Journal of Materials Chemistry A

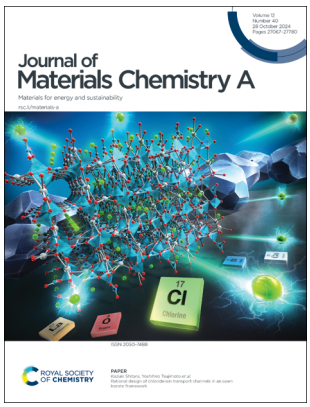
Materials for energy and sustainability

rsc.li/materials-a

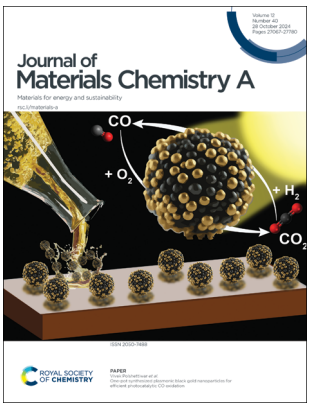
The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2050-7488 CODEN JMCAET 12(40) 27067–27780 (2024)

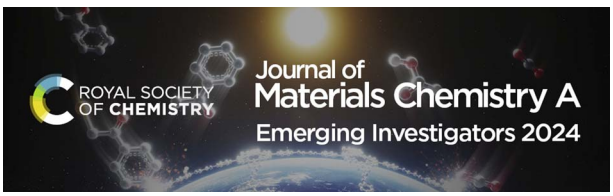


Cover
See Kazuki Shitara, Yoshihiro Tsujimoto *et al.*, pp. 27229–27234. Image reproduced by permission of Yoshihiro Tsujimoto from *J. Mater. Chem. A*, 2024, **12**, 27229.

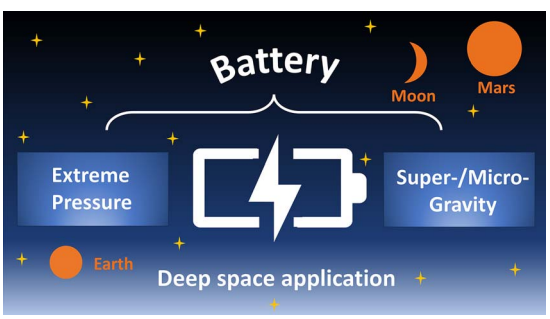


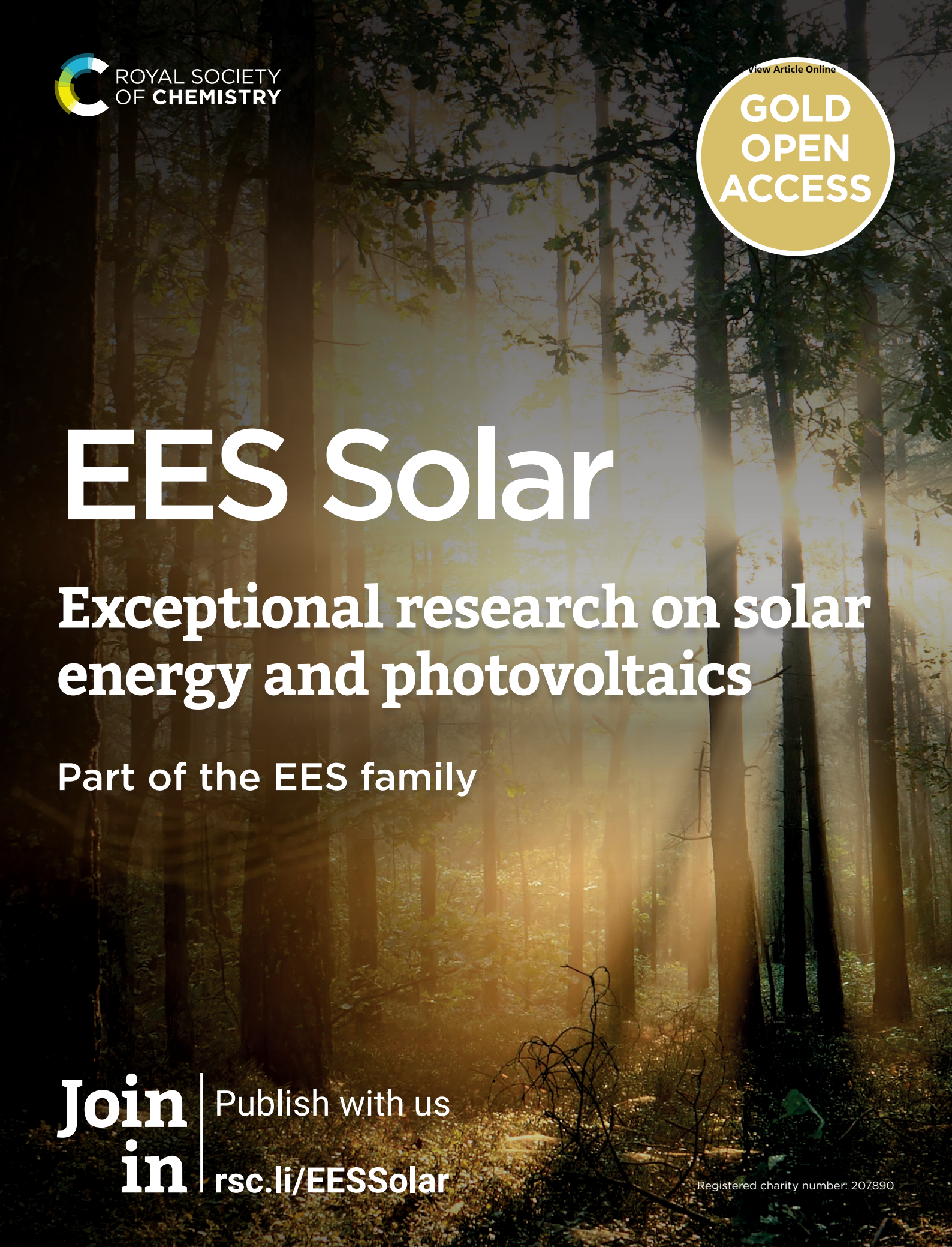
Inside cover
See Vivek Polshettiwar *et al.*, pp. 27235–27245. Image reproduced by permission of Vivek Polshettiwar from *J. Mater. Chem. A*, 2024, **12**, 27235.

PROFILE

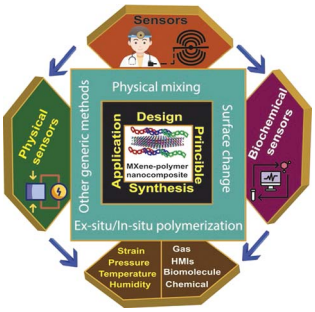


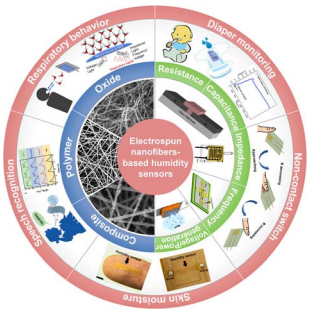
HIGHLIGHT

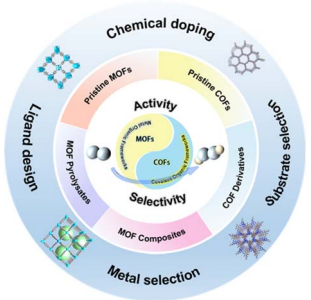



ROYAL SOCIETY OF CHEMISTRY
View Article Online
GOLD OPEN ACCESS
EES Solar
Exceptional research on solar energy and photovoltaics
Part of the EES family
Join in
Publish with us
rsc.li/EESSolar
Registered charity number: 207890

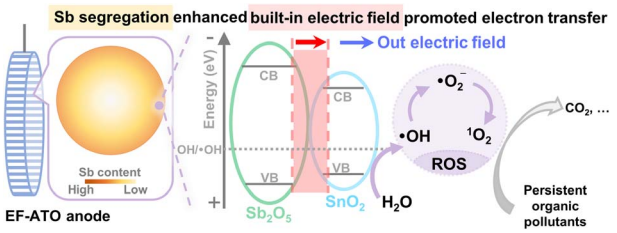
REVIEWS







COMMUNICATIONS



COMMUNICATIONS

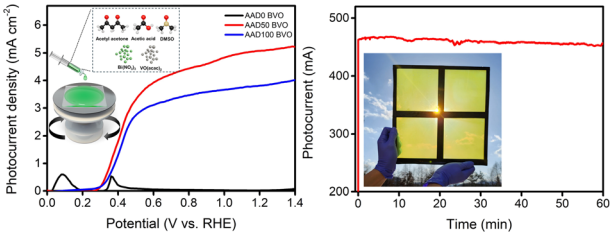
PAPERS

PAPERS

27246

Breakthrough in the large area photoanode fabrication process: high concentration precursor solution with solvent mixing and one step spin coating for high PEC performance of $BiVO_4$

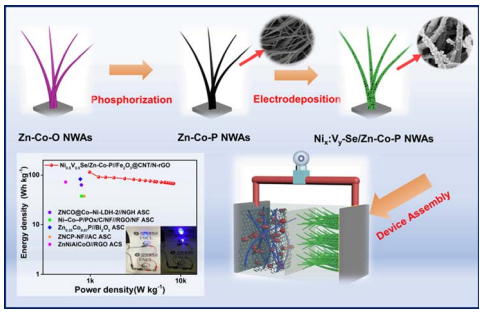
Hoyoung Lee, Gil-Seong Kang, Hanyi Lim, Hyobin Han, Tae Woo Kim, Jun-Hyuk Choi, Dae-Geun Choi, Joo-Yun Jung, Jun-Ho Jeong, Jong Hyeok Park* and Jihye Lee*



27257

A Ni_x:V_y–Se nanoparticle decorated hierarchical porous Zn–Co–P nanowire array electrode for high energy density asymmetric supercapacitors

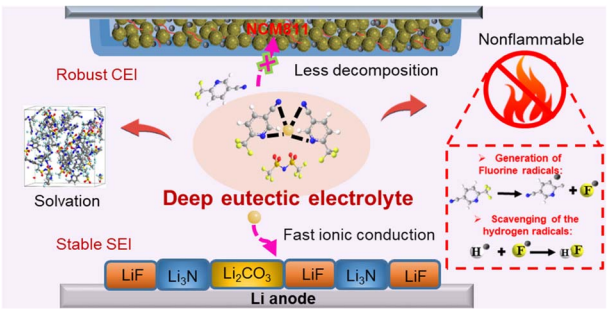
JiuYi Dai, Soram Bobby Singh, Manoj Bollu, Nam Hoon Kim* and Joong Hee Lee*



27269

Fluorine-rich deep eutectic electrolytes enabling robust interphases and nonflammability of high-voltage lithium metal batteries

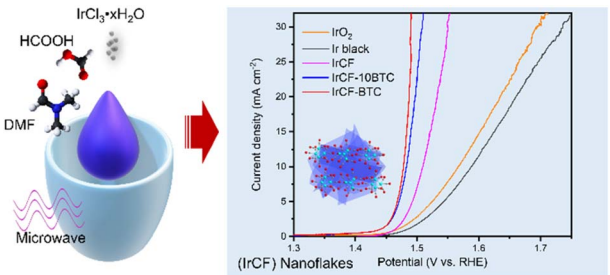
Jun Yang, Mingzi Sun, Rongrong Li, Lijiang Yin, Bolong Huang* and Xiong Pu*



27280

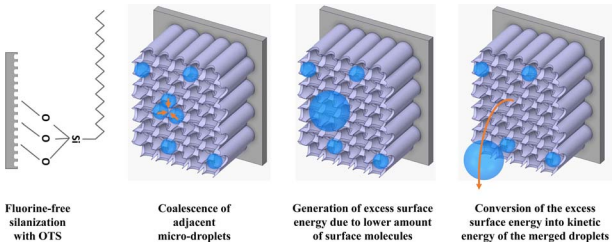
Ultrathin iridium carbonyl formate for efficient and durable acidic oxygen evolution electrocatalysis

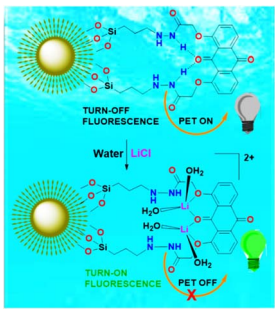
Jian Wei Guo, Fangxin Mao, Song Ru Fang, Hao Yang Lin, Huan Wang, Wen Jing Li, Hai Yang Yuan, Shuang Yang,* Peng Fei Liu* and Hua Gui Yang

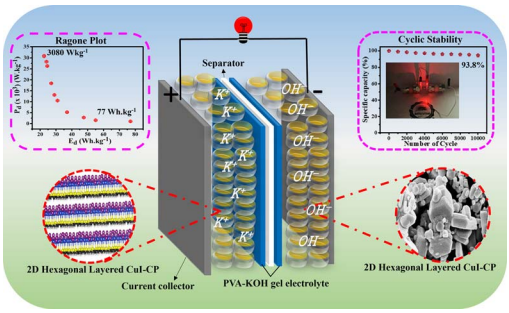


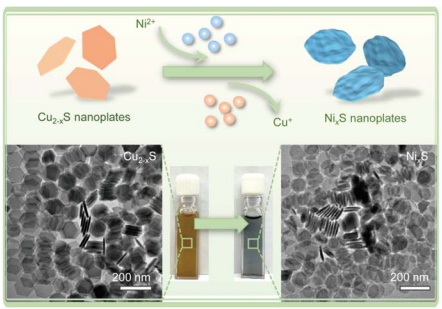
PAPERS

PAPERS



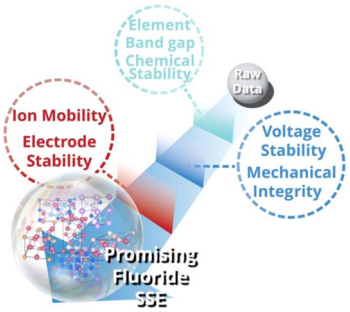


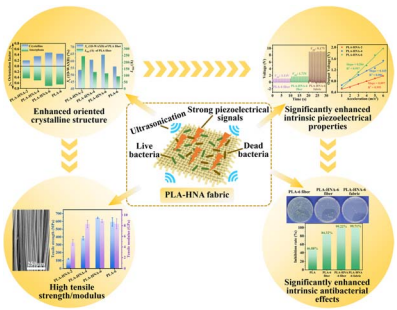


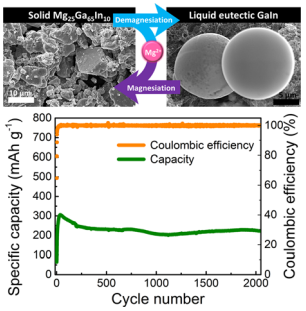


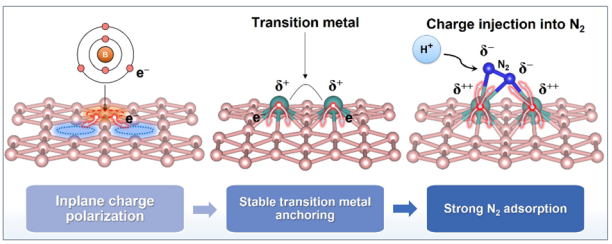
PAPERS

PAPERS



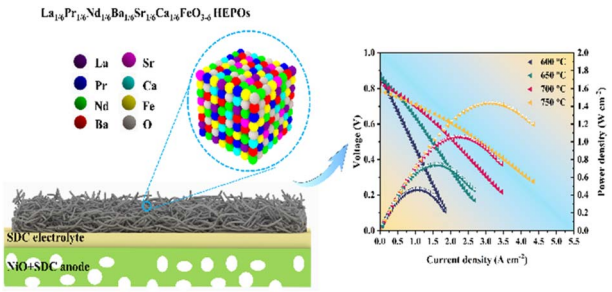






PAPERS

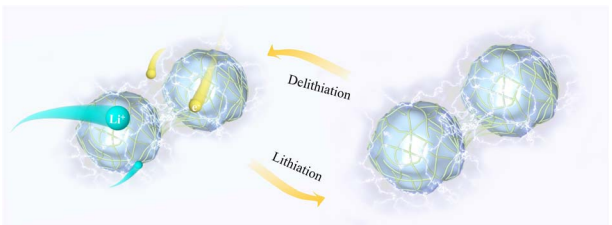
27452



High-entropy cobalt-free perovskite as a high-performing nanofiber cathode for solid oxide fuel cells

Xinmin Fu, Shiquan Lü,* Xiangwei Meng,* Chuxiao Sun, Maobin Wei, Haipeng Jiang and Weijiang Gong*

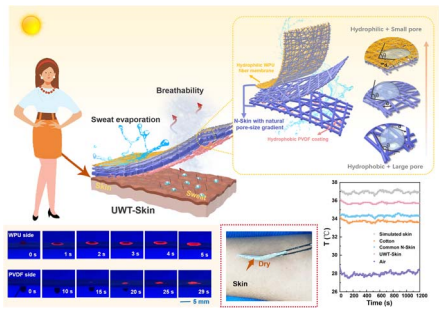
27464



Resilient ion/electron dual conductive network with covalent/hydrogen bond cross-linking enables stable and high-energy-density Si–C anodes for lithium-ion batteries

Yupeng Xiao, Tianle Li, Xiaoqian Hao, Tianjiao Zhu, Jingqi Zang, Yuqian Li and Wenju Wang*

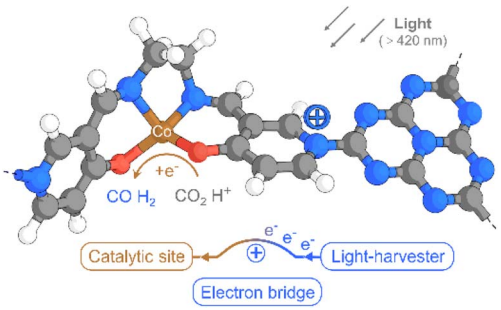
27478



Design of a unidirectional water-transport skin-derived wearable material through engineering a natural pore-size gradient for personal wet–thermal management

Lu Gao, Yan Bao,* Peng Lei, Sike Yu, Xiaofeng Zhu, Chao Liu, Wenbo Zhang* and Jianzhong Ma*

27491



Constructing metallosalen poly(ionic liquid)s to boost photocatalytic CO_2 reduction

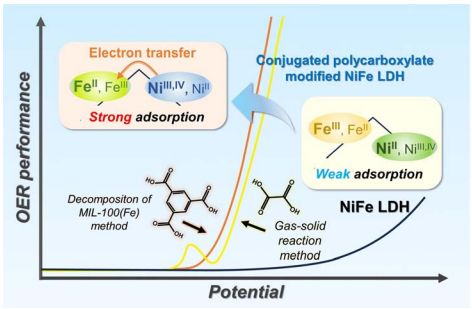
Xi Chen, Wei Zhou, Xu Fang, Cheng Li, Die Cong, Tie Yu, Wei-Qiao Deng and Chengcheng Liu*

PAPERS

27497

Conjugated polycarboxylate ligand-coordinated NiFe LDH for enhanced oxygen evolution

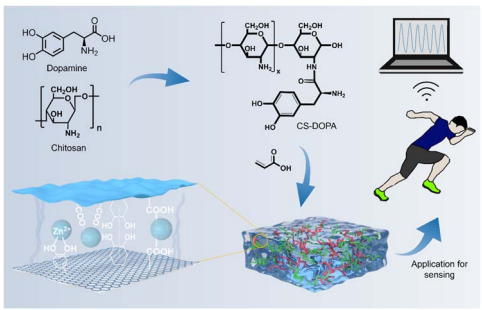
Zi-Ye Liu, Qian-Yu Wang, Teng Xu and Ji-Ming Hu*



27506

A conductive hydrogel with excellent self-adhesion, sensitivity, and stability for wearable strain sensors to monitor human motion

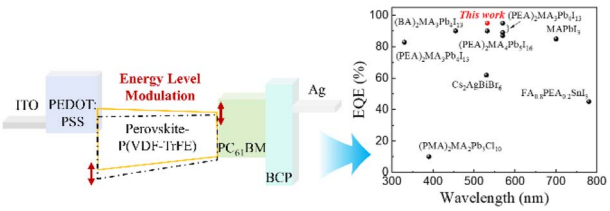
Huanxin Huo, Haoran Shi, Hongxing Yang, Xu Zhang, Jianyong Wan,* Jingjie Shen,* Guanben Du and Long Yang*



27518

A modulated heterojunction interface *via* ferroelectric P(VDF-TrFE) towards high performance quasi-2D perovskite self-powered photodetectors

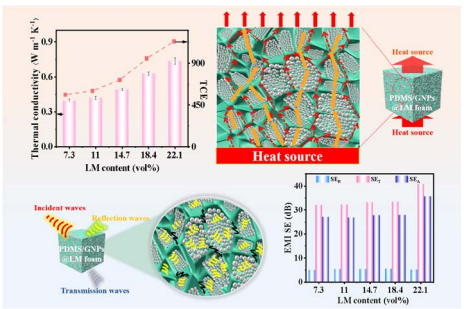
Yujian Du, Sijia Miao, Zhangsiyuan Jin, Yian Hu and Yuljae Cho*



27527

Dual network structures of PDMS-based composite foam *via* anchoring liquid metal nanoparticles for improved thermal conductivity and electromagnetic interference shielding performances

Ying Zhang, Song Yang, Yilin Liu, Ting Gu* and Fei Liu*

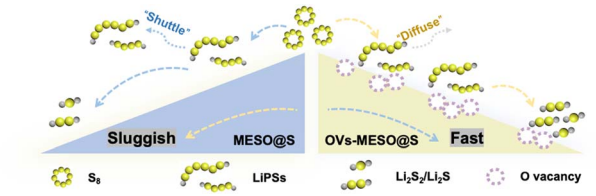


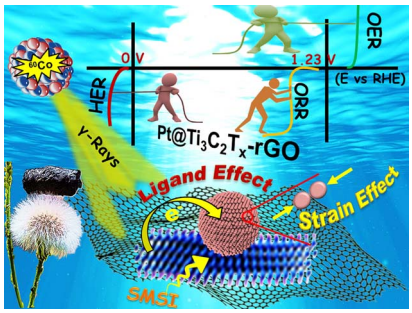
PAPERS

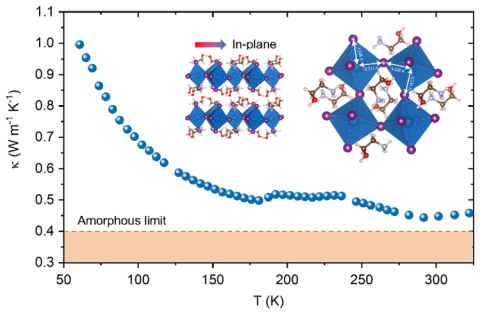
PAPERS

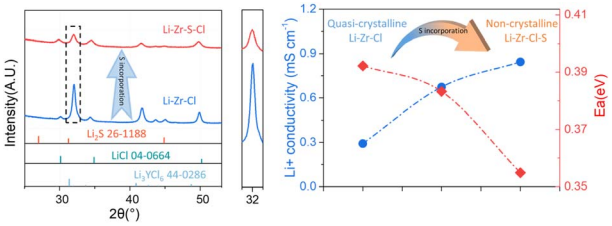
PAPERS

PAPERS



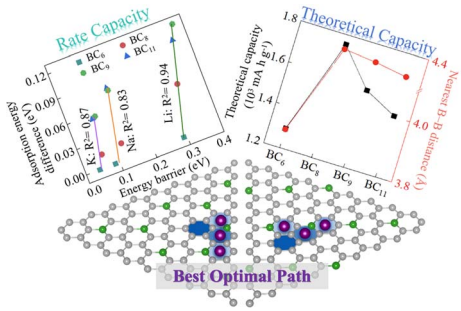






PAPERS

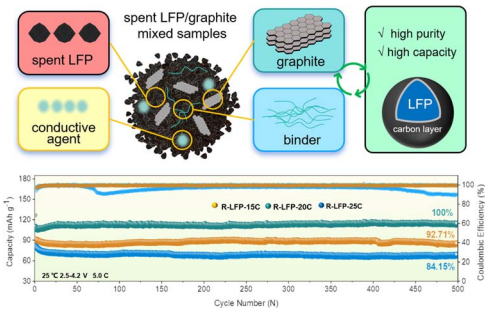
27703



Revealing the key factors affecting the anode performance of metal-ion batteries: a case study of boron carbide monolayers

Shicong Ding, Xu Yan, Javed Rehman,* Sheng Wang, Yong Liu and Guochun Yang*

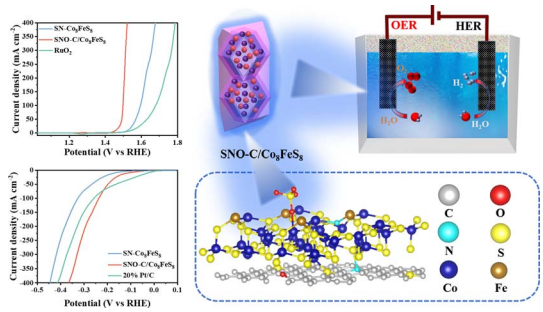
27712



Purification–lithiation collaborative regeneration of mixed graphite/$LiFePO_4$: building 2D Li^+-diffusion channels towards enhanced energy-storage capabilities

Zihao Zeng, Xiangjin Lu, Shuya Lei, Hai Lei, Aigang Zhen, Yuanlong Liu, Xiaobo Ji, Wei Sun, Yue Yang and Peng Ge*

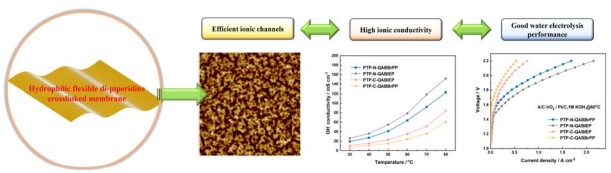
27724



Multiscale regulation of S, N, O tri-doped carbon/Co_8FeS_8 catalysts with SO_4^{2-}-riched and lattice distortion for efficient water splitting

Yuanrong Ye, Xin Zhao,* Guijuan Wei,* Shaonan Gu, Changwei Li, Huixin Zhang, Junliu Zhang, Xiaoyang Li and Honglei Chen*

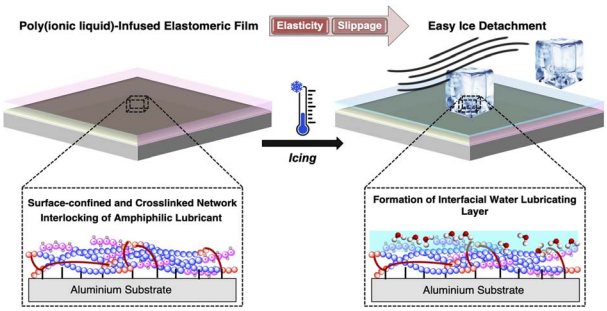
27732

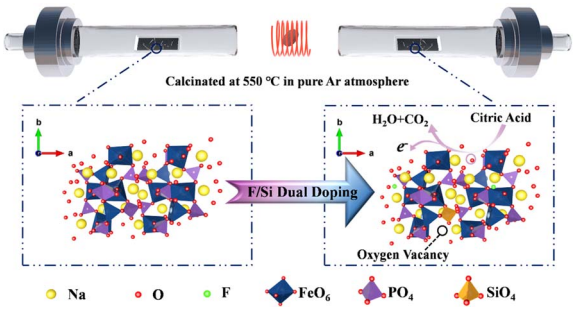


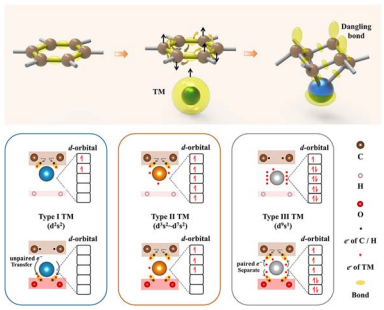
Hydrophilic flexible di-piperidine crosslinked membranes with highly effective ionic channels for water electrolysis

Wenli Ma, Jianming Bai, Qingzhi Zhang, Lin Tian, Fanghui Wang and Hong Zhu*

PAPERS







CORRECTION