

Energy & Environmental Science

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See Meisheng Han, Tianshou Zhao *et al.*, pp. 3085–3119. Image reproduced by permission of Tianshou Zhao from *Energy Environ. Sci.*, 2025, 18, 3085.



Inside cover

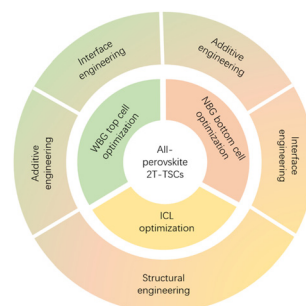
See Licheng Sun *et al.*, pp. 3120–3128. Image reproduced by permission of Dexin Chen from *Energy Environ. Sci.*, 2025, 18, 3120.

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Advancing all-perovskite two-terminal tandem solar cells: optimization of wide- and narrow-bandgap perovskites and interconnecting layers

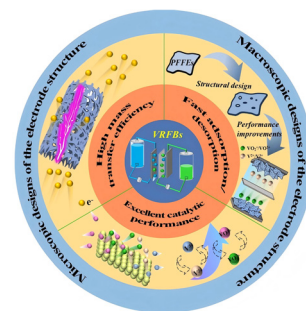
Qin Zhang, Xi Chen, Eng Liang Lim,* Lei Shi* and Zhanhua Wei*



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Strategies for improving the design of porous fiber felt electrodes for all-vanadium redox flow batteries from macro and micro perspectives

Hengyuan Hu, Meisheng Han,* Jie Liu, Kunxiong Zheng, Zhiyu Zou, Yongbiao Mu, Fenghua Yu, Wenjia Li, Lei Wei, Lin Zeng and Tianshou Zhao*



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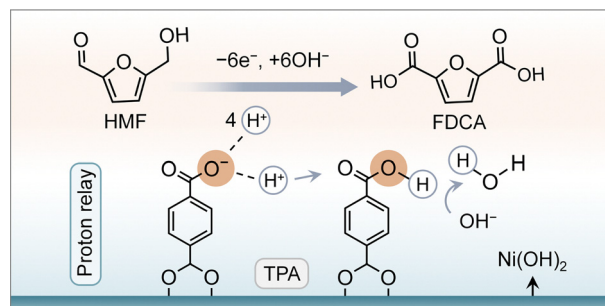
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Bio-inspired proton relay for promoting continuous 5-hydroxymethylfurfural electrooxidation in a flowing system

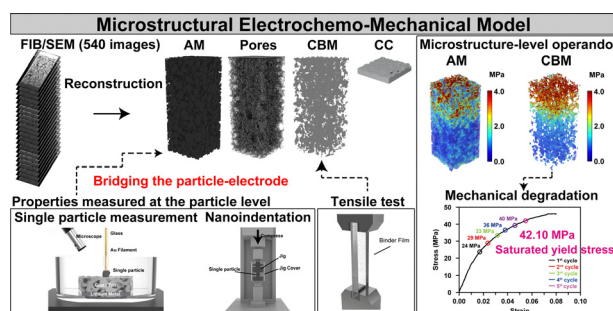
Dexin Chen, Wenlong Li, Junbo Liu and Licheng Sun*



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A microstructural electrochemo-mechanical model of high-nickel composite electrodes towards digital twins to bridge the particle and electrode-level characterizations

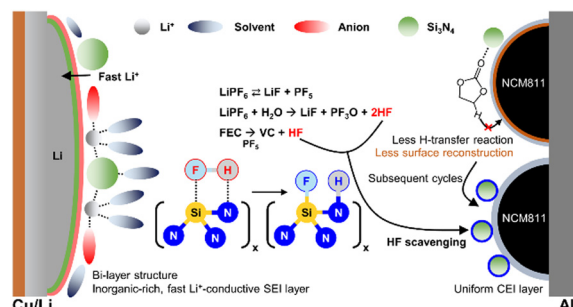
Jihun Song, Royal C. Ihuaenyi, Jaejin Lim, Zihan Wang, Wei Li, Ruqing Fang, Amin Kazem Ghamsari, Hongyi Xu, Yong Min Lee* and Juner Zhu*



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

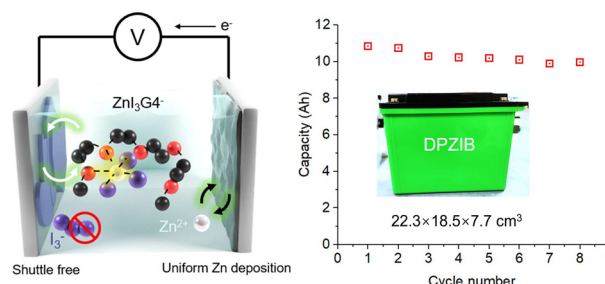
Jinuk Kim, Dong Gyu Lee, Ju Hyun Lee, Saehun Kim, Cheol-Young Park, Jiyeon Lee, Hyeokjin Kwon, Hannah Cho, Jungyoon Lee, Donghyeok Son, Hee-Tak Kim, Nam-Soon Choi,* Tae Kyung Lee* and Jinwoo Lee*



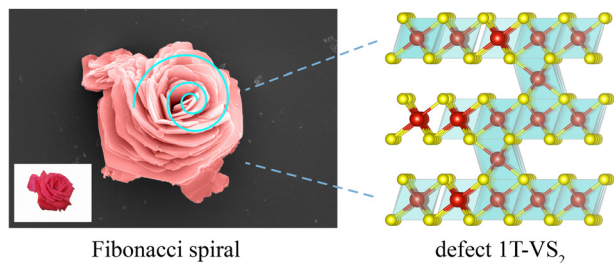
3160

Dual-plating aqueous Zn–iodine batteries enabled via halogen-complexation chemistry for large-scale energy storage

Hong Li, Bosi Huang, Mingyan Chuai, Zhiyang Zheng, Hao Chen, Zhihong Piao, Guangmin Zhou* and Hong Jin Fan*



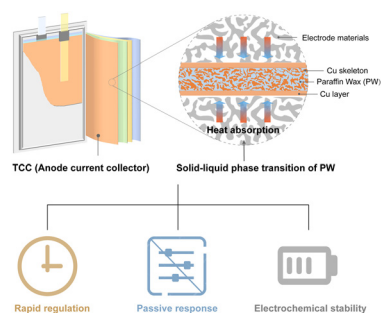
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Defective 1T-VS₂ with fibonacci pattern unlocking high mass-loading and self-charging cathodes for aqueous zinc-ion batteries

Tao Li, Xinji Dong, Hange Yang, Jianwei Zhang, Rong Huang, Zhuoran Lv, Yueyue Li, Shicong Zhang, Fuqiang Huang* and Tianquan Lin*

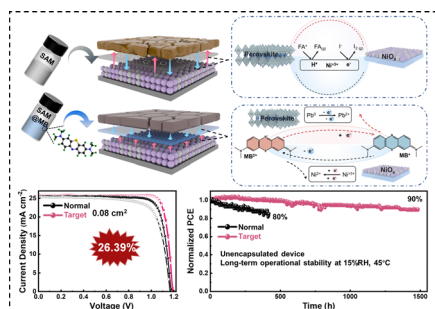
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Self-thermoregulating current collectors: built-in thermal protection for safe lithium-ion batteries

Yitong Peng, Tao Meng, Pingan Li, Rongxin Li and Xianluo Hu*

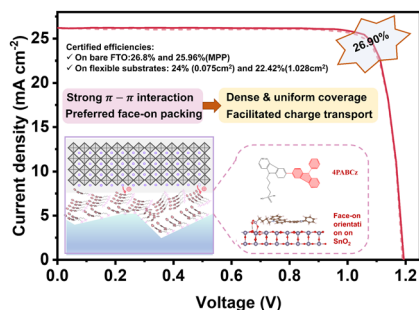
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Redox mediator-modified self-assembled monolayer stabilizes a buried interface in efficient inverted perovskite solar cells

Shujie Qu, Fu Yang, Hao Huang,* Yiyi Li, Changxu Sun, Qiang Zhang, Shuxian Du, Luyao Yan, Zhineng Lan, Zhiwei Wang, Tongtong Jiang, Peng Cui, Xicheng Ai and Meicheng Li*

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Face-on oriented self-assembled molecules with enhanced π - π stacking for highly efficient inverted perovskite solar cells on rough FTO substrates

Jiajun Du, Jinling Chen, Beilin Ouyang, Anxin Sun, Congcong Tian, Rongshan Zhuang, Chen Chen, Shuo Liu, Qianwen Chen, Ziyi Li, Xiling Wu, Jingyu Cai, Yuyang Zhao, Ran Li, Teng Xue, Tiantian Cen, Kaibo Zhao and Chun-Chao Chen*

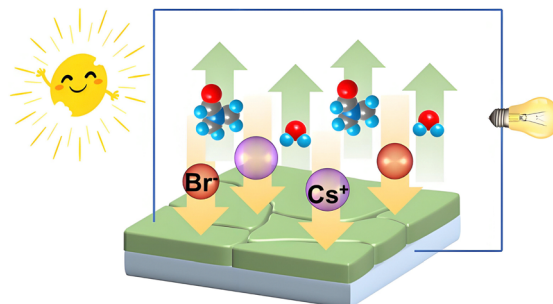


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Achieving unprecedented power-output in 4-terminal mirror-symmetrical printable carbon CsPbBr_3 solar cells through dual-solvent engineering

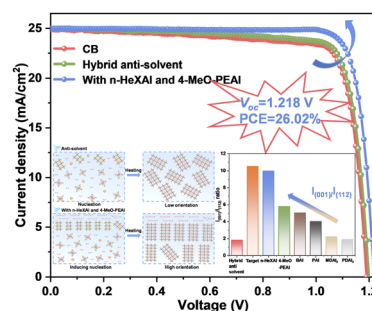
Wu Shao, Jie Sheng, Yufei Fu, Jingwen He, Zhihao Deng, Ronghao Cen and Wenjun Wu*



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Anti-solvent engineering for efficient and stable perovskite solar cells with preferentially orientated 2-dimensional/3-dimensional heterojunctions

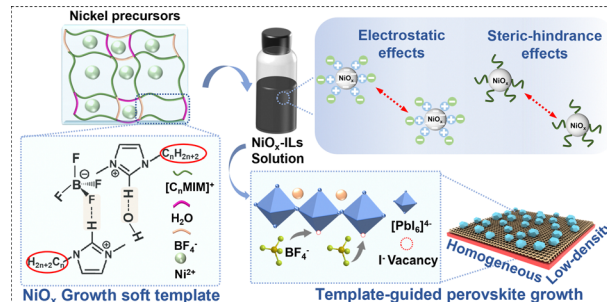
Zhinan Zhang, Yinghao Xu, Shaofu Wang, Chuan Peng, Peiran Liu, Shengjie Du, Dexin Pu, Xingzhong Zhao, Minghui Shang,* Guojia Fang* and Zhenhua Yu*



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Regulation of crystallization by introducing a multistage growth template affords efficient and stable inverted perovskite solar cells

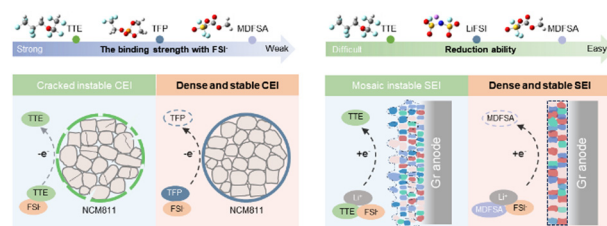
Jiaqi Zhang, Runying Dai, Jia Yang,* Yikun Liu, Jianxin Yu, Licheng Tan* and Yiwang Chen*



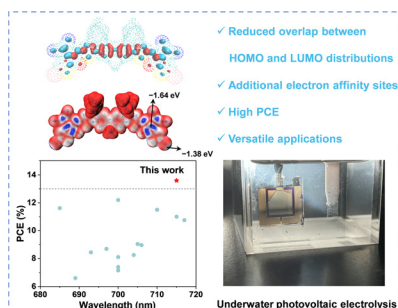
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Electrolyte tailoring and interfacial engineering for safe and high-temperature lithium-ion batteries

Chenyang Shi, Zhengguang Li, Mengran Wang,* Shu Hong, Bo Hong,* Yaxuan Fu, Die Liu, Rui Tan,* Pingshan Wang and Yanqing Lai



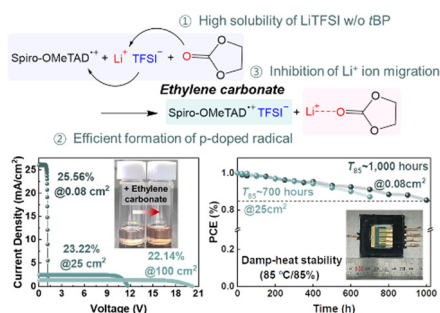
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Molecular design of high-performance wide-bandgap acceptor enables versatile organic photovoltaic applications

Yang Xiao, Jingwen Wang, Yong Cui,* Yafei Wang, Zhihao Chen, Shuohan Cheng, Haoyu Yuan, Jiawei Qiao, Yi Yang, Wenxuan Wang, Ni Yang, Yue Yu, Runnan Yu, Xiaotao Hao and Jianhui Hou*

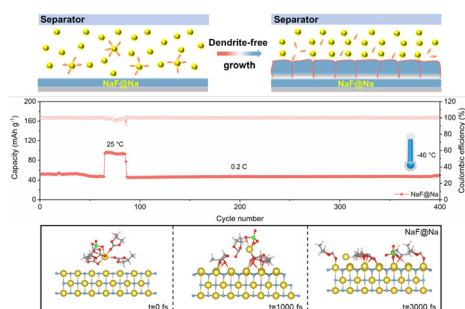
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Damp-heat stable and efficient perovskite solar cells and mini-modules with a tBP-free hole-transporting layer

Yun Seop Shin, Jaehwi Lee, Dong Gyu Lee, Ji Won Song, Jongdeuk Seo, Jina Roe, Min Jung Sung, Sujung Park, Gwang Yong Shin, Jiwoo Yeop, Dongmin Lee, Chang Hyeon Yoon, Minseong Kim, Jung Geon Son, Gi-Hwan Kim, Shinuk Cho, Jin Young Kim, Tae Kyung Lee* and Dong Suk Kim*

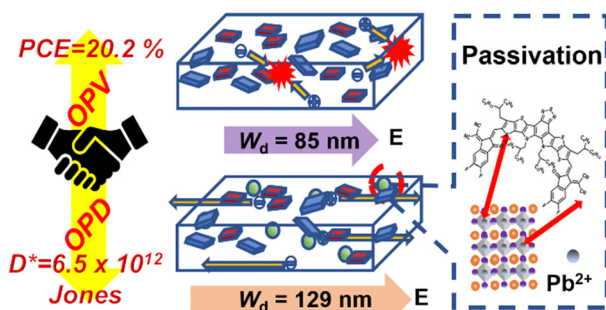
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Accelerating interfacial desolvation kinetics using NaF-rich composite sodium for high-performance all-climate sodium–metal batteries

Tongtong Deng, Chen Li, Guanjie Lu, Zongyang Li, Chaohe Xu* and Ronghua Wang*

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CsPbI₂Br quantum dots integration for high performance organic photovoltaics and photodetectors

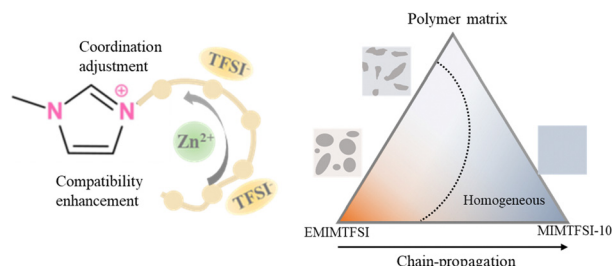
Dawei Gao, Yujie Yang, Xinyang Zhou, Yuandong Sun, Weiqiang Miao, Dan Liu, Wei Li* and Tao Wang*



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Fluorinated-oligomeric ionic liquids for high-performance wide-temperature solid zinc batteries

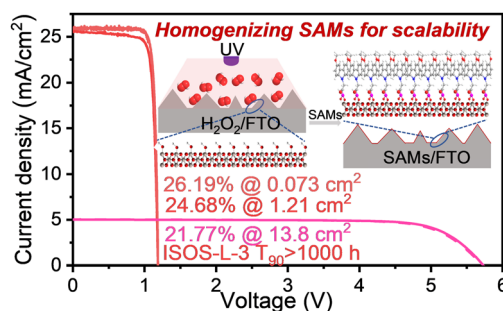
Ze Chen, Tong Liu, Zhiquan Wei, Yiqiao Wang, Ao Chen, Zhaodong Huang, Duanyun Cao,* Nan Li* and Chunyi Zhi*



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Homogenizing SAM deposition via seeding –OH groups for scalable fabrication of perovskite solar cells

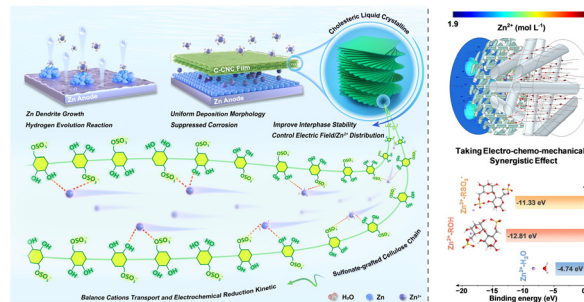
Sheng Fu,* Nannan Sun, Hao Chen, You Li, Yunfei Li, Xiaotian Zhu, Bo Feng, Xueming Guo, Canglang Yao, Wenxiao Zhang, Xiaodong Li* and Junfeng Fang*



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Developing an electro-chemo-mechanically synergistic effect via the cholesteric cellulose crystalline interphase for highly stable flexible zinc metal batteries

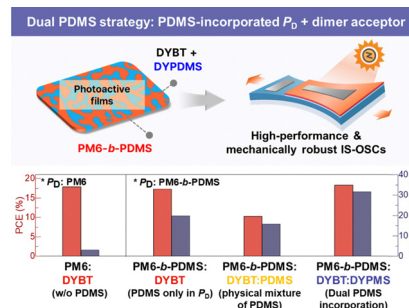
Xinze Cai, Wanlin Wu, Bingyao Zhang, Wenlong Cai, Canhui Lu, Rui Xiong,* Jiangqi Zhao* and Jiang Zhou*



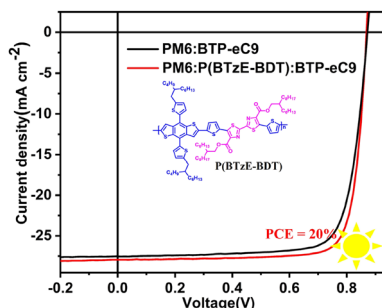
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Simultaneous integration of poly(dimethylsiloxane) elastomer in polymer donor and dimer acceptor enables strain-induced power enhancement in intrinsically-stretchable organic photovoltaics

Jin-Woo Lee, Trieu Hoang-Quan Nguyen, Won Jung Kang, Soodeok Seo, Seungbok Lee, Seungjin Lee, Jaeyoung Choi, Jimin Park, Jung-Yong Lee, Taek-Soo Kim and Bumjoon J. Kim*



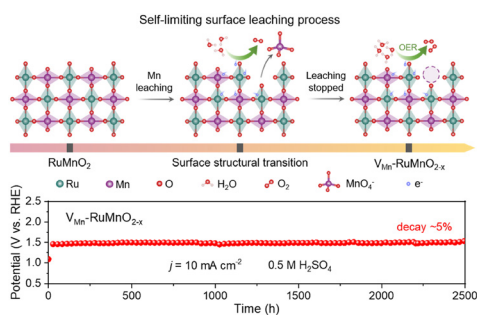
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20.0% efficiency of ternary organic solar cells enabled by a novel wide band gap polymer guest donor

Junkang Zhou, Xinjie Zhou, Hongge Jia,* Lijun Tu, Siqi Wu, Xiaomin Xia, Xin Song* and Yongqiang Shi*

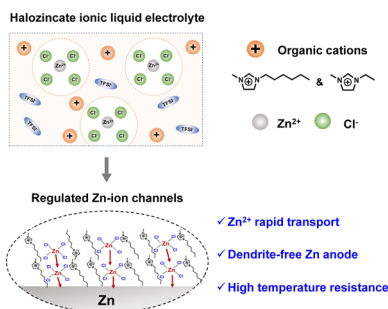
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Self-limiting surface leaching stabilizes Ru-based catalysts for acidic water oxidation

Yang Liu, Xiyu Li, Haeseong Jang, Jianghua Wu, Min Gyu Kim, Xiaoke Xi, Zhanwu Lei,* Yuchen Zhang, Yu Deng, Wensheng Yan, Jun Jiang, Shuhong Jiao,* Jing-Li Luo* and Ruiguo Cao*

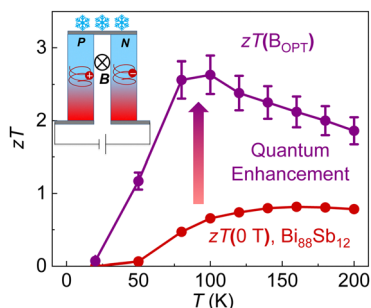
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Halozincate ionic liquid electrolyte enabled high-temperature dendrite-free Zn metal batteries

Mingchen Yang, Xiuyang Zou, Mingzhu Wu, Jiangtao Yu, Xinyu Ma, Yin Hu* and Feng Yan*

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Record thermoelectric figure of merit in Bi_{1-x}Sb_x achieved by 1-D Landau level quantization

Bin He, Xiaolong Feng, Dong Chen, Federico M. Serrano-Sanchez, Mohamed Nawwar, Haihua Hu, Ulrich Burkhardt, Berit H. Goodge, Claudia Felser,* Joseph P. Heremans* and Yu Pan*

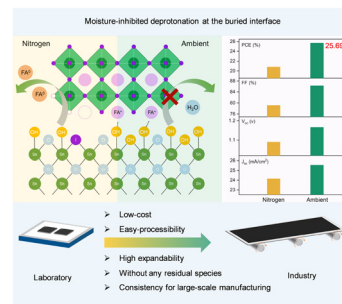


PAPERS

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Moisture-inhibited deprotonation at the buried interface enables efficient perovskite solar cells with a high fill factor of over 86%

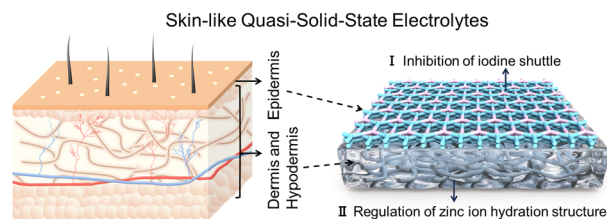
Shengwen Zou, Jingjing Zhang, Yi Xin, Jinlong Jin, Guangxin Liu, Xiaojun Yan and Jianmei Huang*



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Skin-like quasi-solid-state electrolytes for spontaneous zinc-ion dehydration toward ultra-stable zinc–iodine batteries

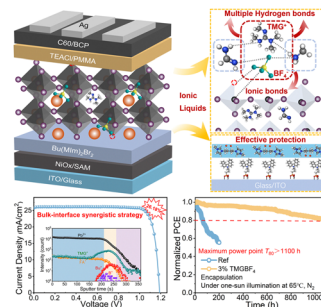
Shaochong Cao, Aiwen Zhang, Huayi Fang, Bingjian Feng, Yongshuai Liu, Pengshu Yi, Shan He, Zhouhong Ren, Longli Ma, Wenyi Lu, Mingxin Ye and Jianfeng Shen*



3407

Unraveling the interfacial homogeneity and bulk crystallization for efficient and stable perovskite solar cells via ionic liquids

Xiaowei Xu, Sibao Li, Chengwei Shan, Xiaoyu Gu, Jie Zeng, Wenbo Peng, Tingting Dai, Xin Xu, Xianghui Zeng, Erjun Zhou, Chen Xie, Yong Zhang,* Longbin Qiu,* Baomin Xu* and Aung Ko Ko Kyaw*



CORRECTION

3418

Correction: Sodium cluster-driven safety concerns of sodium-ion batteries

Jiaping Niu, Junyuan Dong, Xiaohu Zhang, Lang Huang,* Guoli Lu, Xiaolei Han, Jinzhi Wang, Tianyu Gong, Zheng Chen, Jingwen Zhao* and Guanglei Cui*

