mingquan Li, Edgar Virguez and Xiaomin Xie*



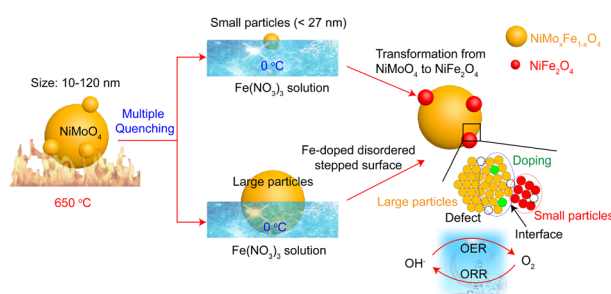
323



Synergistic effects of Lewis acid–base and Coulombic interactions for high-performance Zn–I₂ batteries

Jiafeng He, Yongbiao Mu, Buke Wu, Fuhai Wu, Ruixi Liao, Hongfei Li, Tianshou Zhao* and Lin Zeng*

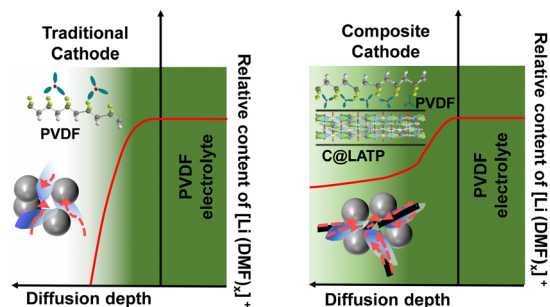
332



Heterostructured metal oxides realized by quenching-induced structural transformation

Changchun Ye, Zhenghui Pan,* Qinghua Zhang, Fang Yin, Yanan Wang, Yifei Li, Guangxu Chen, Jia Li,* Yongcai Qiu,* Geoffrey I. N. Waterhouse, Lin Gu,* Zhang Lin and Lin Guo*

344



Achieving a high loading of cathode in PVDF-based solid-state battery

Yang Liu, Xufei An, Ke Yang, Jiabin Ma, Jinshuo Mi, Danfeng Zhang, Xing Cheng, Yuhang Li, Yuetao Ma, Ming Liu,* Feiyu Kang and Yan-Bing He*

