

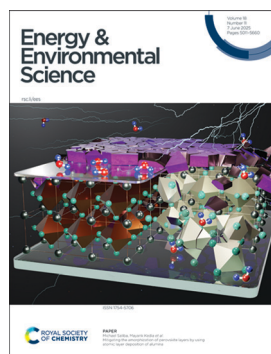
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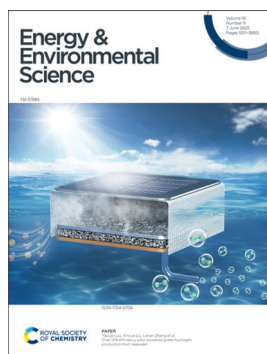
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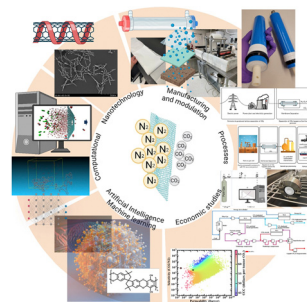
See Yayuan Liu, Xinyue Liu, Lenan Zhang *et al.*, pp. 5264–5276. Image reproduced by permission of Lenan Zhang from *Energy Environ. Sci.*, 2025, 18, 5264.

REVIEWS

5025

Polymeric membranes in carbon capture, utilization, and storage: current trends and future directions in decarbonization of industrial flue gas and climate change mitigation

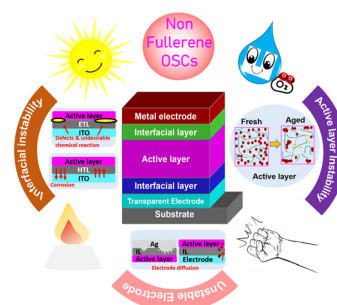
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One more step towards better stability of non-fullerene organic solar cells: advances, challenges, future perspectives, and the Era of artificial intelligence

Nafees Ahmad, Jun Yuan and Yingping Zou*



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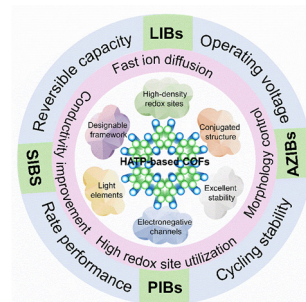
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REVIEWS

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Advances in hexaazatriphenylene-based COFs for rechargeable batteries: from structural design to electrochemical performance

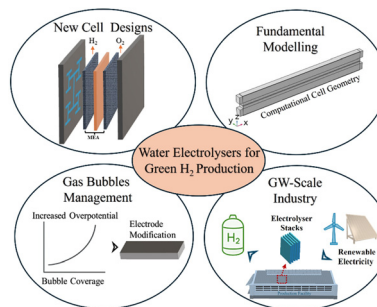
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Water electrolysis technologies: the importance of new cell designs and fundamental modelling to guide industrial-scale development

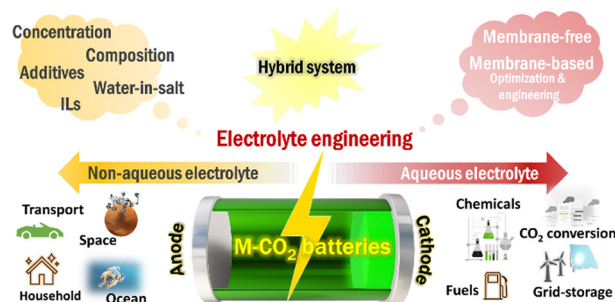
Muhammad Adil Riaz, Panagiotis Trogadas,* David Aymé-Perrot, Christoph Sachs, Nicolas Dubouis, Hubert Girault and Marc-Olivier Coppens*



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Concurrent energy storage and decarbonization by metal-CO₂ batteries: aqueous or non-aqueous?

Divyani Gupta, Jinshuo Zou, Jianfeng Mao and Zaiping Guo*

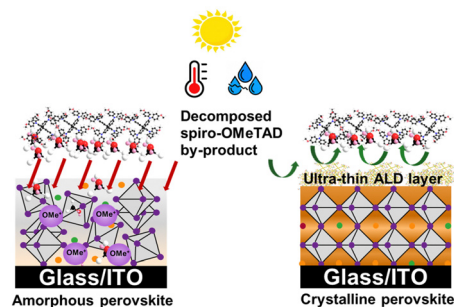


PAPERS

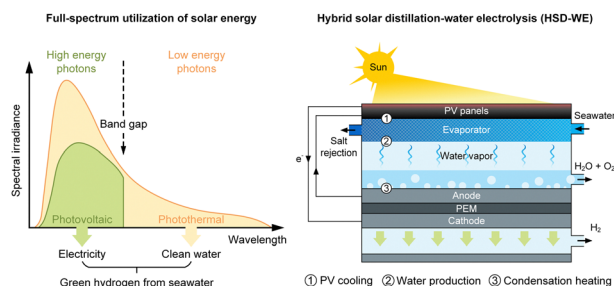
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Mitigating the amorphization of perovskite layers by using atomic layer deposition of alumina

Mayank Kedia, Chittaranjan Das,* Malgorzata Kot, Yenel Yalcinkaya, Weiwei Zuo, Kenedy Tabah Tanko, Peter Matvija, Mikel Ezquer, Iñaki Cornago, Wolfram Hempel, Florian Kauffmann, Paul Plate, Monica Lira-Cantu, Stefan A.L. Weber and Michael Saliba*



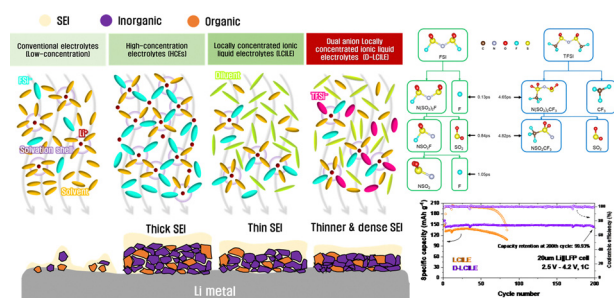
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Over 12% efficiency solar-powered green hydrogen production from seawater

Xuanjie Wang, Jintong Gao, Yipu Wang, Yayuan Liu,*
Xinyue Liu* and Lenan Zhang*

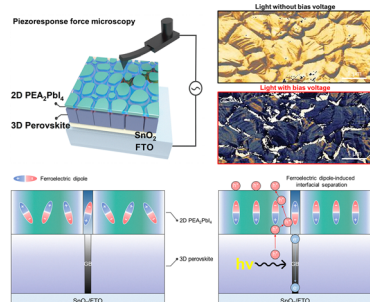
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Dual-anion ionic liquid electrolytes: a strategy for achieving high stability and conductivity in lithium metal batteries

Jemin Lee, Wonwoo Choi, Eunbin Jang, Hyunjin Kim
and Jeeyoung Yoo*

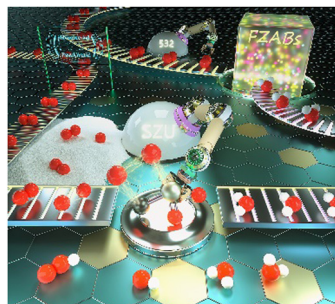
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Efficient charge separation at localized 2D ferroelectric domains in perovskite solar cells

Jihoo Lim, Seungmin Lee, Hongjae Shim, Lei Wang,
Hyeonah Cho, Jincheol Kim, Claudio Cazorla, Yong-Jin
Kim, Hanul Min, Minwoo Lee, Xiaojing Hao,
S. Ravi P. Silva, Jan Seidel, Dohyung Kim,*
Jun Hong Noh* and Jae Sung Yun*

5298



Ligand effects enhancing low-temperature oxygen reduction kinetics in neutral conditions

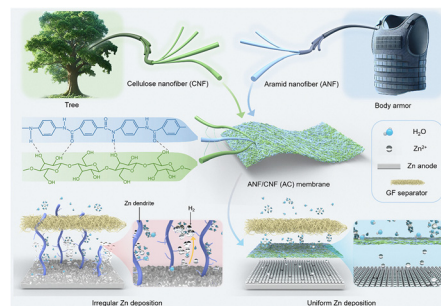
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Meixi Zhong, Tao Wang, Xianhu Sun,* Chenyang Zhao*
and Dan Wang*



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Wearing “body armor” on zinc anodes for robust aqueous zinc-ion batteries

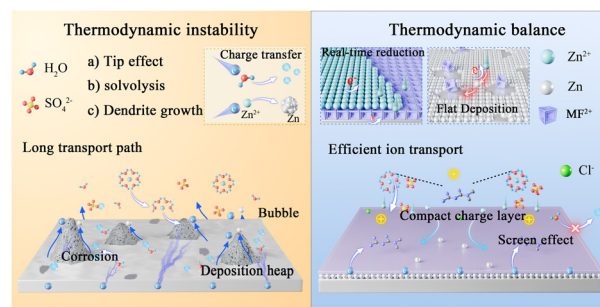
Qunhao Wang, Xueyong Deng, Xiaolin Xue, Jian Zhang, Jiangqi Zhao, Zengyan Sui, Yuefei Zou, Longbo Luo, Wei Zhang,* Xiangyang Liu* and Canhui Lu



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Compacting surface charge layers for efficient charge transfer toward stable Zn anodes

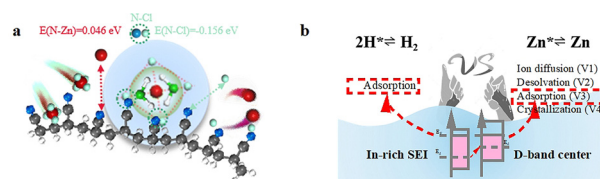
Sinan Zheng, Yang Wang,* Bin Luo, Kun Zhang, Leilei Sun, Zhean Bao, Guosheng Duan, Dinghao Chen, Hanwei Hu, Jingyun Huang* and Zhizhen Ye*



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A single ion conductive “plasticine-like” solid electrolyte combined with a modulated d-band center of interfacial zinc atoms for highly reversible zinc metal anodes

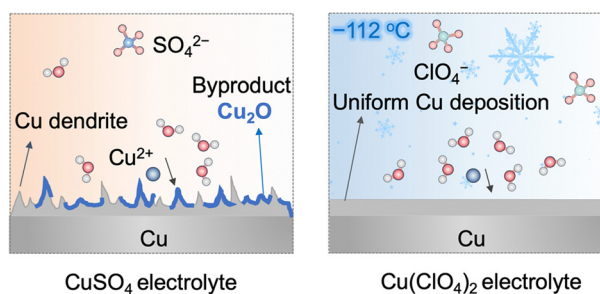
Kang Yan, Yongbo Fan,* Xueya Yang, Xinyu Wang, Shengmei Chen, Weijia Wang, Mingchang Zhang, Huiqing Fan* and Longtao Ma*



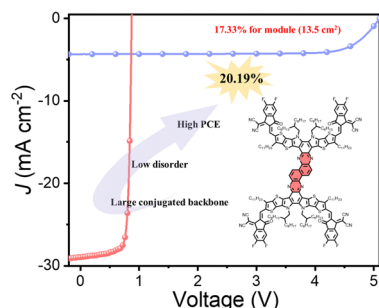
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Enhancing the kinetics and reversibility of copper batteries via anionic chemistry

Qianwei Zhou, Linyu Hu,* Huajun Zhang, Dongxu Hu, Guoqiang Liu, Maowen Xu, Hong Jin Fan, Zhimeng Liu, Chunlong Dai* and Xin He*



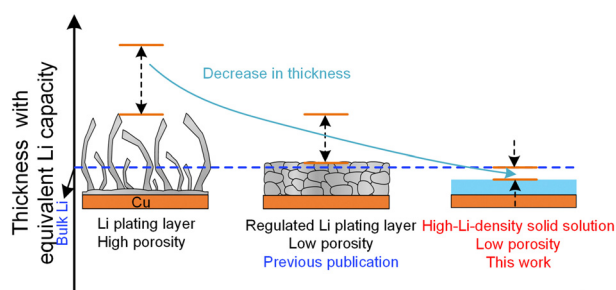
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A large conjugated rigid dimer acceptor enables 20.19% efficiency in organic solar cells

Wendi Shi, Qiansai Han, Wenkai Zhao, Ruohan Wang, Longyu Li, Guangkun Song, Xin Chen, Guankui Long, Zhaoyang Yao, Yan Lu, Chenxi Li,* Xiangjian Wan* and Yongsheng Chen*

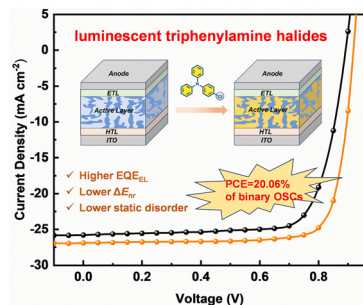
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Achieving a higher lithium density in anodes surpassing that of pure metallic lithium for high-energy-density batteries

Xiancheng Wang, Bao Zhang, Ziheng Chen, Shiyu Liu, Wenyu Wang, Shuibin Tu, Renming Zhan, Li Wang and Yongming Sun*

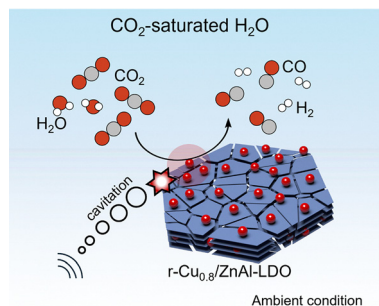
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Achieving 20% efficiency in binary organic solar cells with suppressed non-radiative recombination via triphenylamine halides

Junjie Zhang, Xiaopeng Duan,* Xiaoming Li, Guangkuo Dai, Jiawei Deng, Xunchang Wang, Jiawei Qiao, Hanzhi Wu, Liming Liu, Haodong Huang, Sha Liu, Jun Yan, Huotian Zhang, Xiao-Tao Hao, Renqiang Yang,* Feng Gao and Yanming Sun*

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Catalytic ultrasound-driven synthesis of syngas from CO₂ saturated water

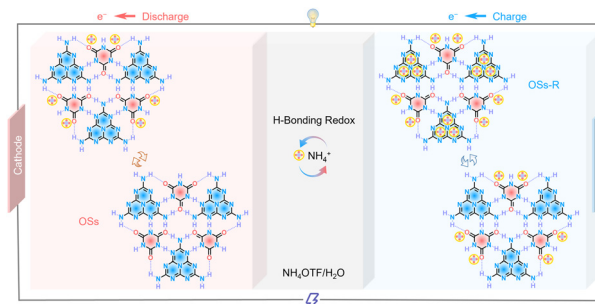
Lina Chen, Yi Qin, Claire T. Coulthard, Zoë R. Turner, Chunping Chen,* James Kwan* and Dermot O'Hare*



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Multi-H-bonded self-assembled superstructures for ultrahigh-capacity and ultralong-life all-organic ammonium-ion batteries

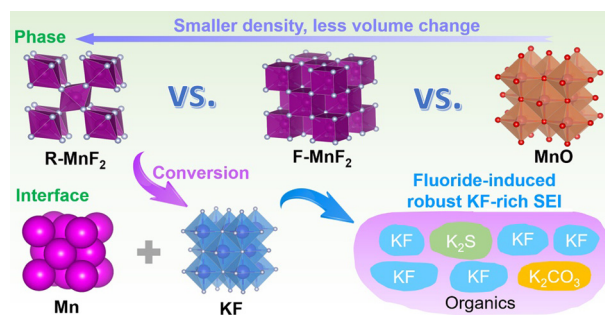
Pingxuan Liu, Ziyang Song,* Qi Huang, Ling Miao, Yaokang Lv, Lihua Gan* and Mingxian Liu*



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Synergy of phase and interface engineering of manganese difluoride enables high-efficiency potassium-ion batteries

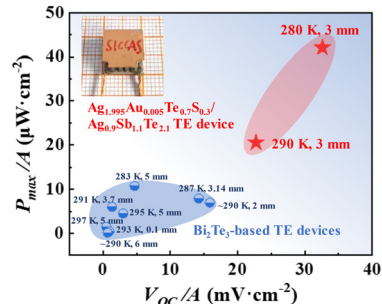
Xinru Sheng, Jiaying Liao,* Zeyu Yuan, Yuhan Wang, Qiao Hu, Yichen Du, Xuefeng Wang* and Xiaosi Zhou*



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Screening thermoelectric materials for high-output performance in wearable electronics

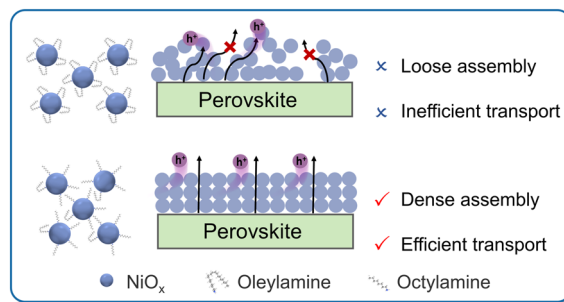
Xinjie Yuan, Pengfei Qiu,* Chuanyao Sun, Shiqi Yang, Yi Wu, Yumeng Wang, Ming Gu, Lidong Chen and Xun Shi*



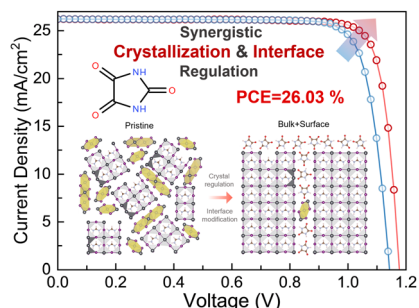
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Ligand engineering of solution-processed NiO_x for high-performance n-i-p perovskite photovoltaics

Fang Cao,* Xinfeng Dai, Di Tian, Yingchen Peng, Jun Yin, Jing Li,* Ye Yang, Nanfeng Zheng* and Binghui Wu*



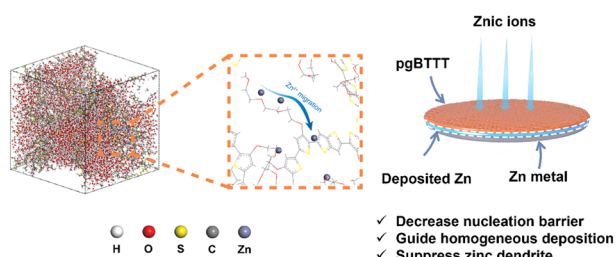
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One-stone-two-birds: over 26% efficiency in perovskite solar cells *via* synergistic crystallization & interface regulation

Boxin Jiao, Liguo Tan, Yiran Ye, Ningyu Ren, Minghao Li, Hang Li, Xiaoyi Li and Chenyi Yi*

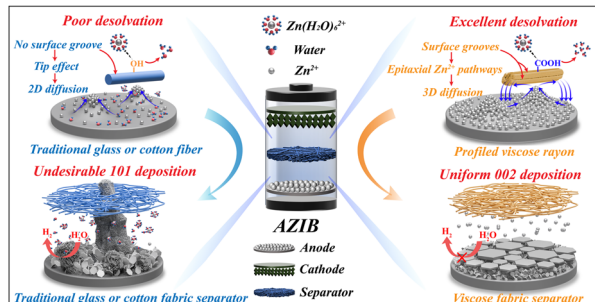
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Tailored glycol-functionalized mixed-conductive polythiophene coatings enable stable zinc anodes

Hui Zhang,* Tianyu Qiu, Jinlin Yang, Yifei Ma, Chenfeng Ding, Luis K. Ono, Jinfeng Zeng, Wanli Liu, Shunan Zhao, Chao Zou, Qing Jiang, Yabing Qi,* Xinlong Tian* and Hu Chen*

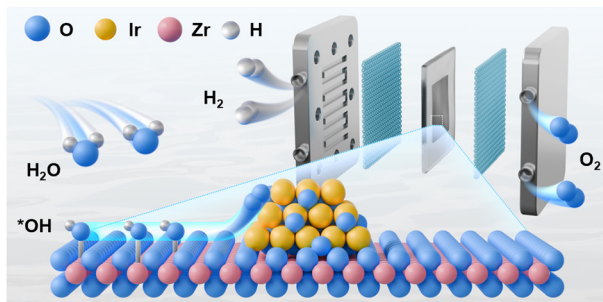
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Reconfiguring Zn deposition dynamics *via* an epitaxial Zn²⁺ pathway in profiled viscose rayon for long-cyclability zinc-ion batteries

Sainan Ou, Jiaxian Zheng, Xingshu Chen, Ran Li, Zhanhui Yuan,* Shude Liu,* Yao Niu, Meng An,* Ge Zhou, Yusuke Yamauchi and Xinxiang Zhang*

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Tetragonal ZrO₂ supported low-iridium catalyst activating oxygen spillover stabilized lattice oxygen for proton exchange membrane water electrolysis

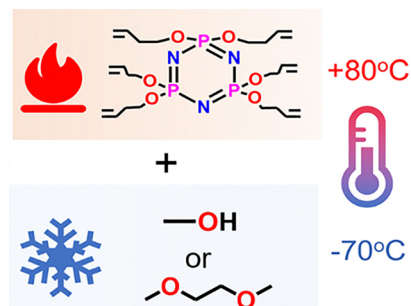
Song Ru Fang, Hai Xiang Yang, Hao Yang Lin, Miao Yu Lin, Fang Xin Mao, Hao Fan, Huai Qin Fu, Hai Yang Yuan,* Chenghua Sun, Peng Fei Liu* and Hua Gui Yang*



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Polyphosphonitrile derivative-based gel electrolytes for all-climate zinc metal batteries operating from $-70\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$

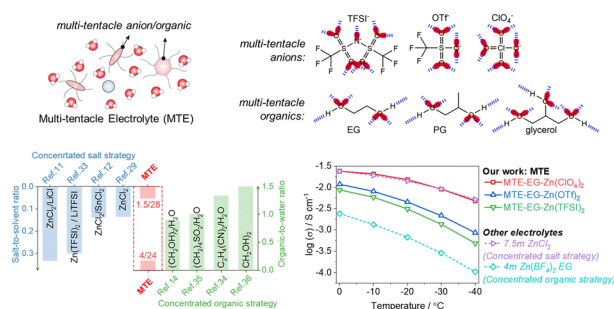
Ran Han, Yuefeng Meng, Xin Zhao, Yao Wang, Mingkun Tang, Yichen Ding, Baohua Li, Dong Zhou* and Feiyu Kang



5492

Designing multi-tentacle electrolytes to enable fast and deep cycling of aqueous Zn batteries at low temperatures

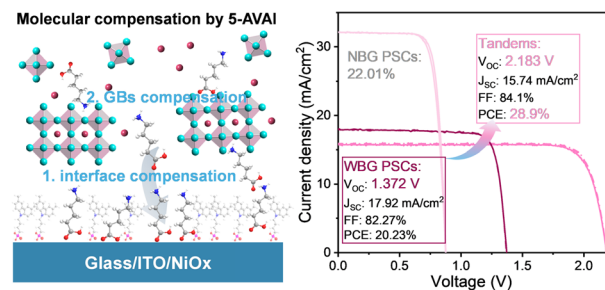
Huimin Wang, Mingzi Sun, Yongqiang Yang, Junhua Zhou, Lingtao Fang, Qiyao Huang, Bolong Huang* and Zijian Zheng*



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In situ molecular compensation in wide-bandgap perovskites for efficient all-perovskite tandem solar cells

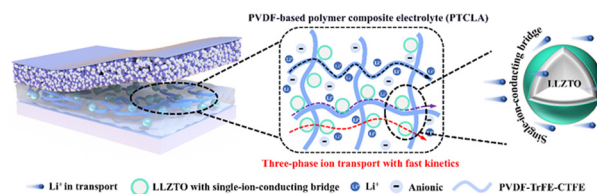
Sheng Fu,* Nannan Sun, Shuaifeng Hu, Hao Chen,* Xinxin Jiang, Yunfei Li, Xiaotian Zhu, Xuemin Guo, Wenxiao Zhang, Xiaodong Li, Andrey S. Vasenko and Junfeng Fang*



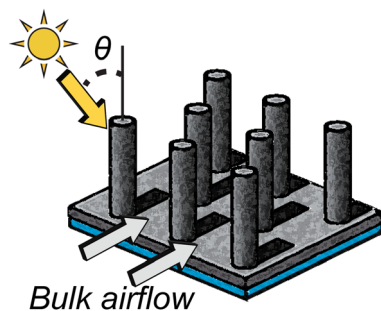
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Built-in single-ion-conducting polymer bridges for superior ion transport enabling long-life and high-voltage lithium–metal batteries

Jiajun Gong, Qimin Peng, Shunshun Zhao, Taolue Wen, Haojie Xu, Weiting Ma, Zhicheng Yao, Yong Chen,* Guoxiu Wang* and Shimou Chen*



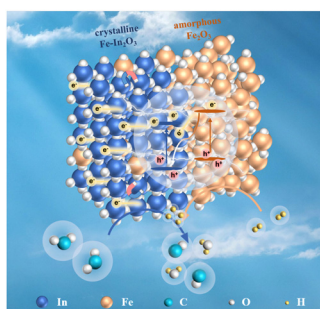
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Mechanisms and scale-up potential of 3D solar interfacial-evaporators

James H. Zhang, Rohith Mittapally, Abimbola Oluwade and Gang Chen*

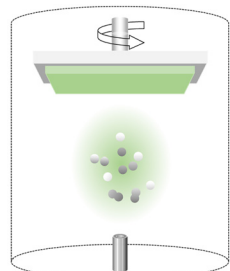
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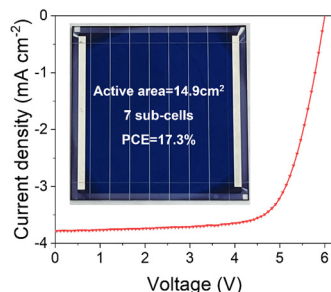
Internal and external cultivation: unleashing the potential of photogenerated carrier dynamics behaviors to boost photocatalytic CO₂ hydrogenation

Yuhao Guo, Qinhui Guan, Xingjuan Li, Mengjun Zhao, Na Li,* Zizhong Zhang,* Guiqiang Fei* and Tingjiang Yan*

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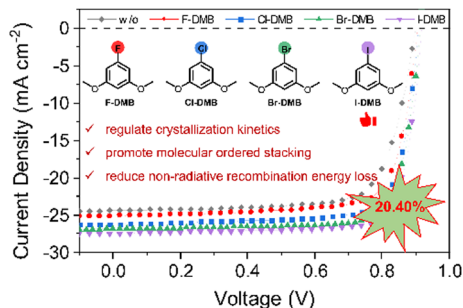
Vacuum processing strategy



Fully evaporated interfacial layers for high-performance and batch-to-batch reproducible organic solar modules

Ze Jin, Cheng Shen, Haotian Hu, Chengcheng Han, Yongqi Bai, Mengjin Yang, Quan Liu* and Ziyi Ge*

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A halogenated volatile additive strategy for regulating crystallization kinetics and enabling 20.40% efficiency polymer solar cells with low non-radiative recombination energy loss

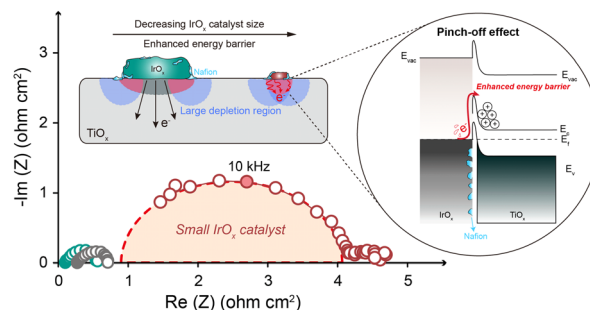
Changjiang Li, Min Deng,* Haonan Chen, Yuwei Duan, Chentong Liao, Zeqin Chen* and Qiang Peng*



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On the interface electron transport problem of highly active IrO_x catalysts

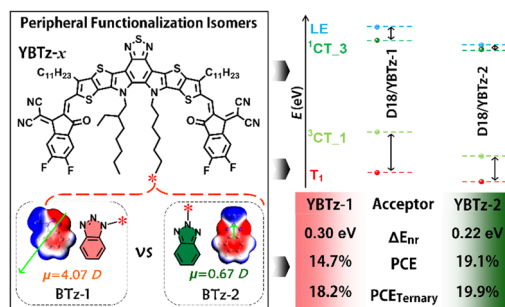
Jeesoo Park, Dong Wook Lee, Jonghyun Hyun, Hojin Lee, Euntaek Oh, Kyunghwa Seok, Gisu Doo* and Hee-Tak Kim*



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Isomerization of peripheral functional groups refines aggregation and non-radiative energy loss for efficient organic photovoltaics

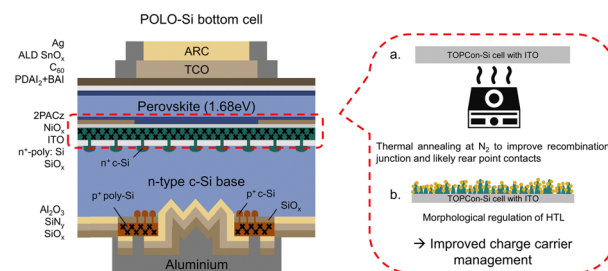
Xiaoning Wang, Xiangyu Shen, Jianxiao Wang, Fuzhen Bi,* Huanxiang Jiang, Hao Lu, Cheng Sun, Chunming Yang, Yonghai Li* and Xichang Bao*



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Charge carrier management for highly efficient perovskite/Si tandem solar cells with poly-Si based passivating contacts

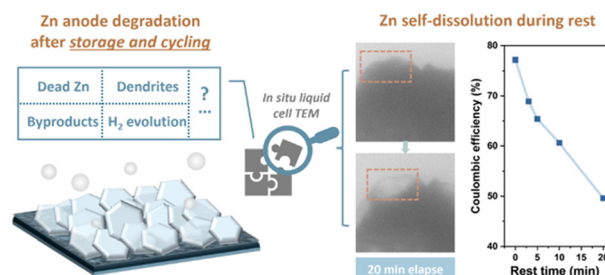
Xuzheng Liu, Michael Rienäcker, Mohammad Gholipoor, Lingyi Fang, Tonghan Zhao, Benjamin Hacene, Julian Petermann, Ruijun Cai, Hang Hu, Thomas Feeny, Faranak Sadegh, Paul Fassel, Renjun Guo,* Uli Lemmer, Robby Peibst* and Ulrich Wilhelm Paetzold*



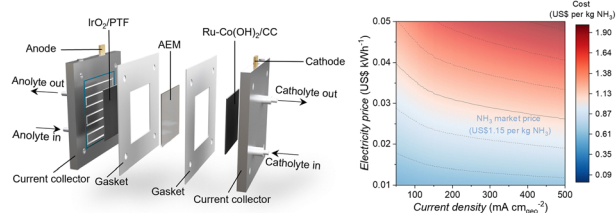
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Identifying the role of Zn self-dissolution in the anode corrosion process in Zn-ion batteries

Yi Yuan,* Zixuan Li, Rongyu Deng, Shengda D. Pu, Marc Walker, Mingzhi Cai, Feixiang Wu, Peter G. Bruce and Alex W. Robertson*



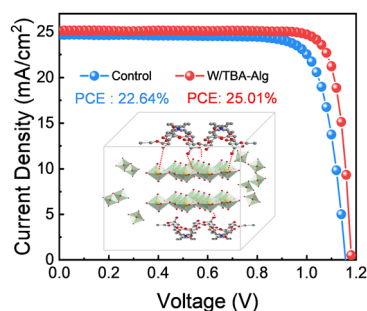
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High-efficiency ammonia electrosynthesis from nitrate on ruthenium-induced trivalent cobalt sites

Longcheng Zhang, Yuan Liu, Ling Li, Tianze Wu, Qian Wu, Justin Zhu Yeow Seow, Xiu Lin, Shirong Sun, Leonhard Tannesia, Kai Tang, Dongsheng Shao, Shibo Xi, Xiaodong Guo* and Zhichuan J. Xu*

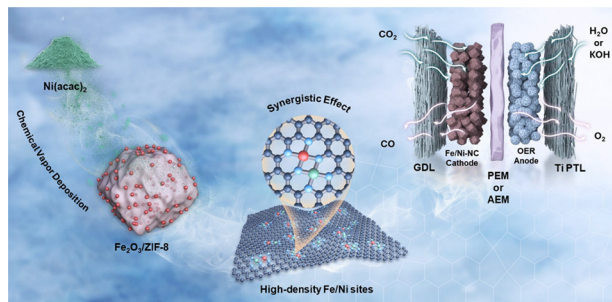
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Biomass-derived functional additive for highly efficient and stable lead halide perovskite solar cells with built-in lead immobilisation

Jing Li, Xiang Qiao, Bingchen He, Yuan Zhang, Subhajt Pal, Linchao Sun, Muhammad Bilal, Zhenhuang Su, Xingyu Gao, Joe Briscoe, Isaac Abrahams, Meng Li,* Zhe Li* and Yao Lu*

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Highly dense atomic Fe–Ni dual metal sites for efficient CO₂ to CO electrolyzers at industrial current densities

Manman Qi, Michael J. Zachman, Yingxin Li, Yachao Zeng, Sooyeon Hwang, Jiashun Liang, Mason Lyons, Qian Zhao, Yu Mao, Yuyan Shao, Zhenxing Feng, Ziyun Wang,* Yong Zhao* and Gang Wu*

CORRECTION

5657

Correction: Concurrent electrode–electrolyte interfaces engineering via nano-Si₃N₄ additive for high-rate, high-voltage lithium metal batteries

Jinuk Kim, Dong Gyu Lee, Juhyun Lee, Saehun Kim, Cheol-Young Park, Jiyeon Lee, Hyeokjin Kwon, Hannah Cho, Jungyeon Lee, Donghyeok Son, Hee-Tak Kim, Nam-Soon Choi,* Tae Kyung Lee* and Jinwoo Lee*

