

Energy & Environmental Science

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See Mingxian Liu *et al.*, pp. 6540–6547. Image reproduced by permission of Mingxian Liu from *Energy Environ. Sci.*, 2025, **18**, 6540.



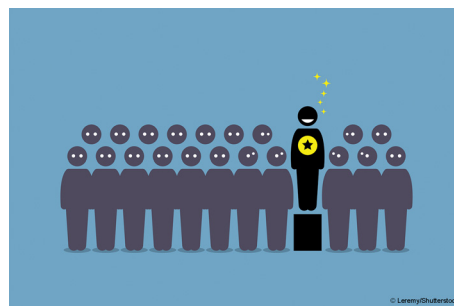
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See Daobin Yang, Yan Huang, Ziyi Ge *et al.*, pp. 6548–6556. Image reproduced by permission of Daobin Yang from *Energy Environ. Sci.*, 2025, **18**, 6548.

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Outstanding Reviewers for *Energy & Environmental Science* in 2024

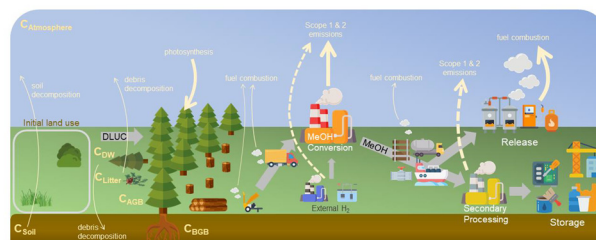


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CO₂e emissions of renewable methanol from forestry residues and conventional natural gas-based methanol: a comparative analysis

Miriam Blaine,* Paul Webley and Damon Honnery



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Fundamental questions
Elemental answers

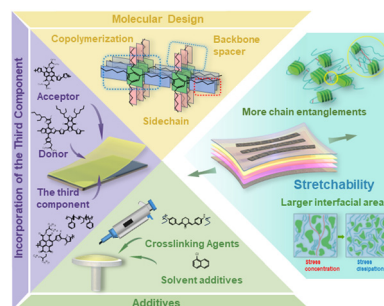


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Stretching the future: strategies and emerging trends in stretchable organic photovoltaic materials

Jingyu Zuo, Dexia Han, Huifeng Yao,
Vakhobjon Kuvondikov and Long Ye*



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The route for applied interfacial solar vapor generation: fundamental principles, device design, and practical application

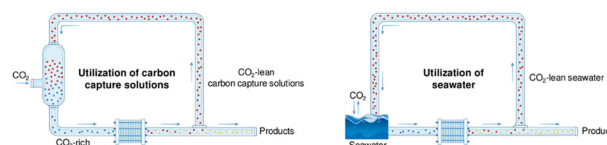
Bowen Liu, Yawei Yang,* Qi Zhao, Yihong Liu,
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Electrochemical reactors for the utilization of liquid-phase carbon species

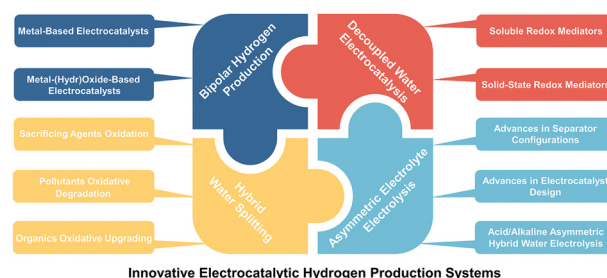
Jundong Wang, Pan Zhu, Hongling Qin, Kuichang Zuo,
Huazhang Zhao* and Zishuai Bill Zhang*



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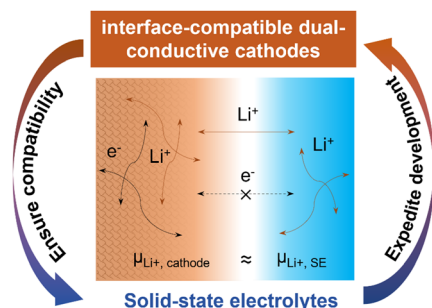
Recent advances in innovative systems for electrocatalytic hydrogen production

Liangshuang Fei, Hainan Sun,* Yu Li, Yuxing Gu,
Wei Zhou* and Zongping Shao*



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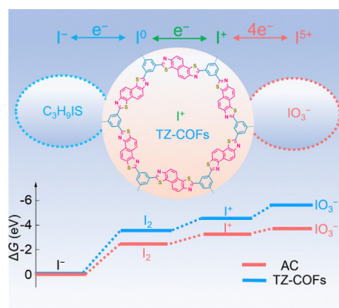


Solid-state electrolytes expediting interface-compatible dual-conductive cathodes for all-solid-state batteries

Shumin Zhang, Feipeng Zhao, Liang Li* and Xueliang Sun*

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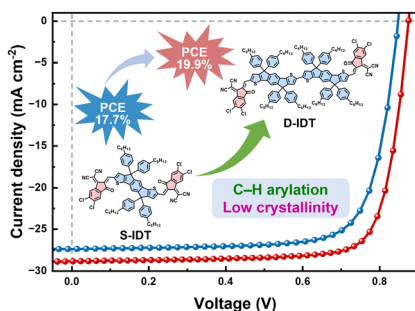
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High-conversion-efficiency and stable six-electron Zn-I₂ batteries enabled by organic iodide/thiazole-linked covalent organic frameworks

Wenyan Du, Qi Huang, Xunwen Zheng, Yaokang Lv, Ling Miao, Ziyang Song, Lihua Gan and Mingxian Liu*

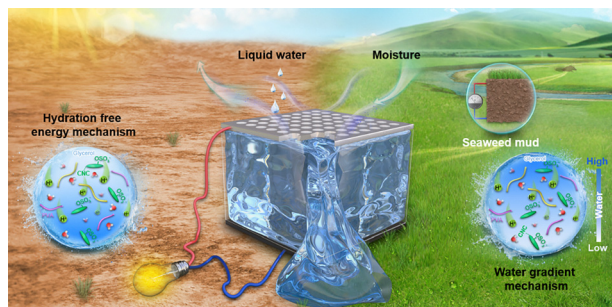
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Direct C–H arylation-derived low crystallinity guest acceptor for high efficiency organic solar cells

Pengfei Ding, Xugang Rong, Daobin Yang,* Xueliang Yu, Zhenxin Shao, Hongqian Wang, Xiaochun Liao, Xinyue Cao, Jie Wu, Lin Xie, Jintao Zhu, Fei Chen, Guo Chen, Yan Huang* and Ziyi Ge*

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Harnessing dual forms of water energy for all-weather high-performance electricity generation using amorphous slurry

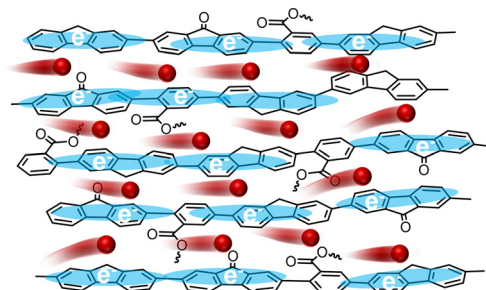
Wenna Ge, Quanmao Wei, Wenzong Li, Xu Wang, Chenguang Lu, Keke Zhang, Xuanqi Luo, Lemin Zhang, Yu Sun* and Yahua Liu*



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Ballistic ion transport through hierarchically-ordered-structure polymer binder

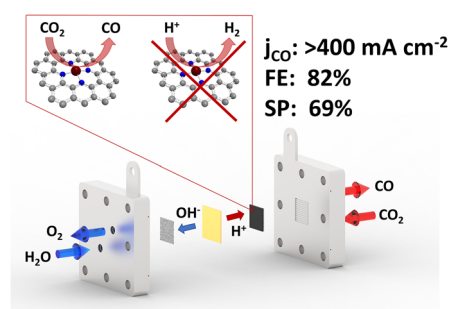
Defu Li, Chen Fang, Santosh Thapa, Hadas Sternlicht, Gi-Hyeok Lee, Faiz Ahmed, Xiuyu Jin, Qiusu Miao, Raynald Giovine, Wanli Yang, Andrew Minor, Yang-Tse Cheng and Gao Liu*



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Failure mode diagnosis and stabilization of an efficient reverse-bias bipolar membrane CO₂ to CO electrolyzer

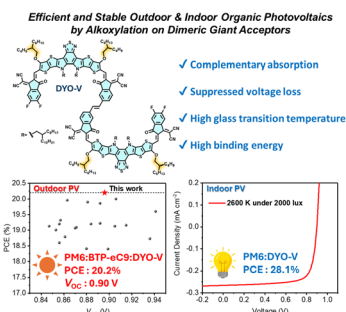
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Improved efficiency and stability of outdoor and indoor organic photovoltaics with suppressed voltage loss via alkoxylation on dimeric giant acceptors featured as supramolecular stabilizers

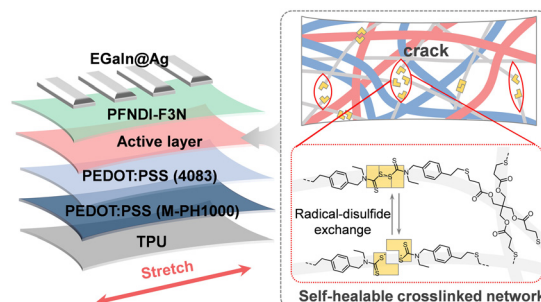
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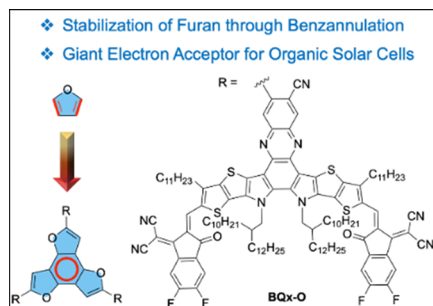
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Dynamic disulfide bond networks enable self-healable and mechanically resilient intrinsically stretchable organic solar cells

Wenyu Yang, Xuanang Luo, Jiankang Liu, Jingchuan Chen, Xuefei Wu, Zachary Fink, Chuqi Shi, Wenkai Zhong,* Cheng Wang and Lei Ying*



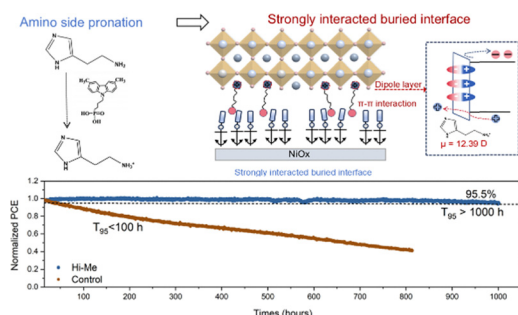
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Benzannulation of furan: a strategy for stable and high-performance furan-containing giant electron acceptor with efficiency exceeding 20%

Li Chen, Wenting Liang, Aleksandr Sergeev, Joshua Yuk Lin Lai, Xianghao Zeng, Kam Sing Wong, Jianquan Zhang,* Sai Ho Pun,* He Yan* and Huawei Hu*

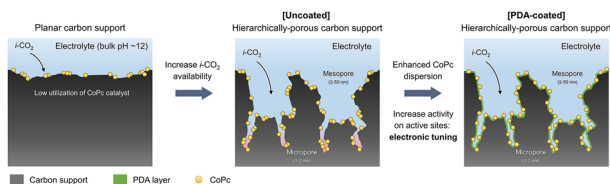
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Design of strong and weak intermolecular interactions to engineer buried interfaces in inverted wide-bandgap perovskite solar cells

Hui Li,* Davide Regaldo, Chun-Sheng Jack Wu, Mirko Prato, Antonella Treglia, Heyong Wang, Wolfram Hempel, Michele Sessolo, Yang Zhou, Andrea Olivati and Annamaria Petrozza*

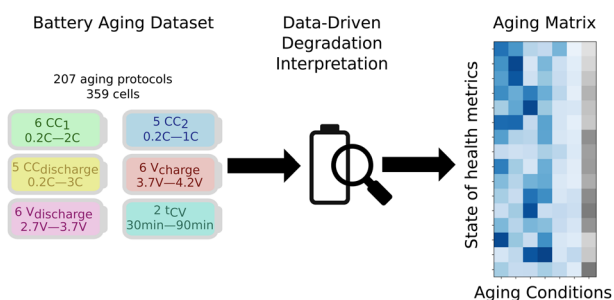
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Hierarchically porous carbon supports enable efficient syngas production in electrified reactive capture

H. Liu, H. Shin, X.-Y. Li, G. Su, P. Ou, Y. Wang, L. Chen, J. Yu, Y. Chen, R. Xia, G. Lee, K.-S. Lee, C. Yu, P. Wang, D. Choi, D. Zhou, C. Tian, I. Gereige, A. Alahmed, A. Jamal, O. K. Farha, Shannon W. Boettcher, Jennifer B. Dunn, Ke Xie* and Edward H. Sargent*

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Aging matrix visualizes complexity of battery aging across hundreds of cycling protocols

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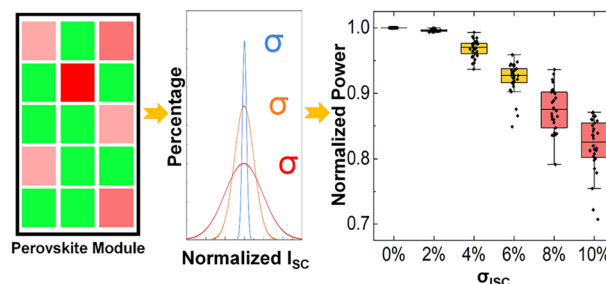


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The impact of current mismatch among individual cells on the performance of perovskite photovoltaic modules

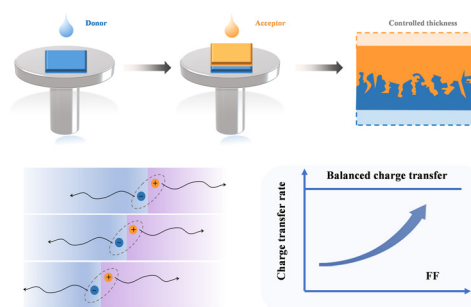
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Balanced electron and hole transfer behavior enabled approaching 19% efficiency in thick-film organic solar cells with improved fill factor

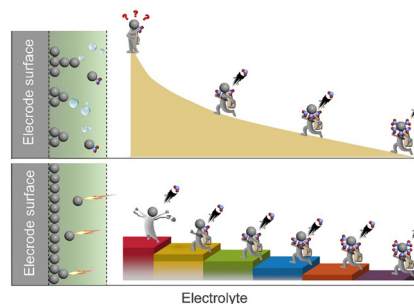
Zhongwei Ge, Jiawei Qiao, Xiaoming Li, Runzheng Gu, Wenqing Zhang, Bohao Song, Guanghao Lu, Wei Ma, Xiaotao Hao* and Yanming Sun*



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Graded desolvation accelerators based on high-entropy alloys with widely distributed d-band centers for high-performance aqueous zinc-ion batteries

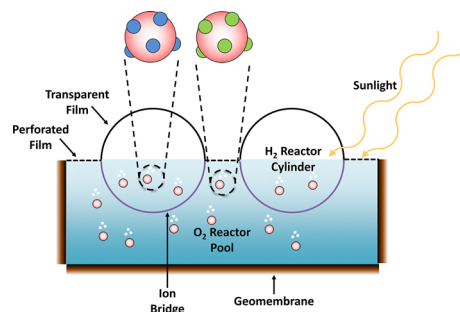
Yanxin Li, Hongfeng Jia, Lihua Fu, Usman Ali, Liang Zhao, Lingyu Zhang, Lu Li*, Yuebo Yang, Chungang Wang and Bingqiu Liu*



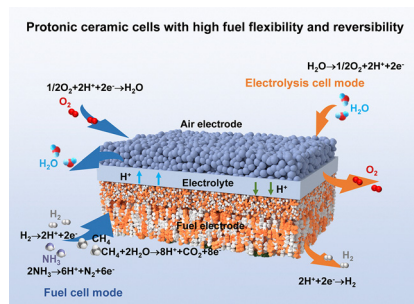
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Levelized cost and carbon intensity of solar hydrogen production via water splitting using a scalable and intrinsically safe photocatalytic Z-scheme raceway system

Stephanie Collins, Yaset Acevedo, Daniel V. Esposito, Rohini Bala Chandran, Shane Ardo, Brian D. James* and Hanna Breunig*



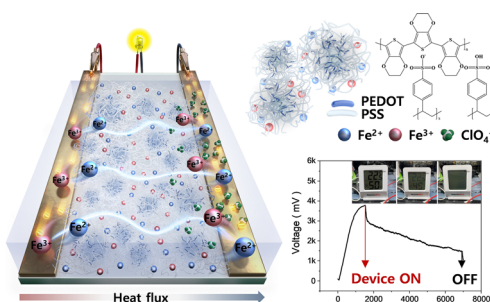
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Tailoring the structural durability and proton conductivity of electrolytes for highly fuel-flexible and reversible ceramic cells

Fan He, Yixuan Huang, Kang Xu, Yangsen Xu, Feng Zhu, Shihang Guo, Donglin Han, Haoliang Tao, Liangzhu Zhu, Kotaro Sasaki, YongMan Choi,* Zongping Shao* and Yu Chen*

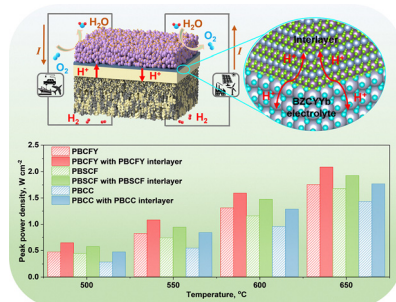
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Solid-state n-type thermodiffusion-assisted thermogalvanic cells with unprecedented thermal energy conversion

Jeong-Ye Baek, Hae Jin Seog and Sung-Yeon Jang*

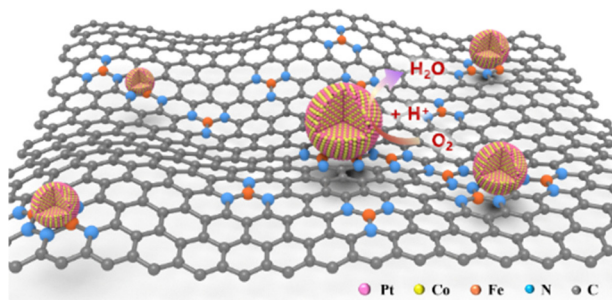
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A universal interfacial-engineering strategy for the air electrodes of reversible protonic ceramic electrochemical cells

Kang Xu, Yangsen Xu, Feng Zhu, Zhiwei Du, Xirui Zhang, Zhuo Cheng and Yu Chen*

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Neighboring iron single atomic sites boost PtCo intermetallic activity for high-durability ORR electrocatalysis

Kai Chen, Junheng Huang, Junxiang Chen, Jiyuan Gao, Zhiwen Lu, Xi Liu, Senchen Lan, Guohua Jia,* Suqin Ci* and Zhenhai Wen*

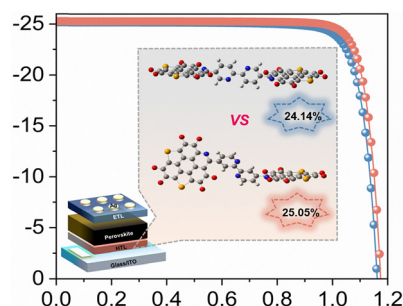


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Isomeric selenasumanene-pyridine-based hole-transporting materials for inverted perovskite solar cells

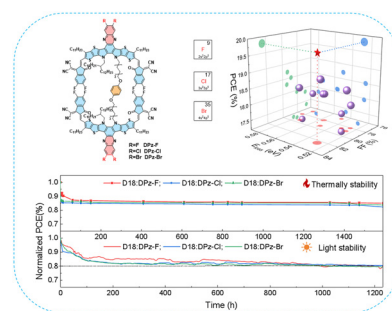
Muhammad Azam, Yao Ma, Boxue Zhang, Zhongquan Wan,* Xiangfeng Shao,* Haseeb Ashraf Malik, Xian Yang, Junsheng Luo* and Chunyang Jia*



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Halogen-substituted phenazine cores reduce energy losses and optimize carrier dynamics in tethered acceptors for 19.8% efficient and stable polymer solar cells

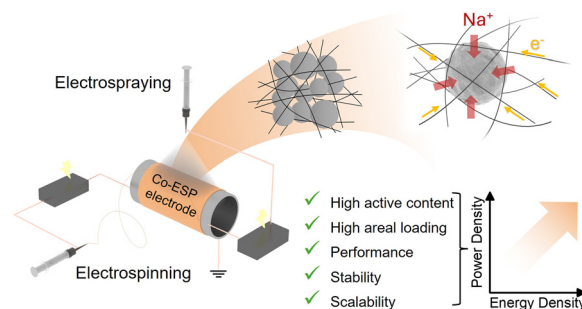
Liang Zeng, Rong Hu, Ming Zhang, Seunglok Lee, QingYuan Wang, ShiXin Meng, Qi Chen, Jiangang Liu, Lingwei Xue, Liwei Mi,* Changduk Yang and Zhi-Guo Zhang*



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High-areal-capacity Na-ion battery electrode with high energy and power densities by simultaneous electrospinning-spraying fabrication

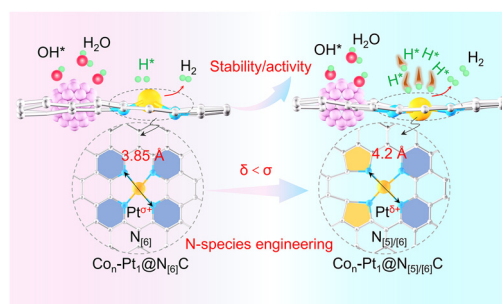
Mengzheng Ouyang,* Zhenyu Guo, Luis E Salinas-Farran, Yan Zhao, Siyu Zhao, Kaitian Zheng, Hao Zhang, Mengnan Wang, Guangdong Li, Feiran Li, Xinhua Liu, Shichun Yang, Fei Xie, Paul R. Shearing, Maria-Magdalena Titirici and Nigel P. Brandon



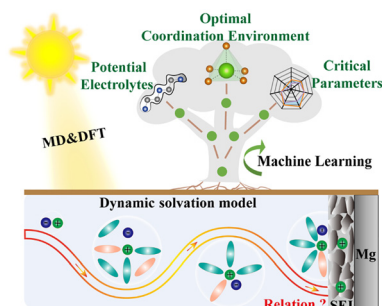
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Precision N-species engineering in Pt–N₄ via ring reconstruction towards efficient alkaline water electrolysis

Zhenyu Liu, Junyi Du, Jin Yang, Yuanyuan Yan, Yatong Wang, Meiling Wang,* Tian Wang,* Lixing Kang* and Dingsheng Wang



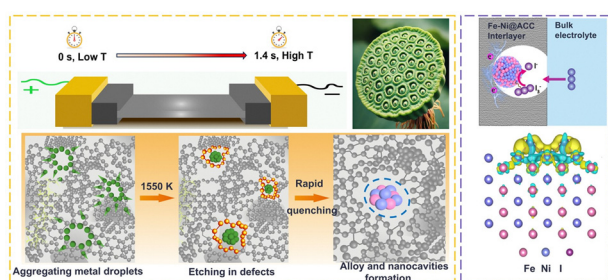
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Data-driven design of advanced magnesium-battery electrolyte *via* dynamic solvation models

Ruimin Li, Wanyu Zhao,* Zhengqing Fan, Meng Zhang, Jiayi Li, Rushuai Li, Zhijun Zuo* and Xiaowei Yang*

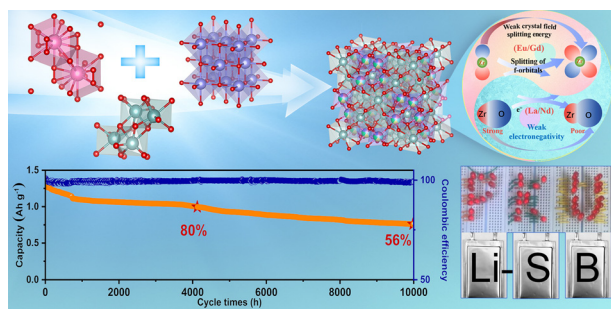
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Lotus seedpod-inspired electrocatalytic interlayers synthesized *via* ultrafast Joule heat treatment: overcoming polyiodide shuttle and enhancing redox kinetics in high-areal-capacity aqueous zinc–iodine batteries

Rong Tang, Chenxi Sun, Jin Yang, Siyang Li, Weiwei Meng, Minghao Zhang, Guanhong Chen, Jinbao Zhao* and Yang Yang*

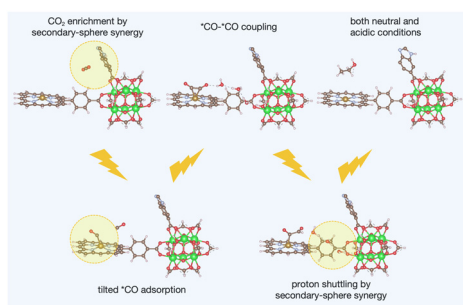
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Unconventional catalytic kinetics of dual field regulated pyrochlore-type high-entropy ceramics towards the Li_2S_4 intermediate

Lin Zhou, Handing Liu,* Ji-Xuan Liu, Xinrui Zhang, Yixi Yao, Ruirui Wang, Ziliang Chen,* Prashanth W. Menezes* and Guo-Jun Zhang*

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A bioinspired electrocatalyst for CO_2 electroreduction to ethanol *via* secondary-sphere synergy in Fe porphyrinic-based metal–organic frameworks

Kaian Sun, Shaohui Xie, Ping Guan, Zewen Zhuang, Xin Tan, Wei Yan,* Jiujun Zhang* and Chen Chen*



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Ionic potential modulation within and between layers of transition metal oxides towards ultrahigh-rate sodium storage

Ziming Wang, Riming Hu, Hao Chen, Yuxuan Ye, Qi Zhao, Zhiguo Du* and Shubin Yang*

