

# Energy & Environmental Science

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### Cover

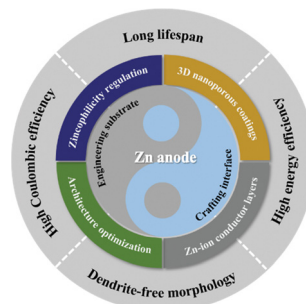
See Guojin Liang, Chunyi Zhi, Yingkui Yang *et al.*, pp. 369–385. Image reproduced by permission of Yunhai Zhu from *Energy Environ. Sci.*, 2024, 17, 369.

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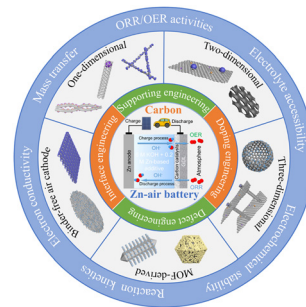
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### Carbon-based electrocatalysts for rechargeable Zn–air batteries: design concepts, recent progress and future perspectives

Xiaohong Zou, Mingcong Tang, Qian Lu,\* Ying Wang, Zongping Shao\* and Liang An\*



# Environmental Science: Atmospheres

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Elemental answers

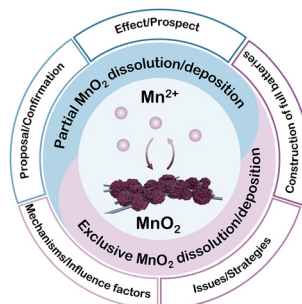


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**Na metal anodes for liquid and solid-state Na batteries**

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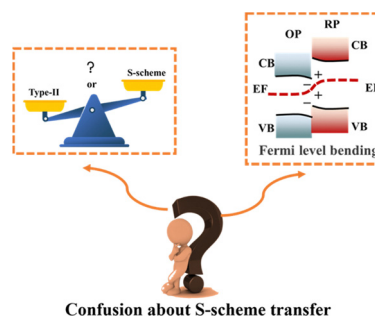


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**The confusion about S-scheme electron transfer: critical understanding and a new perspective**

Fang Li, Zhaohui Fang, Zhihua Xu\* and Qunjun Xiang\*

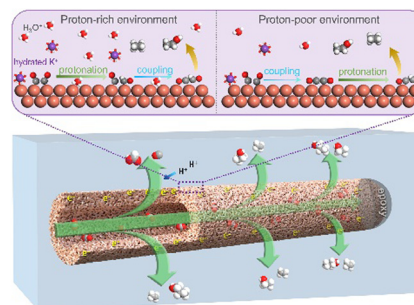


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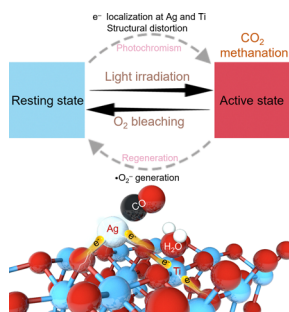
**Selective  $\text{CO}_2$  electroreduction to multicarbon products exceeding  $2 \text{ A cm}^{-2}$  in strong acids via a hollow-fiber Cu penetration electrode**

Chang Zhu, Gangfeng Wu, Aohui Chen, Guanghui Feng, Xiao Dong, Guihua Li, Shoujie Li, Yanfang Song, Wei Wei\* and Wei Chen\*





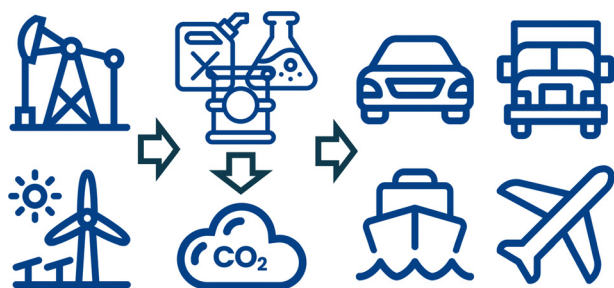
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Chaogang Ban, Yang Wang, Yajie Feng, Zhouhao Zhu, Youyu Duan, Jiangping Ma, Xu Zhang, Xue Liu, Kai Zhou, Hanjun Zou, Danmei Yu, Xiaoping Tao, Liyong Gan,\* Guang Han\* and Xiaoyuan Zhou\*

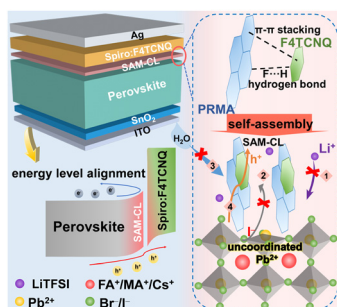
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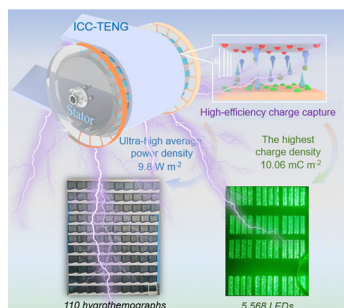
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### Elimination of charge accumulation by a self-assembled cocrystal interlayer for efficient and stable perovskite solar cells

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### High efficiency triboelectric charge capture for high output direct current electricity

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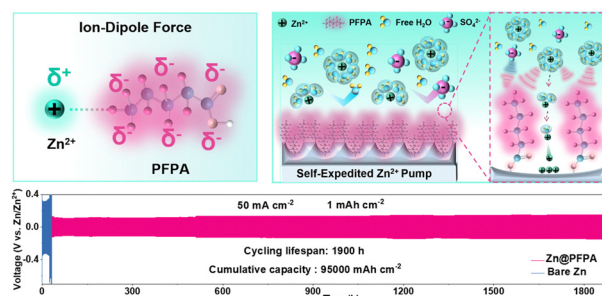


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## Ion–dipole interaction motivated $\text{Zn}^{2+}$ pump and anion repulsion interface enable ultrahigh-rate Zn metal anodes

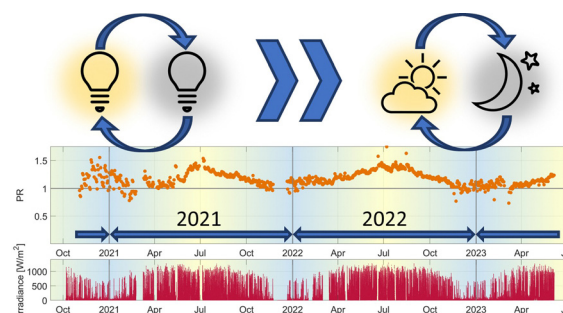
Song Huang, Rong Tang, Xiaoqing Liu, Yufei Zhang, Yongchao Tang, Zhipeng Wen, Minghui Ye, Yang Yang\* and Cheng Chao Li\*



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## Light cycling as a key to understanding the outdoor behaviour of perovskite solar cells

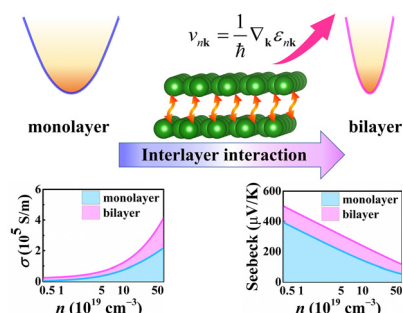
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## Enhancing the electrical transport properties of two-dimensional semiconductors through interlayer interactions

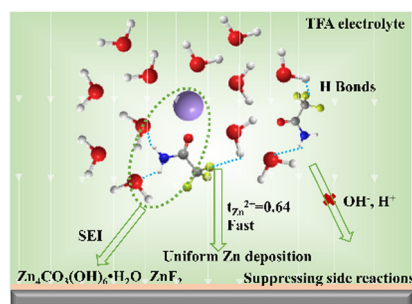
Qinghang Tang, Shihao Han, Mingjia Yao, David J. Singh, Jinyang Xi, Huijun Liu\* and Jiong Yang\*



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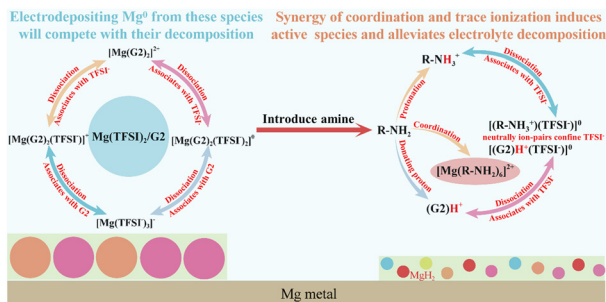
## Highly reversible and stable Zn metal anodes realized using a trifluoroacetamide electrolyte additive

Miaomiao Wu, Xingchao Wang,\* Fei Zhang, Qian Xiang, Yan Li and Jixi Guo\*



## PAPERS

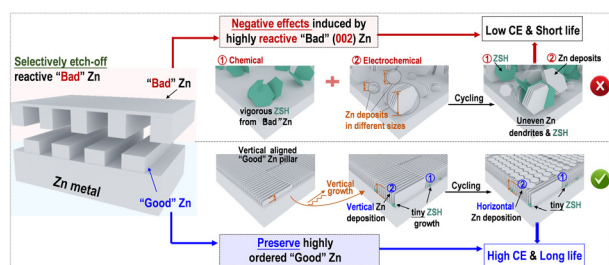
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### Synergy between the coordination and trace ionization of co-solvents enables reversible magnesium electroplating/stripping behavior

Min Wang, Wenhao Sun, Kun Zhang, Zhonghua Zhang,\* Aobing Du, Shanmu Dong, Jinlei Zhang, Jing Liu, Xi Chen, Zhenfang Zhou, Fujun Li, Zhenjiang Li, Guicun Li\* and Guanglei Cui\*

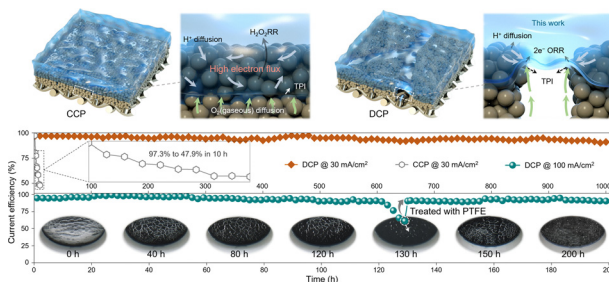
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### Selectively etching-off the highly reactive (002) Zn facet enables highly efficient aqueous zinc-metal batteries

Dongming Xu, Benqiang Chen, Xueting Ren, Chao Han, Zhi Chang,\* Anqiang Pan\* and Haoshen Zhou\*

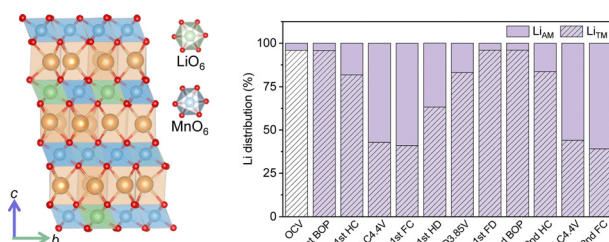
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### An anti-electrowetting carbon film electrode with self-sustained aeration for industrial $\text{H}_2\text{O}_2$ electrosynthesis

Lele Cui, Bin Chen, Longshun Zhang, Chen He, Chen Shu, Hongyu Kang, Jian Qiu, Wenheng Jing,\* Kostya (Ken) Ostrikov and Zhenghua Zhang\*

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### Inconsistency between superstructure stability and long-term cyclability of oxygen redox in Na layered oxides

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Caiyun Chang, Sanlue Hu, Titi Li, Fanbin Zeng,  
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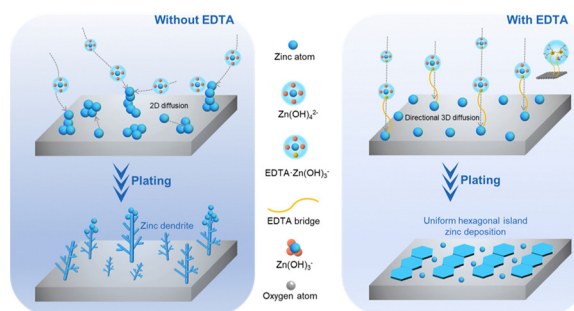
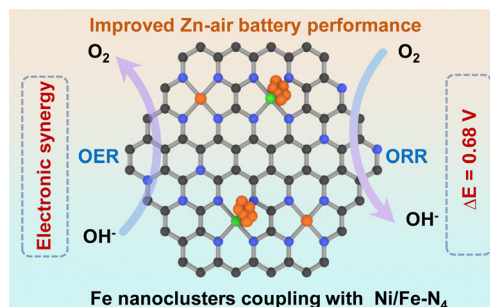
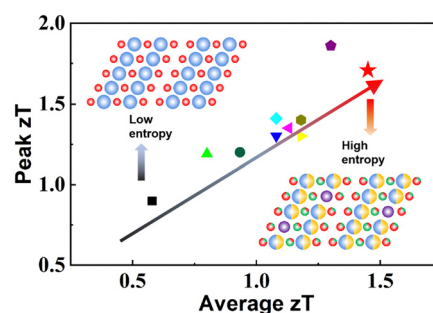
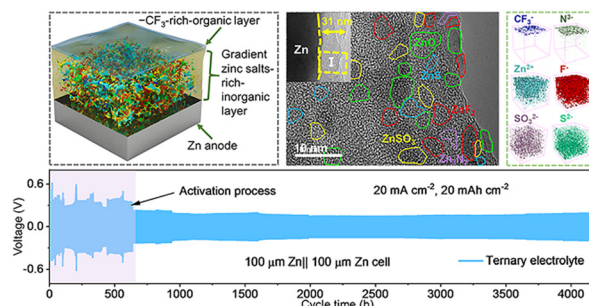
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Zhichuan J. Xu and Liqiang Mai\*

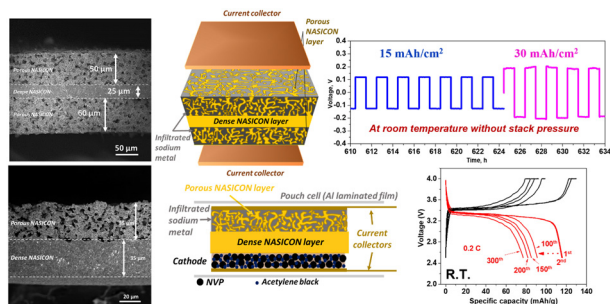
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Liping Zhi, Chenyi Liao, Pengcheng Xu, Fusai Sun,  
Chenguang Yuan, Fengtao Fan, Guohui Li,\*  
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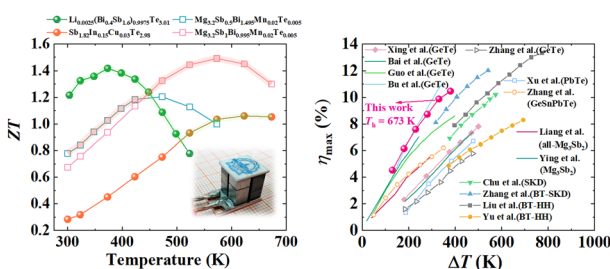
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### High-rate cycling in 3D dual-doped NASICON architectures toward room-temperature sodium-metal-anode solid-state batteries

Prem Wicram Jaschin, Christopher R. Tang and Eric D. Wachsman\*

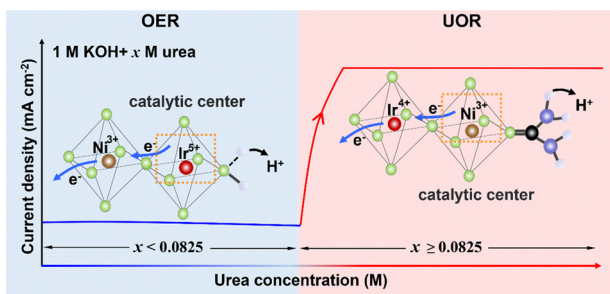
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### Rational design from materials to devices enables an efficiency of 10.5% based on thermoelectric (Bi, Sb)<sub>2</sub>Te<sub>3</sub> and Mg<sub>3</sub>(Bi, Sb)<sub>2</sub> for power generation

Yuxin Sun, Yuke Zhu, Hao Wu, Nuo Qu, Liangjun Xie, Jianbo Zhu, Zihang Liu, Qian Zhang, Wei Cai, Fengkai Guo\* and Jiehe Sui\*

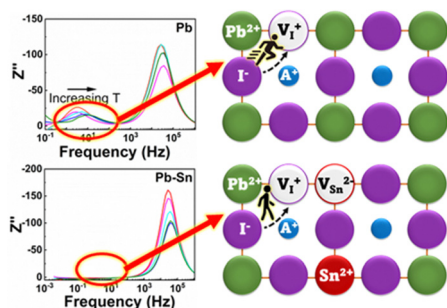
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### Reagent-adaptive active site switching on the IrO<sub>x</sub>/Ni(OH)<sub>2</sub> catalyst

Qian Zheng, Yuandong Yan, Jiaying Zhong, Shicheng Yan\* and Zhigang Zou

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### Substitution of lead with tin suppresses ionic transport in halide perovskite optoelectronics

Krishanu Dey, Dibyajyoti Ghosh, Matthew Pilot, Samuel R. Pering, Bart Roose, Priyanka Deswal, Satyaprasad P. Senanayak, Petra J. Cameron,\* M. Saiful Islam\* and Samuel D. Stranks\*



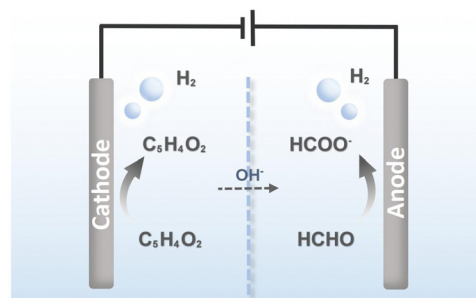


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### Simultaneous generation of furfuryl alcohol, formate, and $H_2$ by co-electrolysis of furfuryl and HCHO over bifunctional CuAg bimetallic electrocatalysts at ultra-low voltage

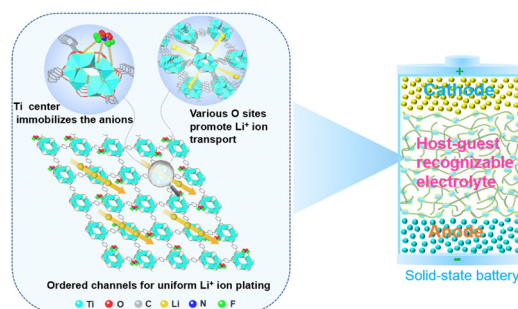
Liang Zhao, Zheng Lv, Yue Shi, Shuanglong Zhou, Yan Liu, Jiani Han, Qi Zhang, Jianping Lai\* and Lei Wang\*



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### Constructing host–guest recognition electrolytes promotes the $Li^+$ kinetics in solid-state batteries

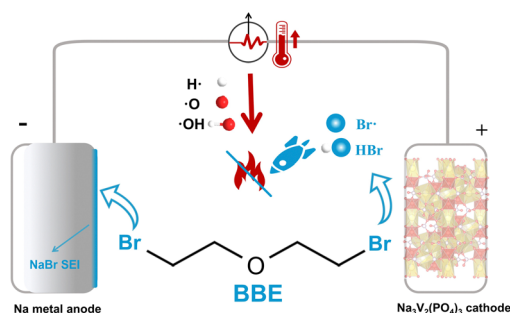
Qing Liu, Li Yang, Zhiyuan Mei, Qi An, Kun Zeng, Wenjing Huang, Shimin Wang, Yongjiang Sun and Hong Guo\*



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### Bromide-based nonflammable electrolyte for safe and long-life sodium metal batteries

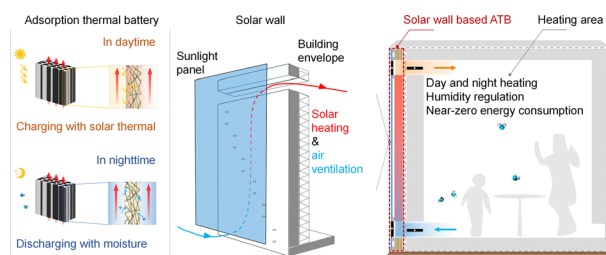
Changjian Zuo, Dejian Dong, Huwei Wang, Yue Sun and Yi-Chun Lu\*

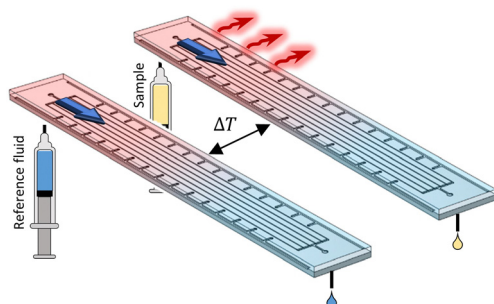


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### A scalable solar-based adsorption thermal battery for day and night heating in a low-carbon scenario

Ziya Zeng, Xinge Yang, Bingchen Zhao, Zhihui Chen, Kian Jon Ernest Chua and Ruzhu Wang\*





## Differential microthermometry enables high-throughput calorimetry

Amin Kazemi, Mohammad Zargartalebi and David Sinton\*

