

Energy & Environmental Science

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Inside cover

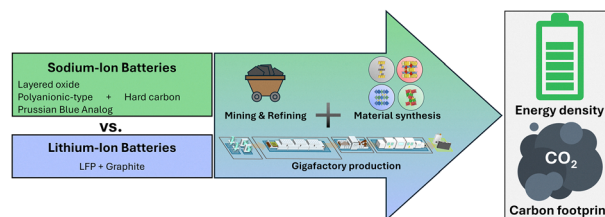
See Li Zhang *et al.*, pp. 8142–8160. Image reproduced by permission of Li Zhang from *Energy Environ. Sci.*, 2025, 18, 8142.

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*

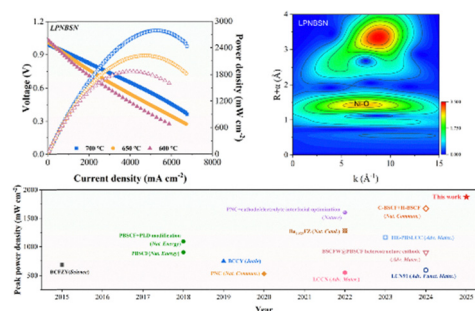


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Breaking the limits of Ruddlesden–Popper cathodes to achieve a game-changer for proton-conducting solid oxide fuel cells

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



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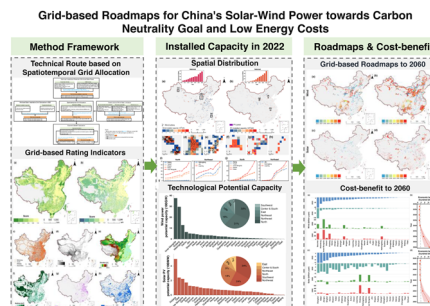
Fundamental questions
Elemental answers



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

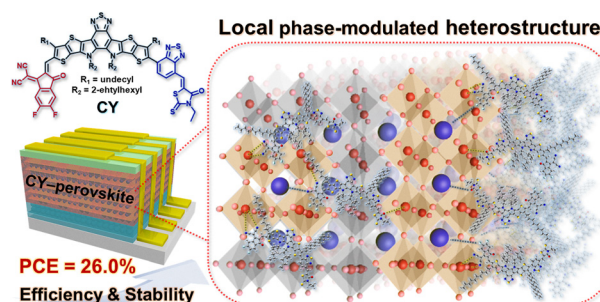
Jing Guo, Ruomei Wang, Li Zhang,* Siqin Wang, Linyan Li, Mengbing Du,* Fangyuan Zhong, Chuan Zhang, Yafei Li, Yixuan Zheng, Xiaoya Liu, Xi Lu and Jinnan Wang



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

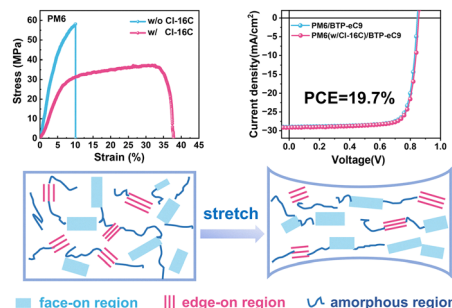
Yongjoon Cho, Donghwan Koo, Hak-Won Nho, Jeewon Park, Sangjin Yang, Ye-Jin Kim, Seonghun Jeong, Zhe Sun, Gyujeong Jeong, Eunbin Son, Oh-Hoon Kwon,* Hyesung Park* and Changduk Yang*



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

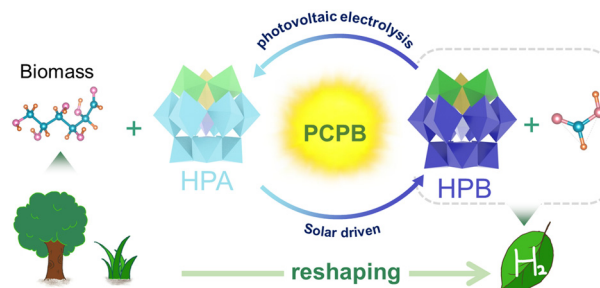
Jiayuan Zhu, Hongxiang Li,* Heng Wang, Yufei Gong, Yonghuan Li, Yetai Cheng, Yiling Hu, Jie Xiong, Jiayu Wang, Lei Meng, Jin Fang, Wenjun Zou, Yifan Wang, Yuqiang Liu, Cenqi Yan,* Yongfang Li and Pei Cheng*



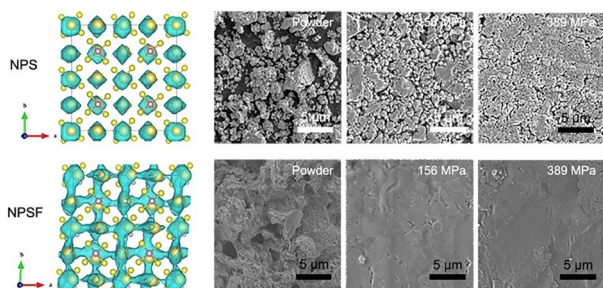
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Photon-coupled-proton buffers: reshaping solar-driven hydrogen and formic acid production with biomass

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*



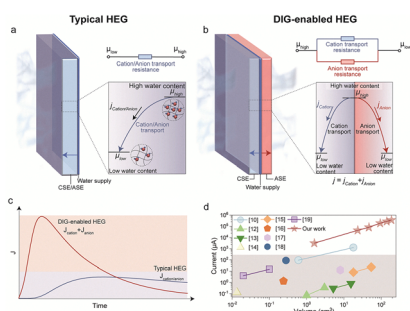
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A compactable $\text{Na}_{2.5}\text{PS}_{3.5}\text{F}_{0.5}$ electrolyte for solid-state sodium batteries

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

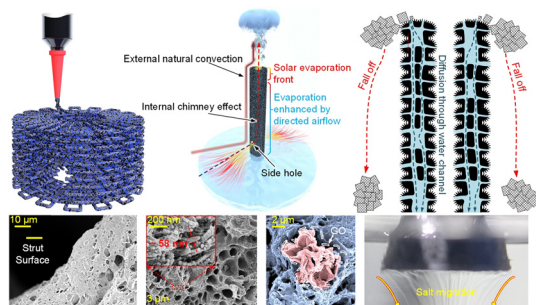
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Dual-interfacial gating unlocks bidirectional ionic flux for high-efficiency hydrovoltaic energy harvesting

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

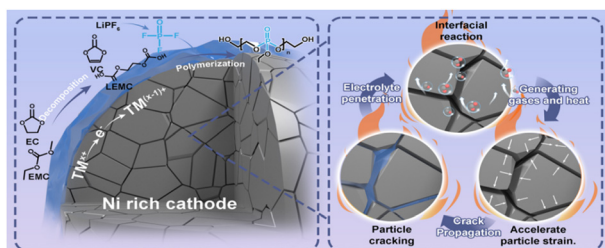
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A 3D-printed hierarchical chimney for high-yield solar evaporation

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

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

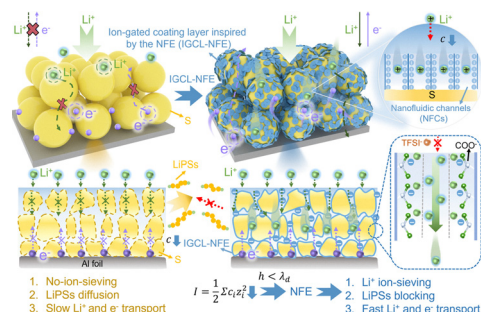
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Nanofluidic-enhanced high-mass-loading electrodes for energy-dense and high-rate lithium–sulfur batteries

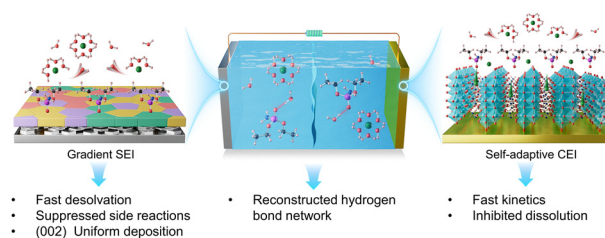
Chunlei Song, Lyuming Pan, Lu Chen, Yanxin Jiang, Hongji Pan, He Zhao, Nanshan Chen, Zhiqiang Yang, Liu Yang, Qing Yan, Xudong Peng,* Xiaohua Ma, Yiju Li* and Tianshou Zhao*



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

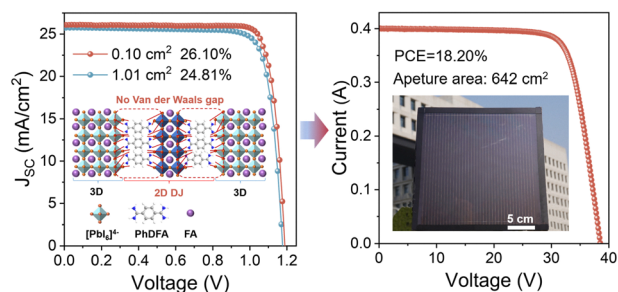
Quan Zong,* Xuelian Liu, Qilong Zhang,* Qiaoling Kang, Fan Wang, Guoying Wei and Anqiang Pan*



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Double amidino-mediated multiple hydrogen-bonded Dion–Jacobson perovskites enable oriented crystallization for efficient inverted FAPbI₃ solar cells and modules (642 cm²)

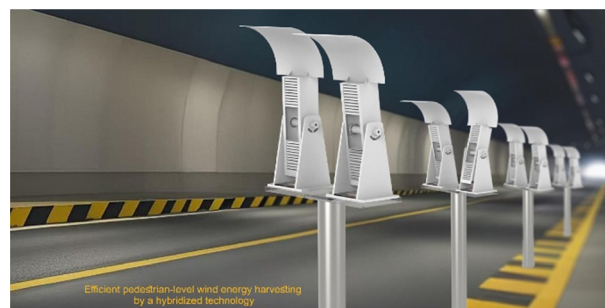
Zhiyuan Xu, Yuqin Zhou, Cheng Gong, Ke Wang, Zhihao Guo, Zhijun Li, Omar F. Mohammed* and Zhigang Zang*



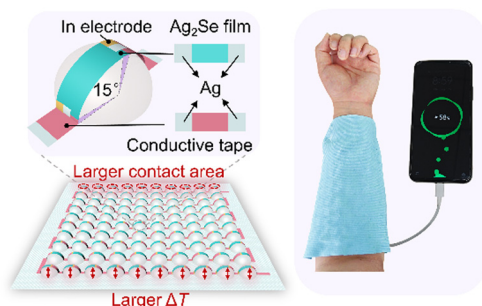
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Efficient pedestrian-level wind energy harvesting using a hybridized technology

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



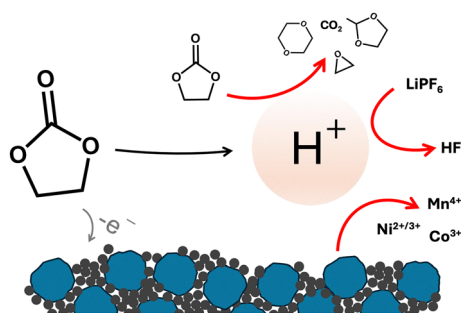
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Ultra-high-performance Ag₂Se-based flexible thermoelectric generator

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

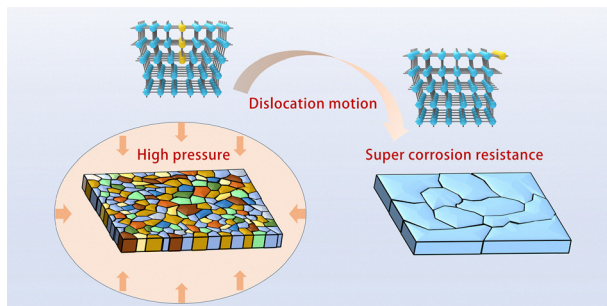
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An unwanted guest in the electrochemical oxidation of high-voltage Li-ion battery electrolytes: the life of highly reactive protons

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*

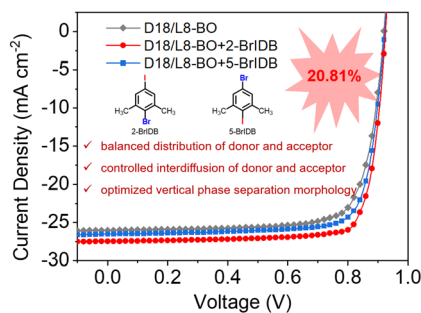
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Crystallization control and defect reduction for superior corrosion resistance of zinc anodes in aqueous zinc-ion batteries

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

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

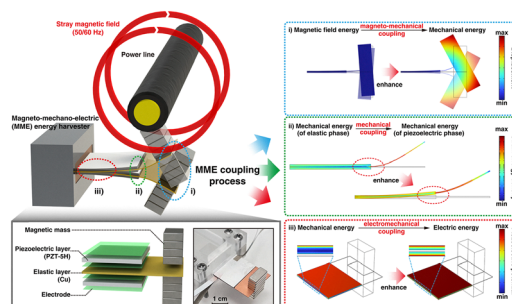
Haonan Chen, Min Deng,* Changjiang Li, Yuwei Duan, Chentong Liao, Zeqin Chen and Qiang Peng*



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

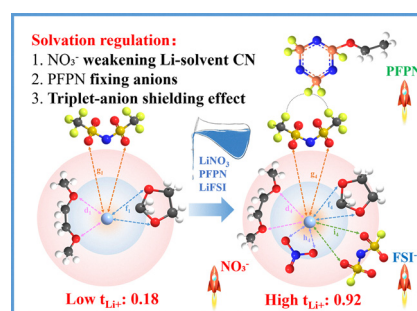
Yiwei Xu, Xin He, Xianfeng Liang, Heng Huang, Jingen Wu,* Dengfeng Ju, Jinghong Guo, Shuxiang Dong, Zhongqiang Hu* and Ming Liu*



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

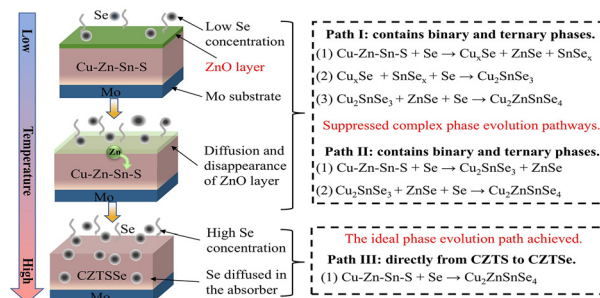
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Phase evolution regulation of CZTSSe absorbers via a ZnO blocking layer enables 14.45% efficient kesterite solar cells with low V_{OC} deficit

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*



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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*

