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Energy & Environmental Science

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ISSN 1754–5706 CODEN EESNBY 18(2) 495–1040 (2025)

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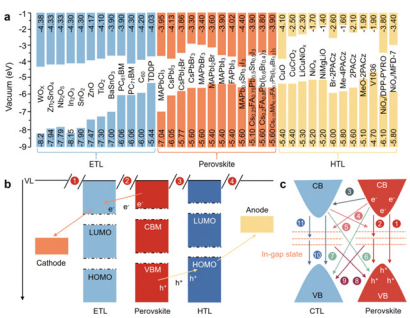
Suppressing non-radiative recombination for efficient and stable perovskite solar cells

Jiahua Tao, Chunhu Zhao,* Zhaojin Wang, You Chen, Lele Zang, Guang Yang, Yang Bai* and Junhao Chu



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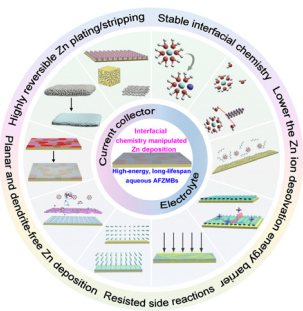
Strategies of interfacial chemistry manipulated zinc deposition towards high-energy and long-cycle-life aqueous anode-free zinc metal batteries

Tian Wang, Shaocong Tang, Ya Xiao, Weiwei Xiang and Jae Su Yu*



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PERSPECTIVE

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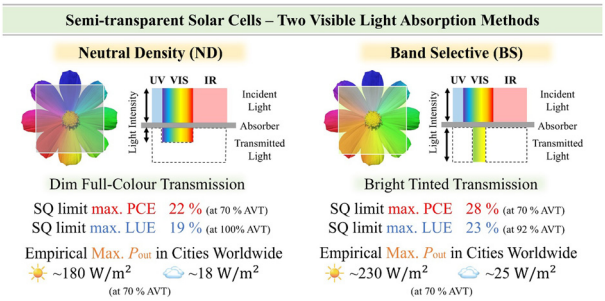
Semi-transparent solar cells: strategies for maximum power output in cities

Vox Kalai Wong, Johnny Ka Wai Ho, Wallace W. H. Wong and Shu Kong So*



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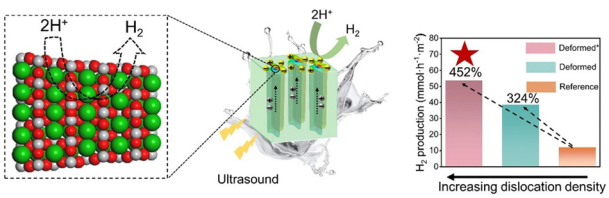
Dislocation-engineered piezocatalytic water splitting in single-crystal $BaTiO_3$

Yan Zhang, Kaiyu Feng, Miao Song,* Shan Xiang, Yan Zhao, Hanyu Gong, Fan Ni, Felix Dietrich, Lovro Fulanović, Fangping Zhuo,* Gerd Buntkowsky, Till Frömling, Dou Zhang,* Chris Bowen and Jürgen Rödel



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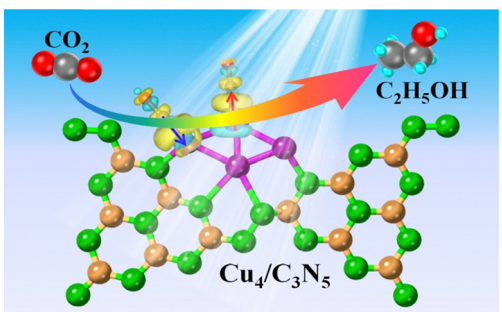
Anchoring subnanometric Cu_4 clusters in graphitic-C_3N_5 for highly efficient CO_2 photoreduction to ethanol

Entian Cui, Yulian Lu, Xiu-Li Yang,* Guojun Dong, Yajun Zhang and Yingpu Bi*



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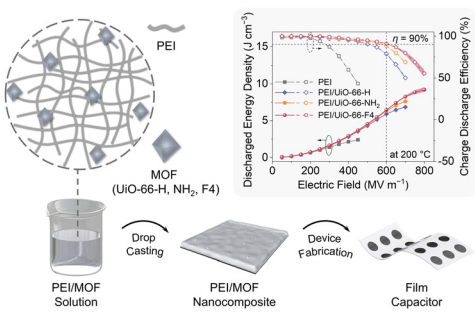
Advancing high-temperature electrostatic energy storage *via* linker engineering of metal–organic frameworks in polymer nanocomposites

Zongliang Xie, Zhiyuan Huang, He Li, Tianlei Xu, Haoyu Zhao, Yunfei Wang, Xi Pang, Zhiqiang Cao, Virginia Altoé, Liana M. Klivansky, Zaiyu Wang, Steve W. Shelton, Shiqi Lai, Peng Liu, Chenhui Zhu, Michael D. Connolly, Corie Y. Ralston, Xiaodan Gu, Zongren Peng, Jian Zhang* and Yi Liu*



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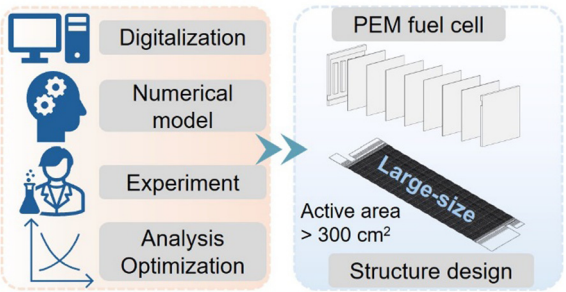

Digitally-assisted structure design of a large-size proton exchange membrane fuel cell

Wenming Huo, Linhao Fan, Yunfei Xu, Mohamed Benbouzid, Wenzhen Xu, Fei Gao,* Weizhuo Li, Nian Shan, Biao Xie, Haipeng Huang, Bohao Liu, Yassine Amirat, Chuan Fang, Xiaohui Li, Quanquan Gan, Feiqiang Li* and Kui Jiao*

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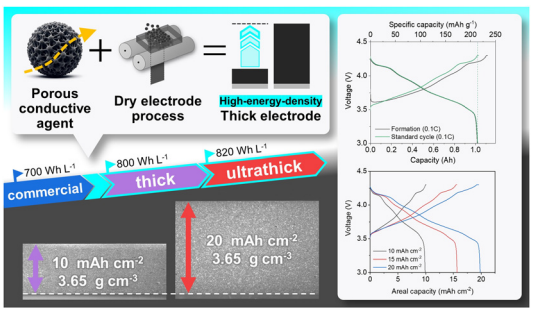

Dry-processed thick electrode design with a porous conductive agent enabling 20 mA h cm^{-2} for high-energy-density lithium-ion batteries

Hyeseong Oh, Gyu-Sang Kim, Jiyoon Bang, San Kim and Kyeong-Min Jeong*

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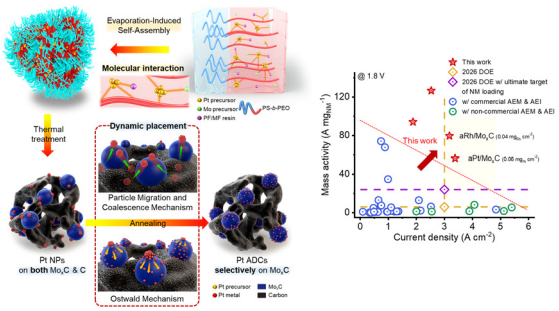

Self-assembly-assisted dynamic placement of noble metals selectively on multifunctional carbide supports for alkaline hydrogen electrocatalysis

Seongbeen Kim, Seung-Jae Shin, Hoyoung Kim, Bupmo Kim, Namgyu Noh, Kug-Seung Lee, Jinkyu Park, Hyunwoo Jun, Jiwon Kim, Jaeho Byeon, Seonggyu Lee, Huawei Huang, Sunghyun Noh, Han Beom Jeong, Jong Hyun Jang, Jong Min Yuk, Wooyul Kim, Hyungjun Kim* and Jinwoo Lee*

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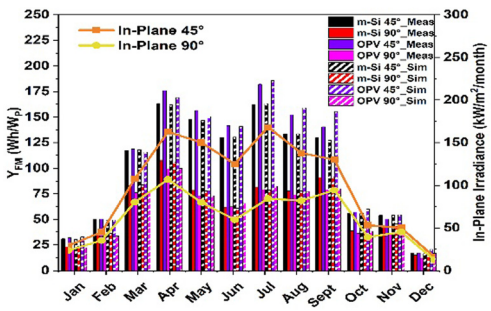

Long term outdoor performance evaluation of printed semitransparent organic photovoltaic modules for BIPV/BAPV applications

Sarmad Feroze,* Andreas Distler, Lirong Dong, Michael Wagner, Iftikhar Ahmed Channa, Felix Hoga, Christoph J. Brabec* and Hans-Joachim Egelhaaf

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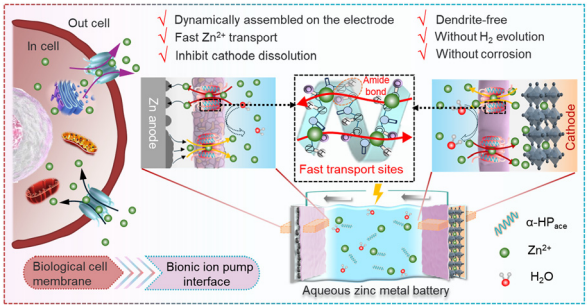
A dynamically assembled bionic ion pump interface towards high-rate and stable-cycling zinc metal batteries

Xiaoyun Xu, Songmei Li,* Junwei An,* Zicheng Luo, Juan Du, Jinyan Zhong, Mei Yu, Shubin Yang and Bin Li*



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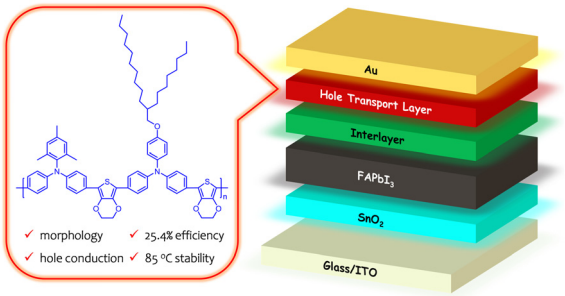
Triphenylamine–ethylenedioxythiophene copolymers for perovskite solar cells: impact of substituent type and alternation

Lifei He, Yuyan Zhang, Bing Zhang, Yanfei Mu, Niansheng Xu,* Yaohang Cai,* Yi Yuan, Jing Zhang, Min Zhang and Peng Wang*



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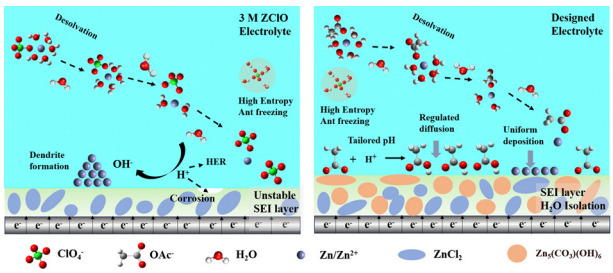
Regulating interfacial reactions through electrolyte chemistry enables an anion-rich interphase for wide-temperature zinc metal batteries

Yimei Chen, Kaijie Zhang, Zhixiao Xu, Facheng Gong, Renfei Feng, Zhehui Jin and Xiaolei Wang*



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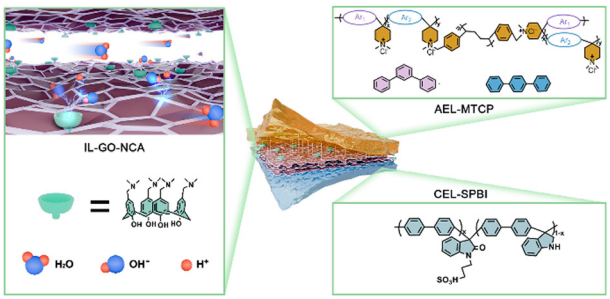
Enhanced bipolar membranes for durable ampere-level water electrolysis

Fen Luo, Weisheng Yu, Xiaojiang Li, Xian Liang, Wenfeng Li, Fanglin Duan, Yaoming Wang, Xiaolin Ge, Liang Wu* and Tongwen Xu*



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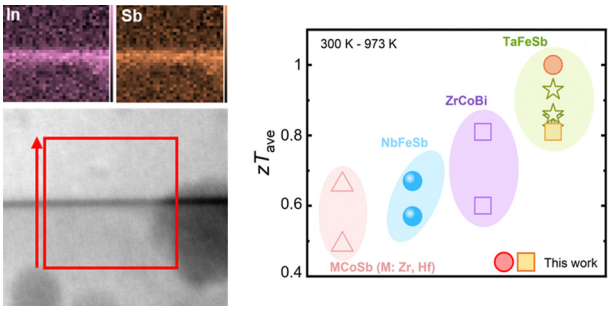

Performance advancements in P-type TaFeSb-based thermoelectric materials through composition and composite optimizations

Raana Hatami Naderloo, Ruben Bueno Villoro, Dominique Alexander Mattlat, Pingjun Ying, Shaowei Song, Samaneh Bayesteh, Kornelius Nielsch, Christina Scheu, Zhifeng Ren, Hangtian Zhu,* Siyuan Zhang* and Ran He*

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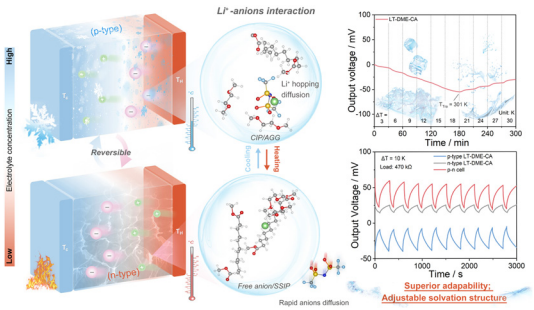

Reversibly tuning thermopower enabled by phase-change electrolytes for low-grade heat harvesting

Yinghong Xu, Zhiwei Li, Simin Li, Shengliang Zhang and Xiaogang Zhang*

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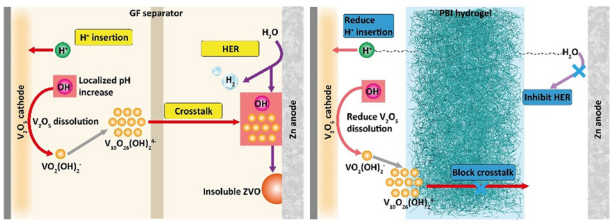

Inhibiting cathode dissolution and shuttling of V–O species using a polybenzimidazole hydrogel electrolyte for durable high-areal-capacity Zn–V_2O_5 batteries

Zeheng Lv, Rong Tang, Chenxi Sun, Weiwei Meng, Jin Yang, Siyang Li, Qilong Wu, Minghao Zhang, Jinbao Zhao* and Yang Yang*

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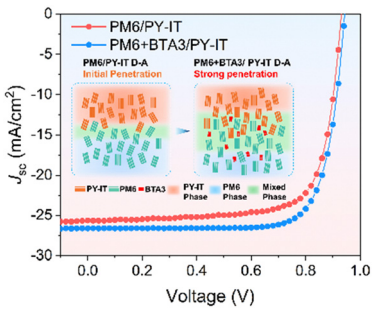

Dissolution swelling effect-assisted interfacial morphology refinement enables high efficiency all-polymer solar cells

Weichao Zhang, Yaochang Yue, Fei Han, Hong Zhang,* Yongqing Wang, Shengli Yue, Bohao Song, Guanghan Zhao, Chao Qu, Rongshen Yang, Rui Zeng, Shilin Li, Chuanyun Li, Jin Zhou, Guanghao Lu, Wanfei Shi, Xuning Zhang, Feng Liu, Ming Zhang,* Huiqiong Zhou* and Yuan Zhang*

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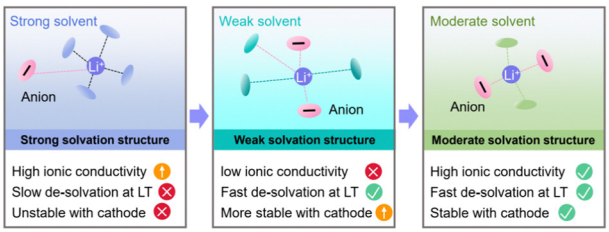
Moderate solvation structures of lithium ions for high-voltage lithium metal batteries at −40 °C

Ying Wei, Han Wang, Xing Lin, Tianyu Wang, Yanming Cui, Yu Huang, Jiayi Yang, Te-Huan Liu,* Yang Ren, Xiulin Fan, Henghui Xu* and Yunhui Huang*



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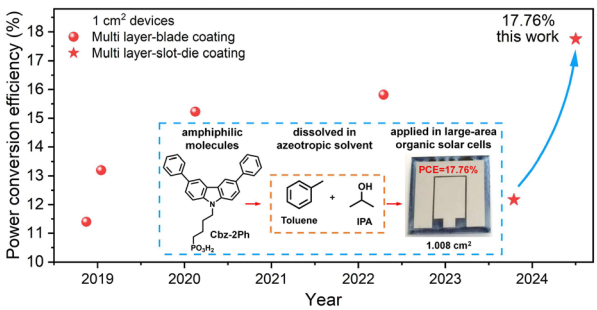
Efficient organic solar cells with a printed p–i–n stack enabled by an azeotrope-processed self-assembled monolayer

Gengxin Du, Wenlin Jiang, Nan Zhang, Yiwen Wang, Ming Liu, Tingfeng Lei, Yidan An, Lingyi Ke, Chengda Ge, Francis R. Lin,* Alex K.-Y. Jen* and Hin-Lap Yip*



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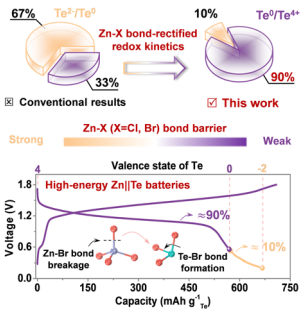
Halogen-bond chemistry-rectified hypervalent tellurium redox kinetics towards high-energy Zn batteries

Jintu Qi, Yongchao Tang,* Yue Wei, Guigui Liu, Jianping Yan, Zhenfeng Feng, Zixin Han, Minghui Ye, Wencheng Du, Qi Yang, Yufei Zhang, Zhipeng Wen, Xiaoqing Liu and Cheng Chao Li*



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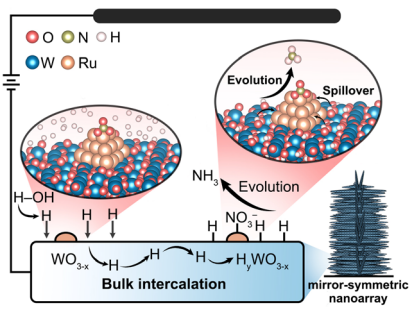
***In situ* bulk hydrogen intercalation in a mirror-symmetric Ru/WO_{3-x} nanoarray boosts neutral electrocatalytic nitrate reduction to ammonia**

Hongchuan Fu, Song Lu, Yu Xin, Shoukang Xiao, Liyu Chen, Yingwei Li and Kui Shen*



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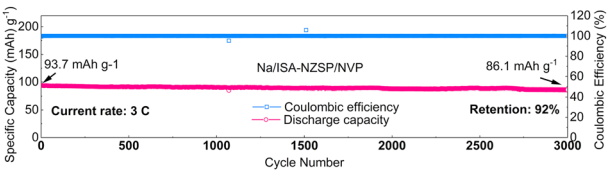

Intermediate phase induced *in situ* self-reconstruction of amorphous NASICON for long-life solid-state sodium metal batteries

Benben Wei, Shuo Huang, Xuan Wang, Min Liu, Can Huang, Ruoqing Liu and Hongyun Jin*

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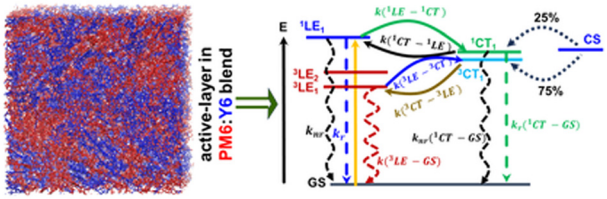

Analysis of the charge generation and recombination processes in the PM6:Y6 organic solar cell

Saied Md Pratik, Grit Kupgan, Jean-Luc Brédas* and Veaceslav Coropceanu*

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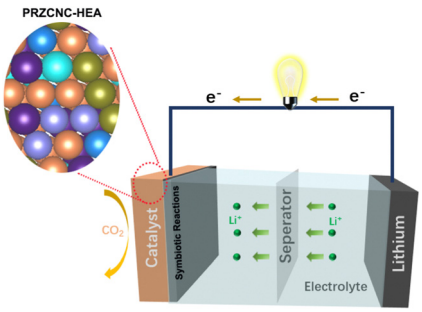

Symbiotic reactions over a high-entropy alloy catalyst enable ultrahigh-voltage Li–CO_2 batteries

Tao Chen, Junfei Cai, Hangchao Wang, Chuan Gao, Chonglin Yuan, Kun Zhang, Yue Yu, Wukun Xiao, Tie Luo and Dingguo Xia*

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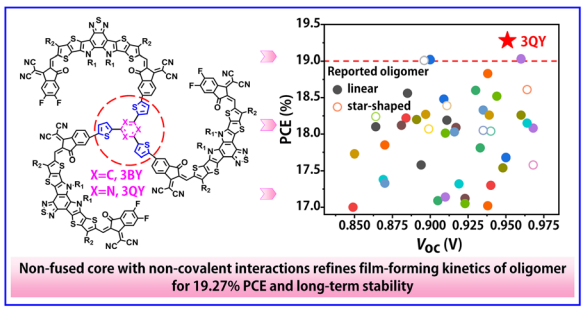

Non-fused core-linked star-shaped oligomer acceptors for stable binary organic solar cells with over 19% efficiency

Cheng Sun, Jianxiao Wang, Fuzhen Bi, Huanxiang Jiang, Chunming Yang, Yonghai Li,* Junhao Chu and Xichang Bao*

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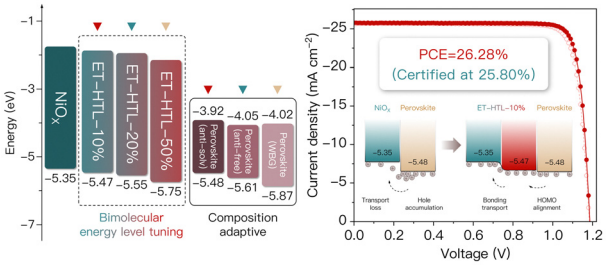
A versatile energy-level-tunable hole-transport layer for multi-composition inverted perovskite solar cells

Wenbo Peng, Yong Zhang,* Xianyong Zhou, Jiawen Wu, Deng Wang, Geping Qu, Jie Zeng, Yintai Xu, Bo Jiang, Peide Zhu, Yifan Du, Zhitong Li, Xia Lei, Zhixin Liu, Lei Yan, Xingzhu Wang* and Baomin Xu*



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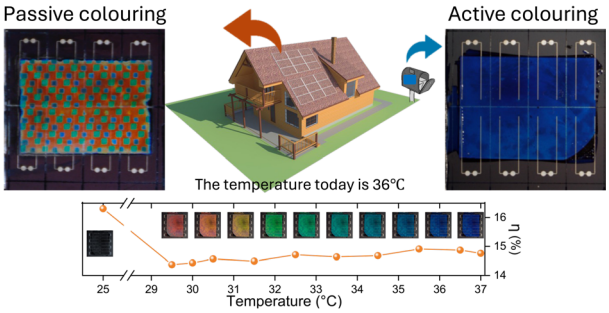
Arbitrary and active colouring of solar cells with negligible loss of efficiency

Yan-Song Zhang, Hasan Arif Yetkin, Hakam Agha, Sevan Gharabeiki, Rijeesh Kizhakidathazhath, Lena Merges, Ricardo G. Poeira, Jan P. F. Lagerwall* and Phillip J. Dale*



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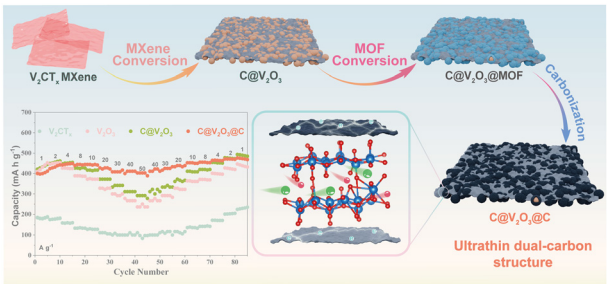
Stepwise MXene and MOF conversion assisted ultrathin dual-carbon-protected V_2O_3 nanosheets for ultrafast and durable Zn-ion storage

Xiaolin Ma, Ke Han, Hongxing Li, Lulu Song, Yuan Lin, Liangxu Lin, Yang Liu, Yi Zhao,* Zhen Yang* and Wei Huang*



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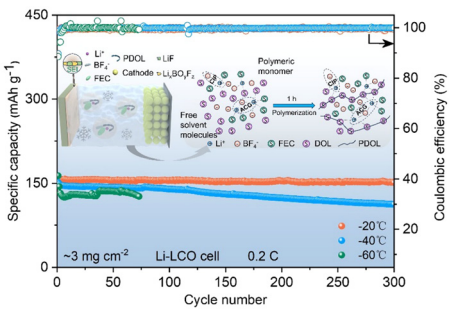
Contriving a gel polymer electrolyte to drive quasi-solid-state high-voltage Li metal batteries at ultralow temperatures

Xuanfeng Chen, Chunhao Qin, Fulu Chu, Fangkun Li, Jun Liu and Feixiang Wu*



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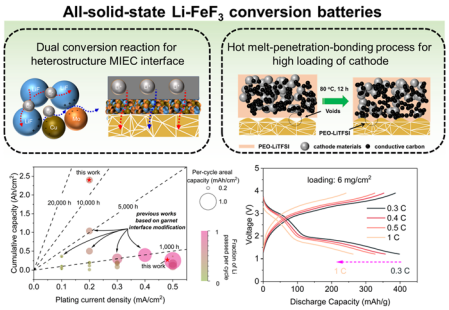

Heterostructure conductive interface and melt-penetration-bonding process to afford all-solid-state Li–FeF_3 garnet batteries with high cathode loading

Hailong Wu, Jiulin Hu, Songlin Yu and Chilin Li*

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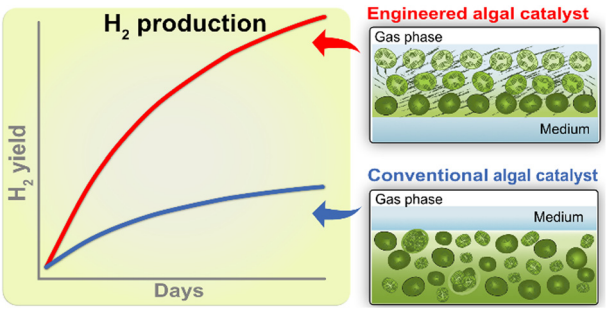

Engineered biocatalytic architecture for enhanced light utilisation in algal H_2 production

Sergey Kosourov,* Tekla Tammelin and Yagut Allahverdiyeva*

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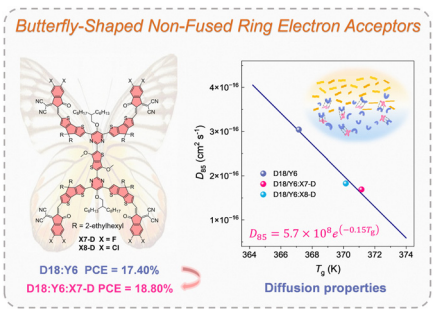
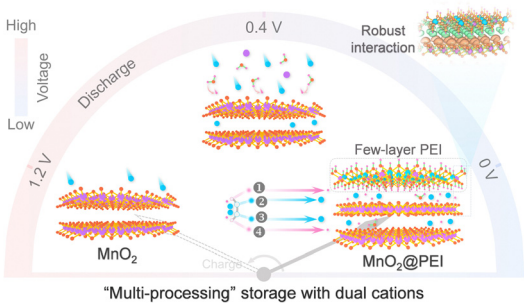


Resolving the molecular diffusion model based on butterfly-shaped non-fused ring electron acceptors for efficient ternary organic photovoltaics with improved stability

Xueyan Ding, Xiaoling Wu, Shuixing Li,* Tianyi Chen, Jinyang Yu, Heng Liu, Mengting Wang, Xiu-Kun Ye, Nuo Zhang, Xinhui Lu, Chang-Zhi Li, Haiming Zhu, Minmin Shi, Hanying Li and Hongzheng Chen*

960



Deciphering the dynamic solid–liquid interphase for energetic high-mass-loading energy storage

Jinxin Wang, Wei Guo,* Mingming Sun, Geng Zhang, Yang Meng and Qiuyu Zhang*

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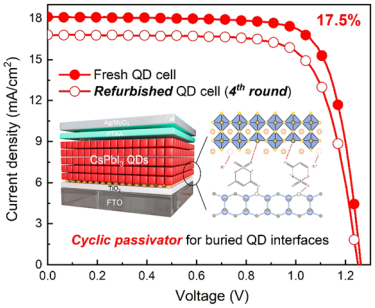
972

Buried interface engineering enables efficient and refurbished $CsPbI_3$ perovskite quantum dot solar cells

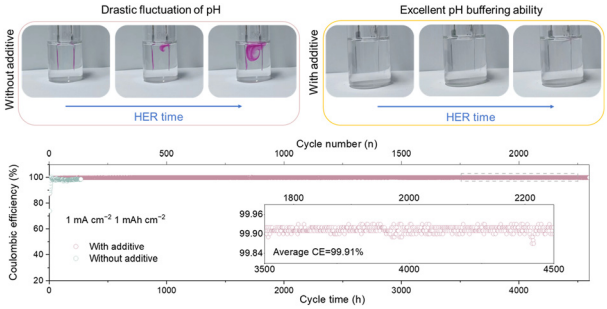
Huifeng Li, Hehe Huang, Du Li, Xuliang Zhang, Chenyu Zhao, Xinyu Zhao, Wanli Ma* and Jianyu Yuan*



982

Highly reversible zinc anode enabled by a trace-amount additive with pH buffering capability

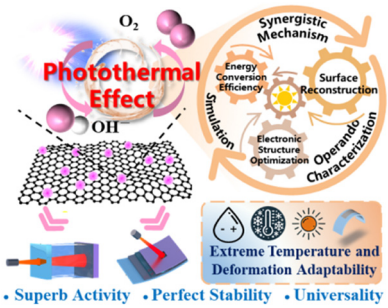
Xiaohui Ma, Qiong Wang, Xi Zhang, Yu Lin, Fengyi Zhang, Jianhang Huang* and Yonggang Wang*



991

Advancing extreme-temperature-tolerant zinc–air batteries through photothermal transition metal sulfide heterostructures

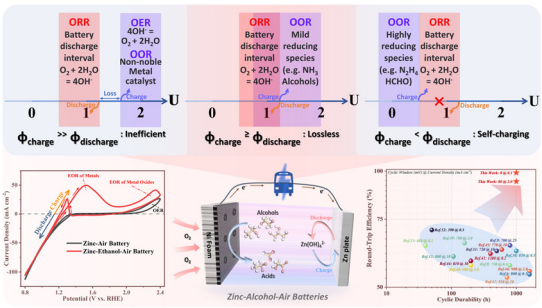
Yuqing Zhong, Yunzheng Zhang, Jiajian Wang, Huile Jin, Shuang Pan,* Shun Wang* and Yihuang Chen*



1002

Zinc–alcohol–air batteries with ultra-narrow cyclic voltage windows

Zilong Li, Shunlian Ning, Yanshuo Jin, Nan Wang,* Shuhui Sun* and Hui Meng*



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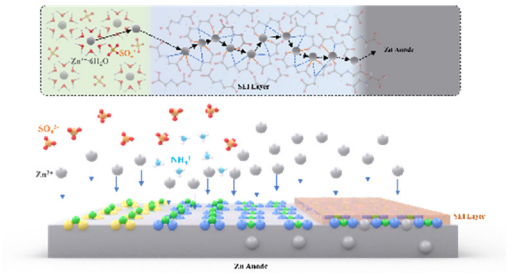
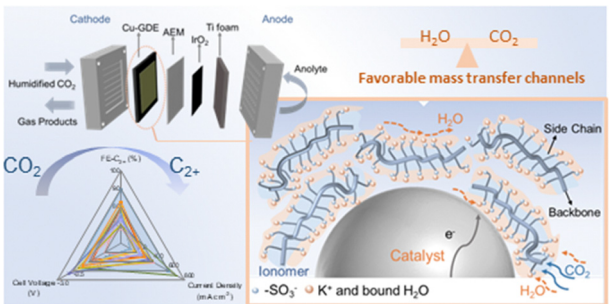
1011



Novel *in situ* SEI fabrication on Zn anodes for ultra-high current density tolerance enabled by electrical excitation–conjugation of iminoacetonitriles

Ruqian Zhang, Tao Shui,* An Li, Huan Xia, Gang Xu, Lingfeng Ji, Chengjie Lu,* Wei Zhang* and ZhengMing Sun*

1027



Rational catalyst layer design enables tailored transport channels for efficient CO_2 electrochemical reduction to multi-carbon products

Jiping Sun, Bichao Wu, Zhixing Wang, Huajun Guo, Guochun Yan, Hui Duan, Guangchao Li, Ying Wang* and Jiexi Wang*

CORRECTION

1038

Correction: A relaxor ferroelectric polymer with an ultrahigh dielectric constant largely promotes the dissociation of lithium salts to achieve high ionic conductivity

Yan-Fei Huang, Tian Gu, Guanchun Rui, Peiran Shi, Wenbo Fu, Lai Chen, Xiaotong Liu, Jianping Zeng, Benhao Kang, Zhichao Yan, Florian J. Stadler, Lei Zhu, Feiyu Kang and Yan-Bing He*

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