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Energy & Environmental Science

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Inside cover
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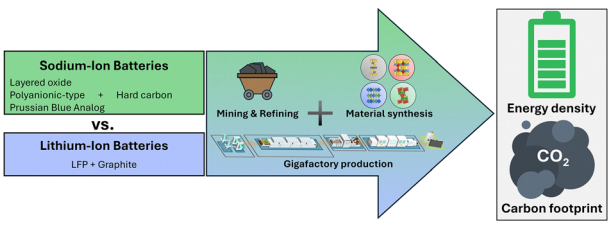
ANALYSIS

8104

Benchmarking state-of-the-art sodium-ion battery cells – modeling energy density and carbon footprint at the gigafactory-scale

Philipp Voß, Benedikt Gruber, Miriam Mitterfellner, Jan-Darius Plöpst, Florian Degen, Richard Schmuch and Simon Lux*



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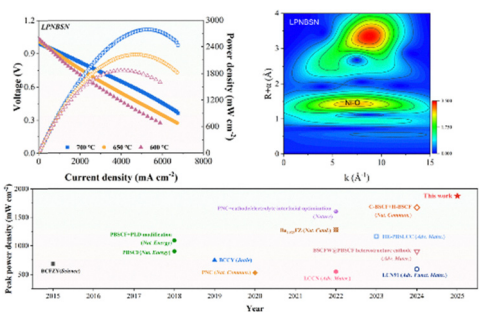
8130

Breaking the limits of Ruddlesden–Popper cathodes to achieve a game-changer for proton-conducting solid oxide fuel cells

Yanru Yin, Hongfang Huang, Samir Boulfrad, Hailu Dai, Yueyuan Gu, Shoufu Yu and Lei Bi*



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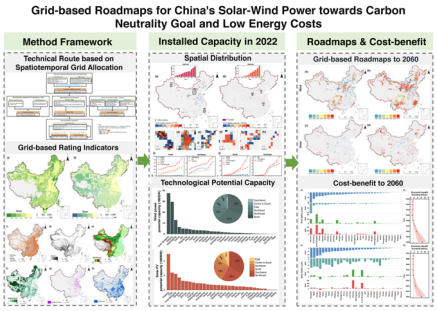
PAPERS

8142

Fine-grained prediction of solar-wind deployment unlocks China's 2060 pathways to carbon neutrality and lower energy costs

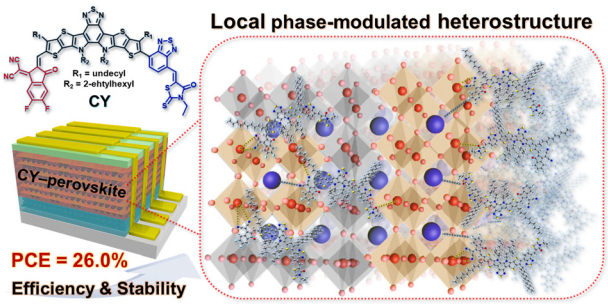
Jing Guo, Ruomei Wang, Li Zhang,* Siqin Wang, Linyan Li, Mengbing Du,* Fangyuan Zhong, Chuan Zhang, Yafei Li, Yixuan Zheng, Xiaoya Liu, Xi Lu and Jinnan Wang



8161

Local phase-modulated heterostructures for perovskite solar cells with high-efficiency and ultra-stability

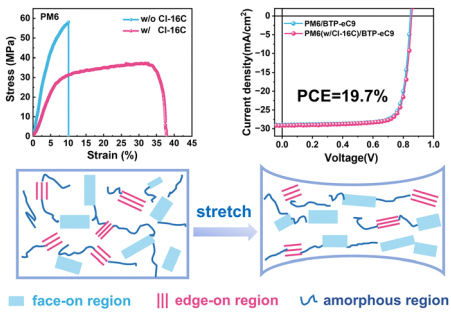
Yongjoon Cho, Donghwan Koo, Hak-Won Nho, Jeewon Park, Sangjin Yang, Ye-Jin Kim, Seonghun Jeong, Zhe Sun, Gyujeong Jeong, Eunbin Son, Oh-Hoon Kwon,* Hyesung Park* and Changduk Yang*



8171

Stress-dissipative strong bimodal molecular packing towards efficient and highly stretchable organic photovoltaics

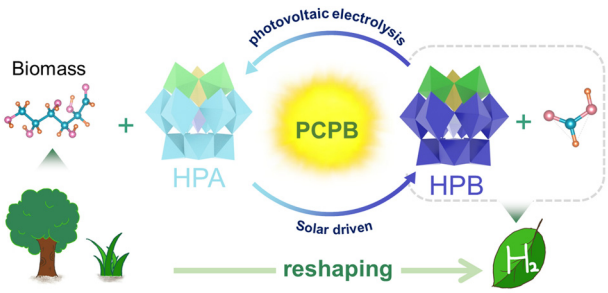
Jiayuan Zhu, Hongxiang Li,* Heng Wang, Yufei Gong, Yonghuan Li, Yetai Cheng, Yiling Hu, Jie Xiong, Jiayu Wang, Lei Meng, Jin Fang, Wenjun Zou, Yifan Wang, Yuqiang Liu, Cenqi Yan,* Yongfang Li and Pei Cheng*



8182

Photon-coupled-proton buffers: reshaping solar-driven hydrogen and formic acid production with biomass

Lei Gan, Yuyang Liu, Shiqi Huang, Yang Liu, Wei Liu, Kuang Sheng, Chenyu Zhang, Mingjun Han, Wenhao He, Jie Li,* Xiong Li* and Tao Jiang*



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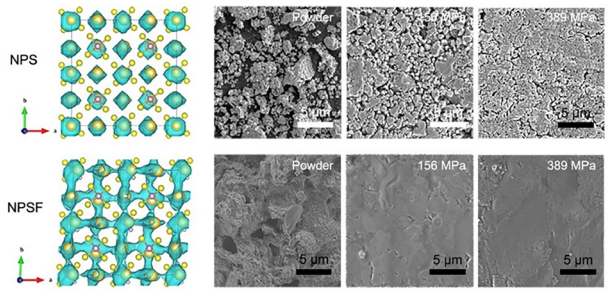
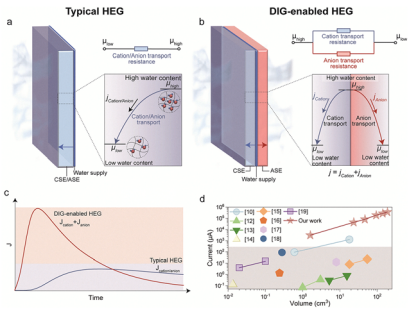


A compactable $Na_{2.5}PS_{3.5}F_{0.5}$ electrolyte for solid-state sodium batteries

Xianguang Miao, Yifan Wu, Huirong Jing, Yuchuang Cao, Yichao Wang, Junyeob Moon and Xin Li*

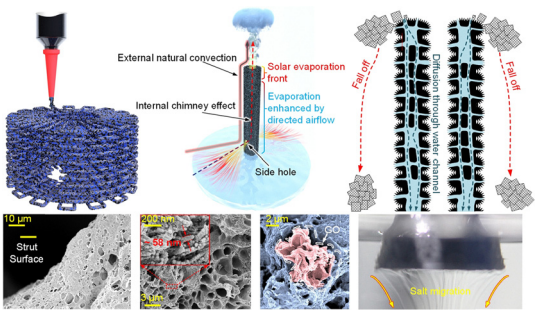
8209



Dual-interfacial gating unlocks bidirectional ionic flux for high-efficiency hydrovoltaic energy harvesting

Lin Li,* Yongfang Yang, Nan He, Xinyi Xu, Bingsen Wang, Jie Miao, Shengli Xu, Haonan Wang* and Dawei Tang

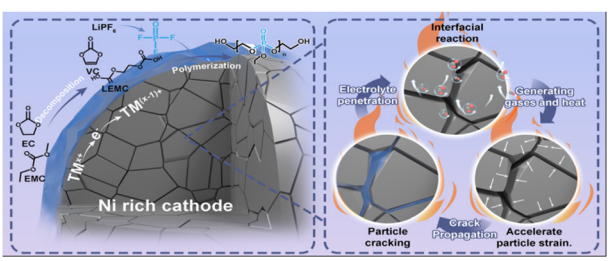
8220



A 3D-printed hierarchical chimney for high-yield solar evaporation

Yu Tang, Chenyi Fang, Xin Xu, Feng Li, Lei Fan, Di Zhu, Jun Ding, Joseph Imbrogno, Sui Zhang* and Wentao Yan*

8232



Interfacial reactions take the lead: elucidating the dominant role of cathode–electrolyte interactions in triggering thermal runaway of high-nickel lithium-ion batteries

Zhaoxuan Jiang, Chengao Liu, Lang Huang,* Shanshan Zhu, Xiaohu Zhang, Rongxian Wu, Tianyu Gong, Yuhan Wu, Lingxiang Guo, Pengxian Han, Jun Ma, Gaojie Xu* and Guanglei Cui*

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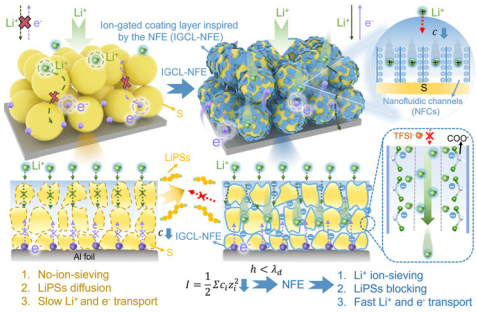
8244

Nanofluidic-enhanced high-mass-loading electrodes for energy-dense and high-rate lithium–sulfur batteries

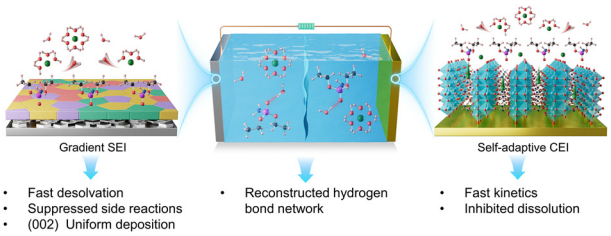
Chunlei Song, Lyuming Pan, Lu Chen, Yanxin Jiang, Hongji Pan, He Zhao, Nanshan Chen, Zhiqiang Yang, Liu Yang, Qing Yan, Xudong Peng,* Xiaohua Ma, Yiju Li* and Tianshou Zhao*



8256

Interfacial gradient engineering synergized with self-adaptive cathodic defense for durable Zn-ion batteries

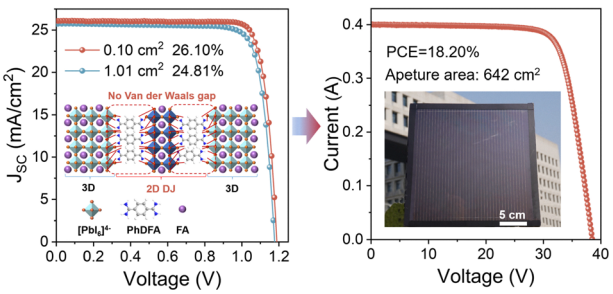
Quan Zong,* Xuelian Liu, Qilong Zhang,* Qiaoling Kang, Fan Wang, Guoying Wei and Anqiang Pan*



8268

Double amidino-mediated multiple hydrogen-bonded Dion–Jacobson perovskites enable oriented crystallization for efficient inverted $FAPbI_3$ solar cells and modules (642 cm^2)

Zhiyuan Xu, Yuqin Zhou, Cheng Gong, Ke Wang, Zhihao Guo, Zhijun Li, Omar F. Mohammed* and Zhigang Zang*



8280

Efficient pedestrian-level wind energy harvesting using a hybridized technology

Gao Yu, Pengfei Ji, Xiaobo Gao, Tengfei Zhou, Shengbo Wang, Wei Gao, Hao Li, Zhong Lin Wang* and Baodong Chen*

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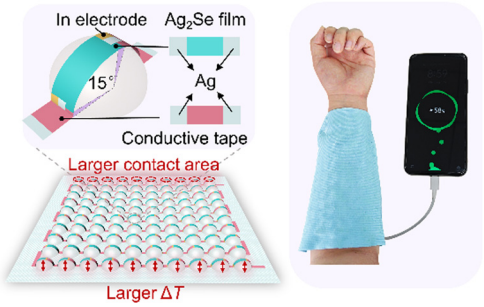
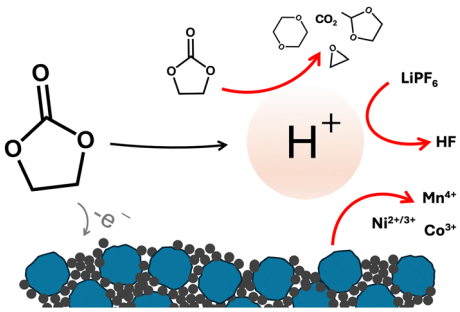
8292



Ultra-high-performance Ag_2Se-based flexible thermoelectric generator

Lin Zhang, Hongjing Shang,* Hao Dong, Hongwei Gu* and Fazhu Ding*

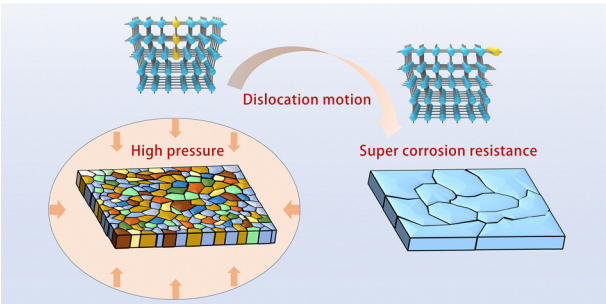
8303



An unwanted guest in the electrochemical oxidation of high-voltage Li-ion battery electrolytes: the life of highly reactive protons

Stefan Ilic, Milena Martins, Haoyu Liu, Pedro Farinazzo Bergamo Dias Martins, Dominik Haering, Jingtian Yang, Toru Hatsukade, Bostjan Genorio, Stephen E. Weitzner, Liwen F. Wan, Zhengcheng Zhang, Justin G. Connell, Baris Key, Jordi Cabana* and Dusan Strmcnik*

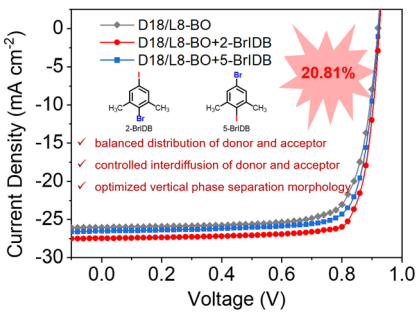
8313



Crystallization control and defect reduction for superior corrosion resistance of zinc anodes in aqueous zinc-ion batteries

Jingjing Jiang, Sanlue Hu, Tianshuo Guo, Xiangyong Zhang, Hua Wei, Baohui Ren, Ruijia Liu, Guangming Chen, Zhuoxin Liu* and Cuiping Han*

8327



Balanced distribution of donors and acceptors enabled by volatile isomerization additives for 20.81% efficiency layer-by-layer polymer solar cells

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

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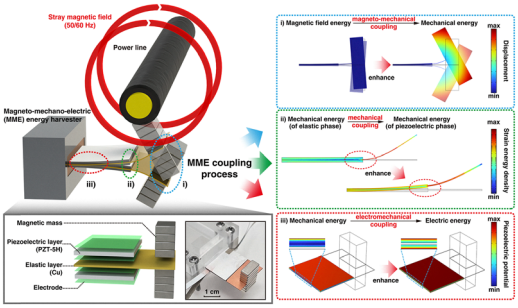
Multiple-coupling optimization strategy for significantly enhancing the output power density of a compact magneto-mechano-electric energy harvester

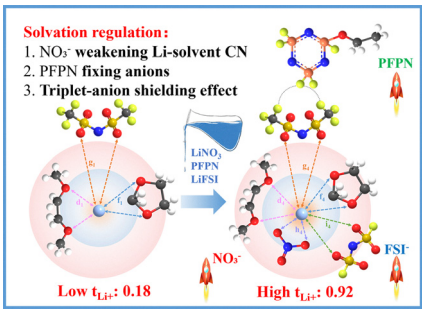
Yiwei Xu, Xin He, Xianfeng Liang, Heng Huang, Jingen Wu,* Dengfeng Ju, Jinghong Guo, Shuxiang Dong, Zhongqiang Hu* and Ming Liu*



8352

Dense Li deposition enabled by weakly coordinated Li and fast Li transport in a single-ion conducting gel-polymer electrolyte

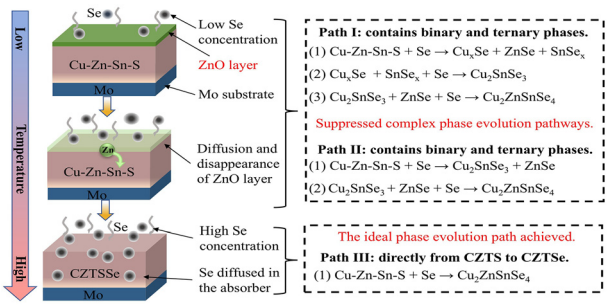
Yutong Zhai, Yimu Zhang, Ning Wang, Minghui Li, Mingjia Shen, Pingbo Xu, Maoyu Sun, Feilong Dong, Tianzong Ma, Jun Ming, Lina Cong, Haiming Xie* and Yulong Liu*



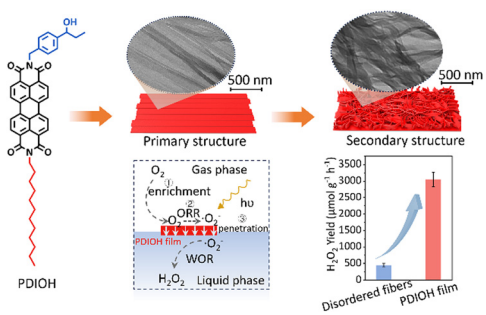
8366

Phase evolution regulation of CZTSSe absorbers *via* a ZnO blocking layer enables 14.45% efficient kesterite solar cells with low V_{OC} deficit

JinJin Chi, Hao Wei, Liangli Chu, Litao Han,* Tong Liu, Xinyi Zhong, Dongxing Kou, Wenhui Zhou, Zhengji Zhou, Shengjie Yuan, Yuena Meng, Yafang Qi, Zhipeng Shao,* Guanglei Cui* and Sixin Wu*



8382

Breathing air into water: dual-pathway H_2O_2 synthesis *via* aerating amphiphilic supramolecular films

Bo Yu, Shuya Liu,* Xinyu Lin, Zhi Zhu, Yongsheng Yan, Yanjun Gong, Yanke Che, Yan Yan* and Weidong Shi*