Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

Journal of Materials Chemistry A

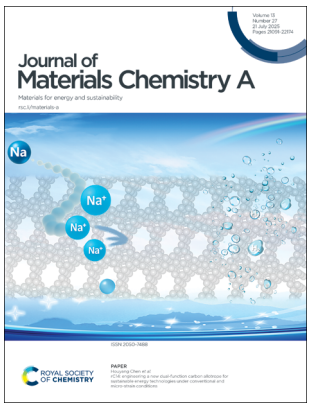
Materials for energy and sustainability

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

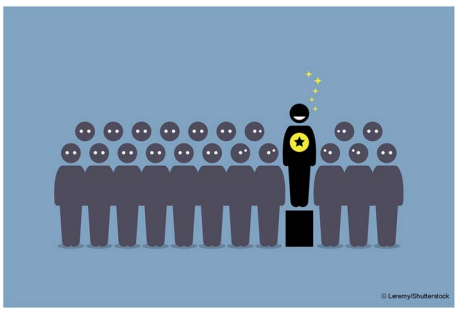
ISSN 2050-7488 CODEN JMCAET 13(27) 21091–22174 (2025)



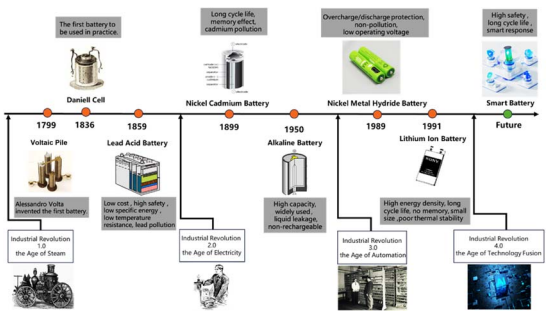
Cover
See Houyang Chen *et al.*, pp. 21453–21461. Image reproduced by permission of Houyang Chen from *J. Mater. Chem. A*, 2025, **13**, 21453.

Inside cover
See Jin Kon Kim, Jeong Woo Han *et al.*, pp. 21462–21471. Image reproduced by permission of Jin Kon Kim, Jeong Woo Han from *J. Mater. Chem. A*, 2025, **13**, 21462.

EDITORIAL



REVIEWS



ROYAL SOCIETY OF CHEMISTRY

View Article Online

GOLD OPEN ACCESS

EES Batteries

Exceptional research on batteries and energy storage

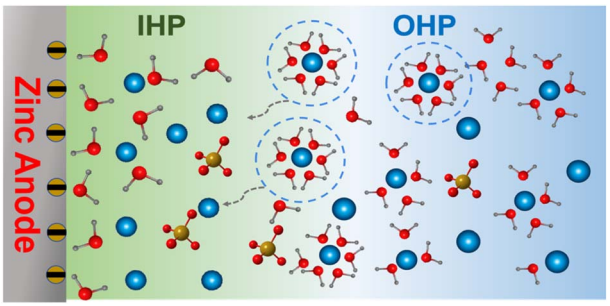
Part of the EES family

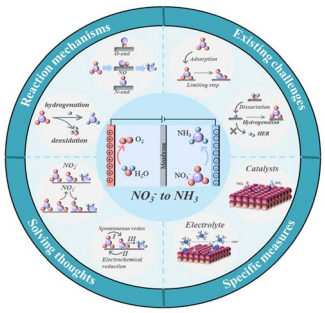
Join in | Publish with us

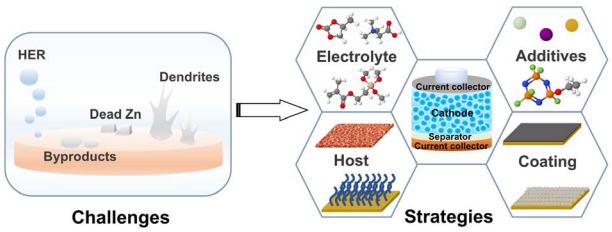
rsc.li/EESBatteries

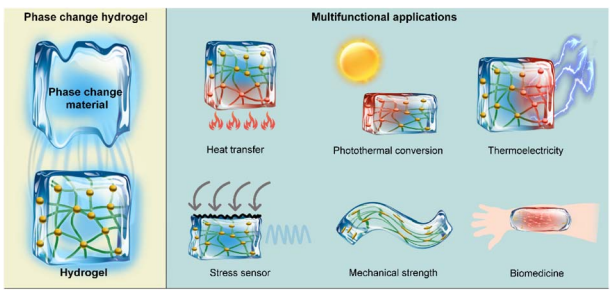
Registered charity number: 207890

REVIEWS









Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

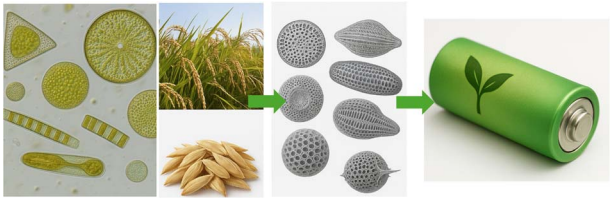
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

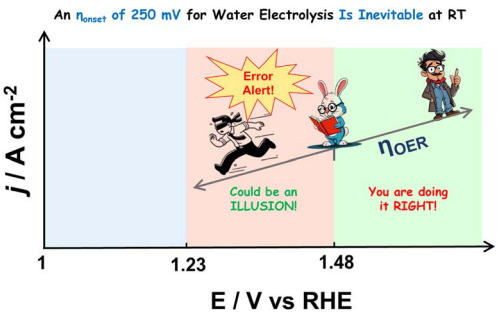
REVIEWS

This journal is © The Royal Society of Chemistry 2025

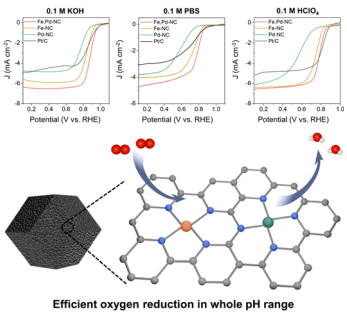
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PERSPECTIVES



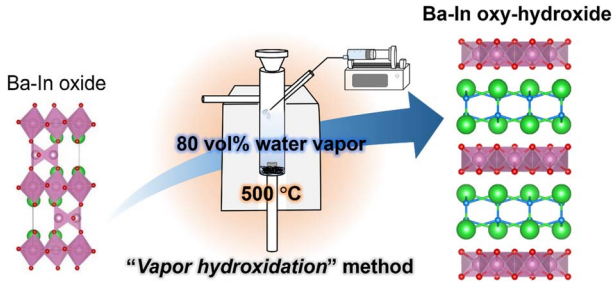


PAPERS



PAPERS

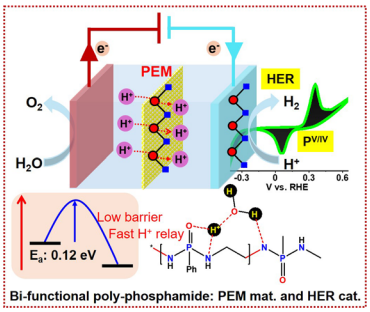
21472



Thermally stable proton-conducting oxy-hydroxides synthesized in concentrated water vapor

Kenji Arai, Yoko Kokubo, Yusuke Asai, Satoshi Ogawa, Miwa Saito,* Maria Kirsanova, Iaroslava Shakhova, Artem Abakumov, Fumitaka Takeiri, Hiroshi Kageyama and Teruki Motohashi*

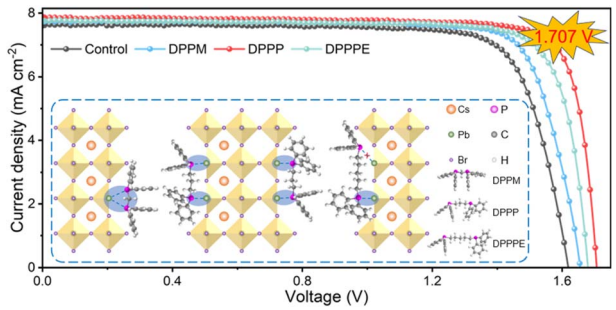
21480



Intrinsic proton relay in poly-phosphamides to bolster proton exchange membrane fabrication and electrocatalytic proton reduction

Anup Mahata, Laxmikanta Mallick, Isha Mehta, Nidhi Kumari, Sagarika Bhattacharya* and Biswarup Chakraborty*

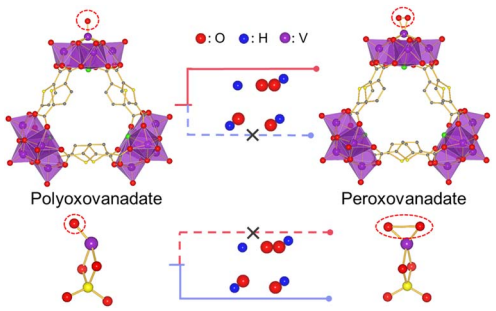
21493



Dual-site synergistic passivation for $CsPbBr_3$ perovskite solar cells with record 1.707 V V_{oc} and 11.23% efficiency

Yinping Teng, Yuanyuan Zhao,* Zhe Xin, Liqiang Bian, Qiyao Guo, Jialong Duan, Jie Dou, Yan Zhang, Qiang Zhang and Qunwei Tang*

21501



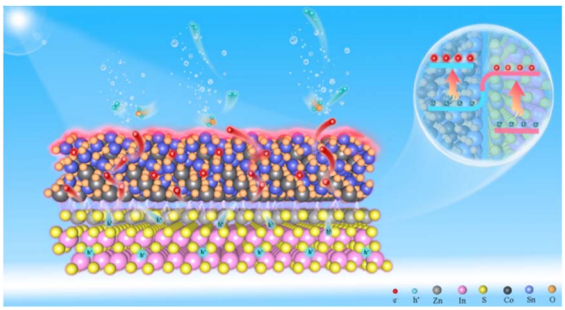
A theoretical study on the formation mechanism of peroxovanadate and the origin of its high activity for oxidation of sulfide

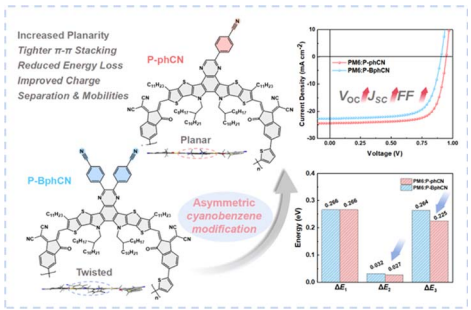
Wei-Xuan Shu, Lin-Yan Bao, Li-Li Wang, Xiao-Xia You, Xin Ma, Ya Wang,* Zhong-Min Su* and Rong-Lin Zhong*

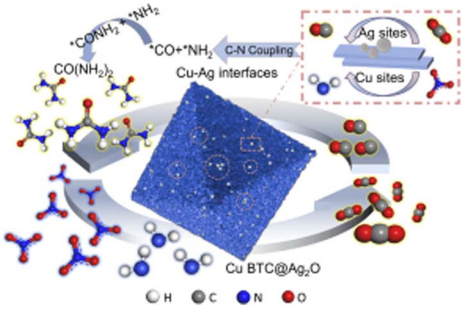
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM. This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

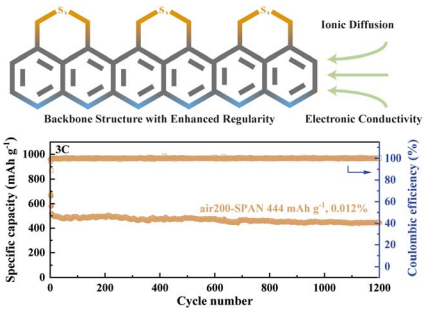
This journal is © The Royal Society of Chemistry 2025

PAPERS









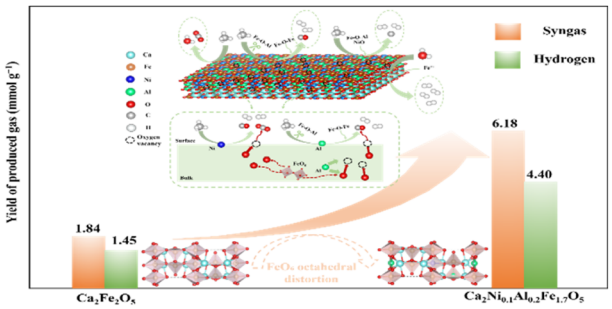
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

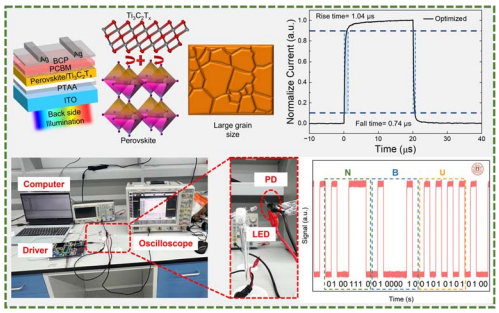
PAPERS

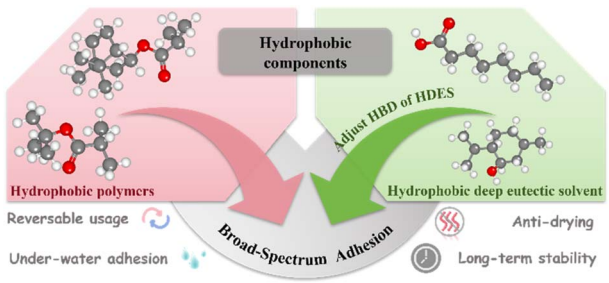
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

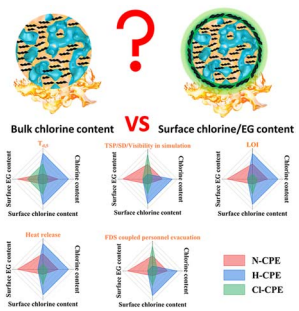
This journal is © The Royal Society of Chemistry 2025

PAPERS









Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

This journal is © The Royal Society of Chemistry 2025

Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

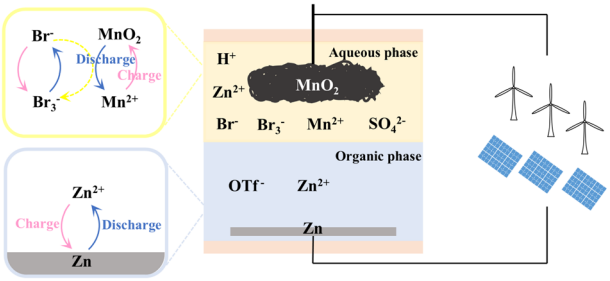
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

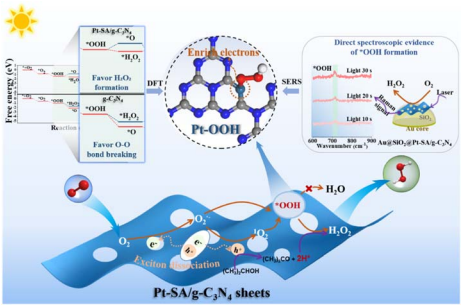
PAPERS

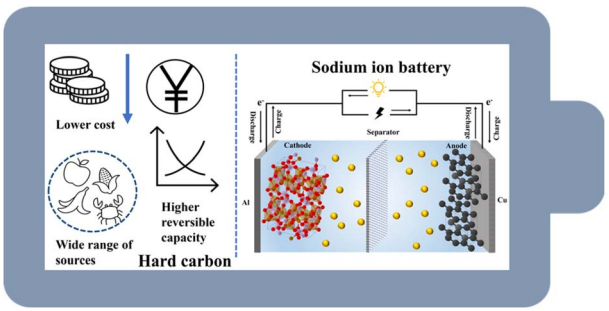
This journal is © The Royal Society of Chemistry 2025

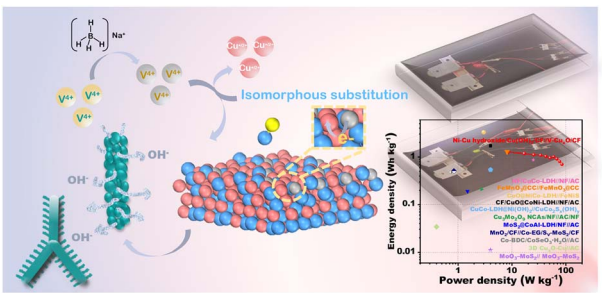
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS









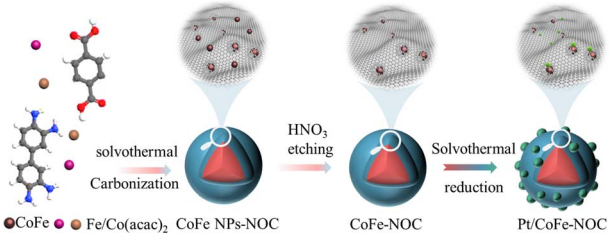
PAPERS

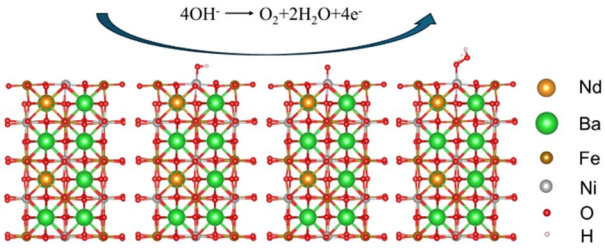
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

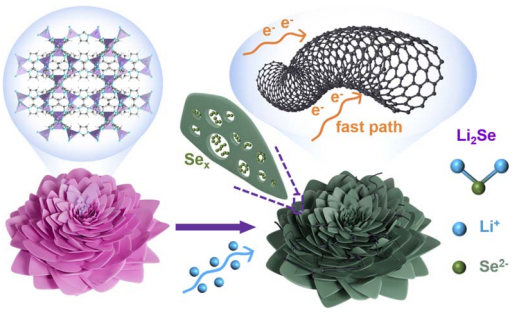
This journal is © The Royal Society of Chemistry 2025

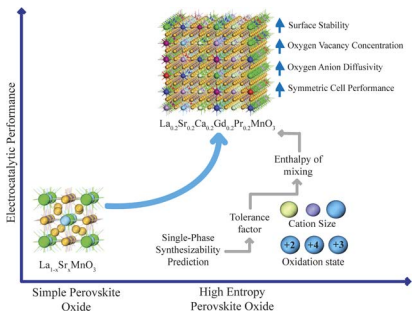
PAPERS

Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.









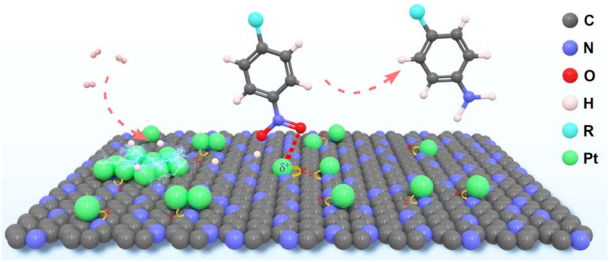
PAPERS

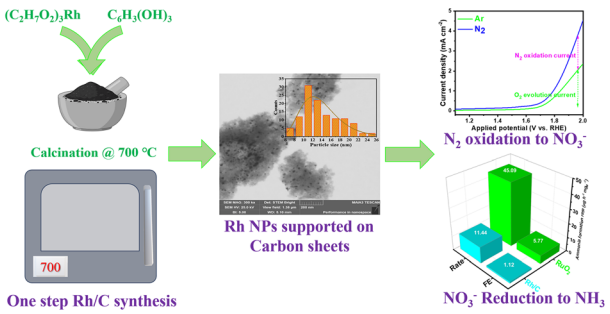
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

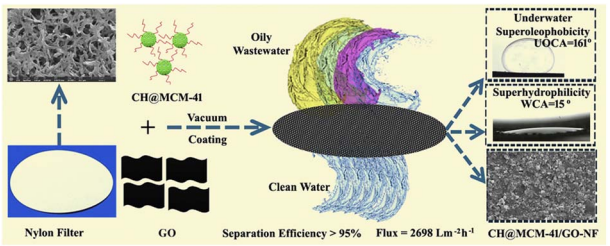
This journal is © The Royal Society of Chemistry 2025

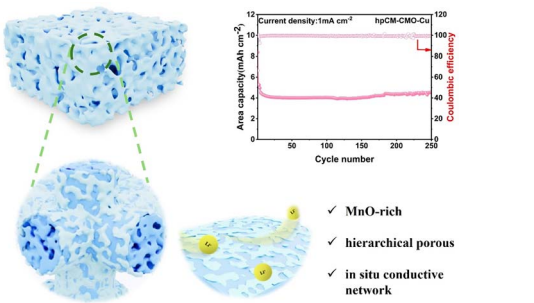
Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS





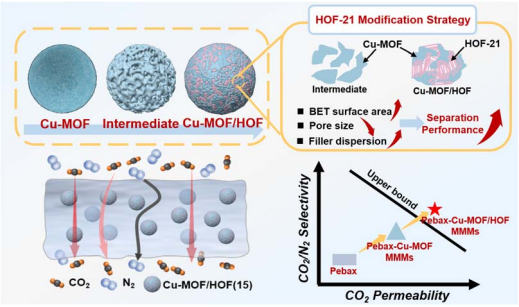




PAPERS

Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

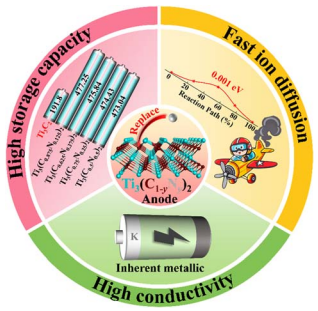
22020



Pebax mixed matrix membranes based on novel HOF/MOF nanofiller with simultaneous improvement in CO_2 permeability and CO_2/N_2 selectivity

Zikang Qin, Jing Wei, Wen Hou, Zhuo Chen, Min Deng, Lu Yao, Dengrong Sun, Lin Yang, Wenju Jiang, Junfeng Zheng, Yutian Li, Qiang Jing* and Zhongde Dai*

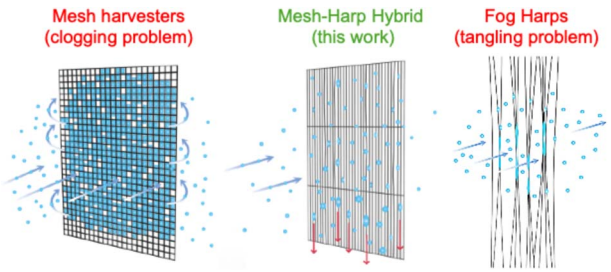
22031



Optimizing the energy storage performance of titanium carbonitride MXenes for potassium-ion batteries by modulating nitrogen content

Jingguo Wang, Wenyuan Zhang, Yanling Si* and Guochun Yang*

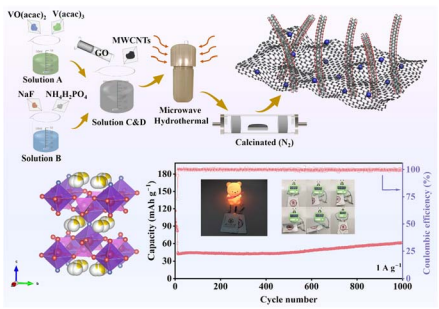
22039



Anti-clogging and anti-tangling fog harvesting with 3D-printed mesh-harp hybrids

Jimmy K. Kaindu, Lilly E. Olejnicki, Brook S. Kennedy and Jonathan B. Boreyko*

22047



Robust cross-linked $Na_3V_2O_{1.6}(PO_4)_2F_{1.4}$@rGO&MWCNTs as a high-performance cathode for aqueous zinc-ion batteries

Rui Jiang, Jiarui Lin, Xiaoyan Shi, Botao Zheng, Qiaofeng Huang, Junling Xu, Lianyi Shao,* Zhipeng Sun,* Qingqing Zhang* and Lifeng Hang*

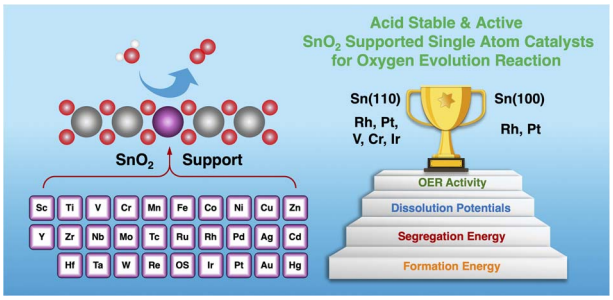
This journal is © The Royal Society of Chemistry 2025

PAPERS

Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

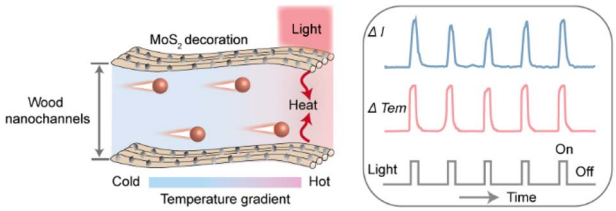
22093



Analysis of tin oxide supported transition metal single-atom catalysts for oxygen evolution reaction

S. A. Keishana Navodye and G. T. Kasun Kalhara Gunasooriya*

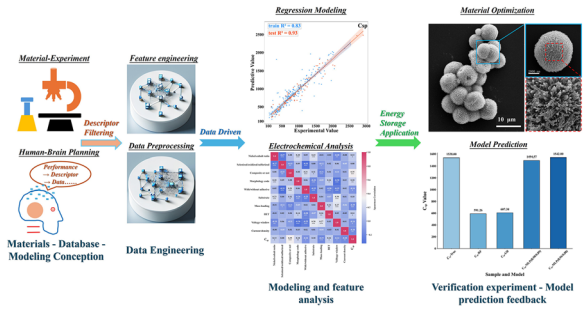
22109



Highly sensitive ion regulation enabled by photothermal wood nanochannels

Suling Liu, Jianfu Tang, Xueqi Li, Quankuo Zhang, Xiaofei Dong, Yingying Liu, Xinyuan Zhang, Ran Yin, Yanjun Xie and Wentao Gan*

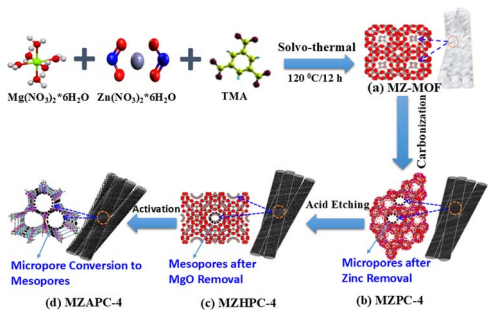
22120



Data-driven design and experimental validation of high-precision Ni–Co bimetallic compound-based pseudocapacitor models

Li Zhang,* Zhuo Zhao, Tianhui Dang, Xiao Yang, Yongzhi Lan and Rui Cao

22142



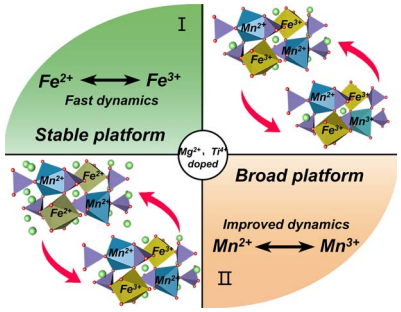
Precisely controlling the nanostructure of bimetallic Mg/Zn MOFs to construct a high-performance material for supercapacitors and sodium-ion batteries

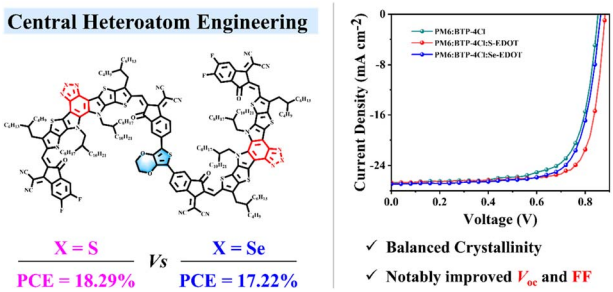
Uzair Ahmed Kolachi, Nadeem Hussain Solangi, Yanzhi Sun,* Rajapriya Andavar, Iza Shahid, Jianjun Zhao and Junqing Pan*

Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

This journal is © The Royal Society of Chemistry 2025

PAPERS





CORRECTION

Open Access Article. Published on 08 July 2025. Downloaded on 4/29/2026 2:53:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.