

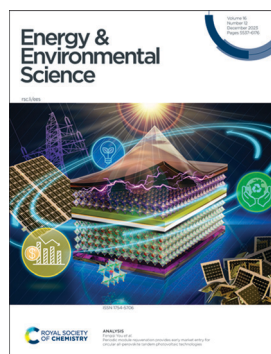
Energy & Environmental Science

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ISSN 1754–5706 CODEN EESNBY 16(12) 5537–6176 (2023)



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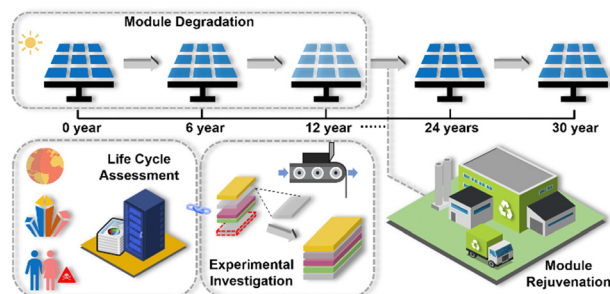
See Jiajiu Ye, Xu Pan et al., pp. 5792–5804. Image reproduced by permission of Xu Pan from *Energy Environ. Sci.*, 2023, 16, 5792.

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Periodic module rejuvenation provides early market entry for circular all-perovskite tandem photovoltaic technologies

Xueyu Tian, Bart Roose, Samuel D. Stranks and Fengqi You*

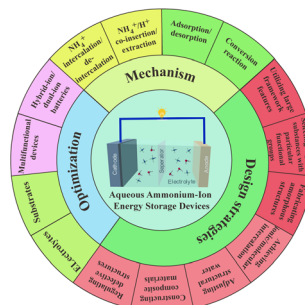


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Ammonium-ion energy storage devices for real-life deployment: storage mechanism, electrode design and system integration

Ying Sun, Bosi Yin,* Jinzhang Yang, Yaxi Ding, Mudi Li, Hui Li, Jiazhao Li, Baohua Jia, Siwen Zhang* and Tianyi Ma*



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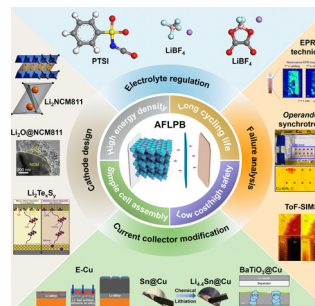


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Toward practical anode-free lithium pouch batteries

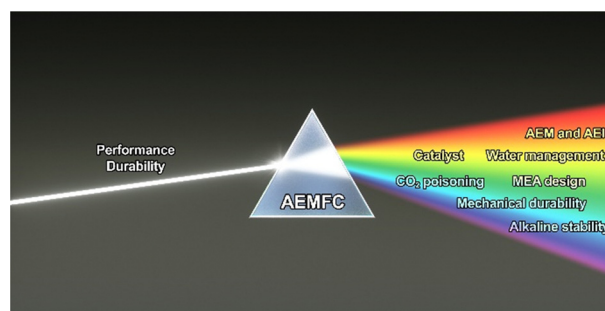
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Powering the hydrogen future: current status and challenges of anion exchange membrane fuel cells

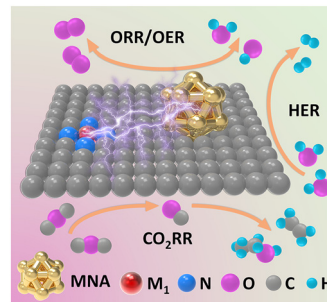
Jonghyun Hyun and Hee-Tak Kim*



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Single-atom sites combined with metal nano-aggregates for efficient electrocatalysis

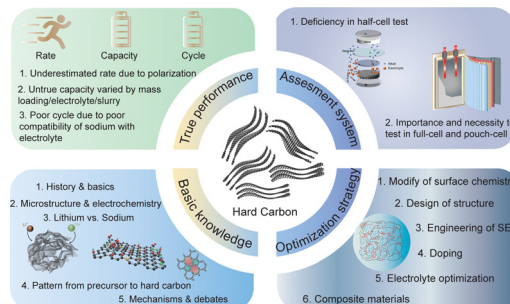
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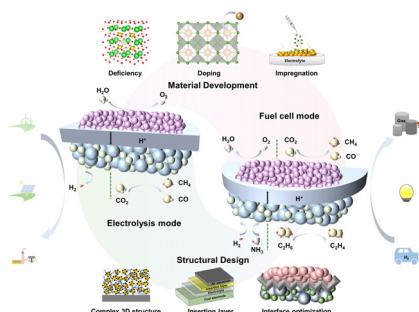
Reappraisal of hard carbon anodes for practical lithium/sodium-ion batteries from the perspective of full-cell matters

Niubu LeGe, Xiang-Xi He, Yun-Xiao Wang, Yaojie Lei, Ya-Xuan Yang, Jian-Tong Xu, Min Liu,* Xingqiao Wu,* Wei-Hong Lai* and Shu-Lei Chou*



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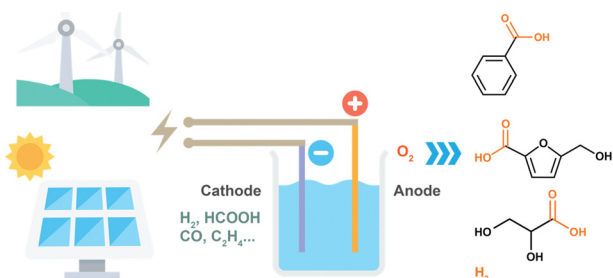


A review of progress in proton ceramic electrochemical cells: material and structural design, coupled with value-added chemical production

Yakun Wang, Yeqing Ling, Bin Wang, Guowei Zhai, Guangming Yang,* Zongping Shao,* Rui Xiao* and Tao Li*

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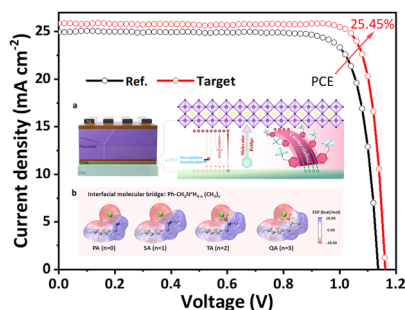


Screening potential anodic chemistry in lieu of the oxygen evolution reaction in electrolysis systems: the road to practical application

Hongwu Chen, Zhifang Liu, Hua Zhou, Xue Yang* and Wei Lin*

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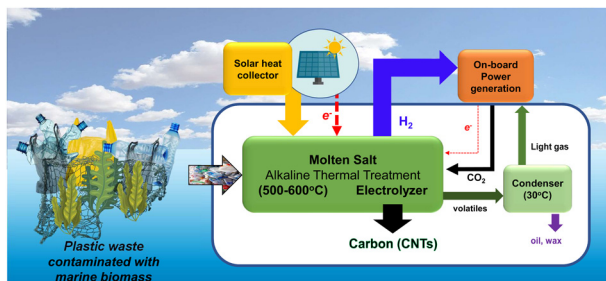
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Constructing robust heterointerfaces for carrier viaduct via interfacial molecular bridges enables efficient and stable inverted perovskite solar cells

Huifen Xu, Zheng Liang, Jiajiu Ye,* Yong Zhang, Zihan Wang, Hui Zhang, Changmao Wan, Guangkun Xu, Jie Zeng, Baomin Xu, Zhengguo Xiao, Thomas Kirchartz and Xu Pan*

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Hybrid thermo-electrochemical conversion of plastic wastes commingled with marine biomass to value-added products using renewable energy

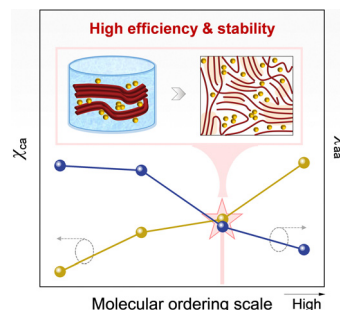
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Tuning the solution aggregation and molecular order for efficient and thermally stable polymer solar cells

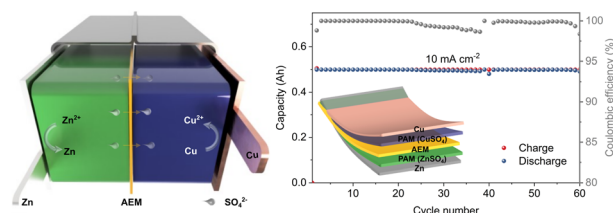
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Re-imagining the daniell cell: ampere-hour-level rechargeable Zn–Cu batteries

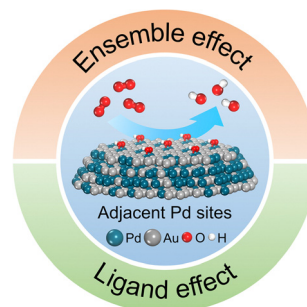
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Regulating and identifying the structures of PdAu alloys with splendid oxygen reduction activity for rechargeable zinc–air batteries

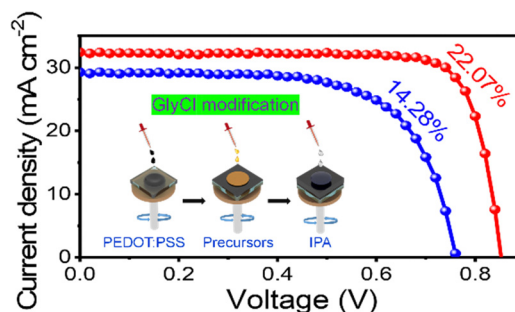
Sicong Qiao, Hongwei Shou, Wenjie Xu,* Yuyang Cao, Yuzhu Zhou, Zhouxin Wang, Xiaojun Wu, Qun He* and Li Song*



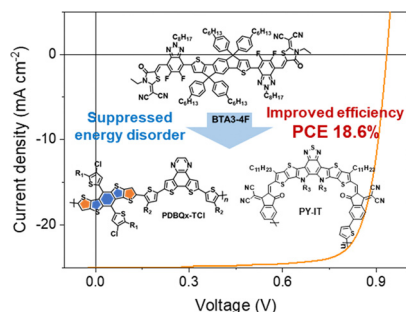
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Bottom-up modification boosts the performance of narrow-bandgap lead–tin perovskite single-junction and tandem solar cells

Wenjun Zhang, Lishuai Huang, Hongling Guan, Wenwen Zheng,* Zhe Li, Hongsen Cui, Shun Zhou, Jiwei Liang, Guang Li, Ti Wang, Pingli Qin,* Weijun Ke* and Guojia Fang*



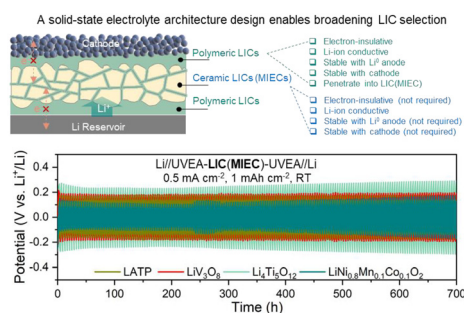
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Suppression of energy disorder by incorporating a small-molecule acceptor into binary all-polymer solar cells

Ye Xu, Jingwen Wang, Tao Zhang, Zhihao Chen, Kaihui Xian, Zi Li, Yang-Hui Luo, Long Ye, Xiaotao Hao, Huifeng Yao* and Jianhui Hou*

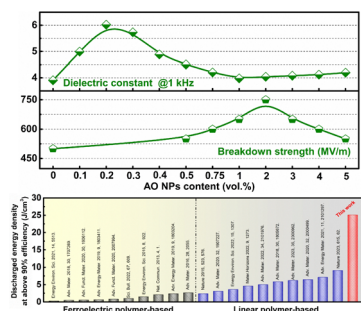
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Broadening solid ionic conductor selection for sustainable and earth-abundant solid-state lithium metal batteries

Peichao Zou, Chunyang Wang, Yubin He and Huolin L. Xin*

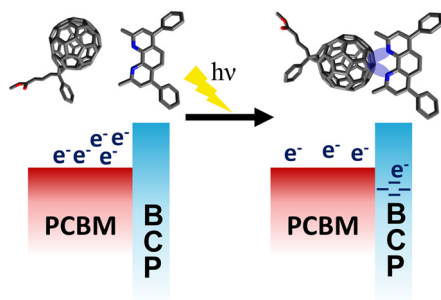
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Multilayer nanocomposites with ultralow loadings of nanofillers exhibiting superb capacitive energy storage performance

Yu Cheng, Yu Feng, Zhongbin Pan,* Peng Wang,* Jinjun Liu, Liang Liang, Jinhong Yu, Jiwei Zhai and Qing Wang*

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Charge transfer complex formation between organic interlayers drives light-soaking in large area perovskite solar cells

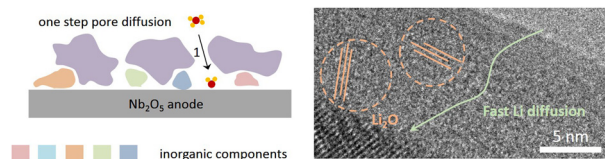
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Kinetic pathways of fast lithium transport in solid electrolyte interphases with discrete inorganic components

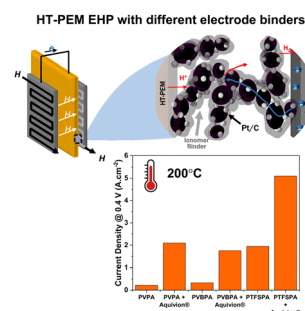
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Deconvoluting charge-transfer, mass transfer, and ohmic resistances in phosphonic acid–sulfonic acid ionomer binders used in electrochemical hydrogen pumps

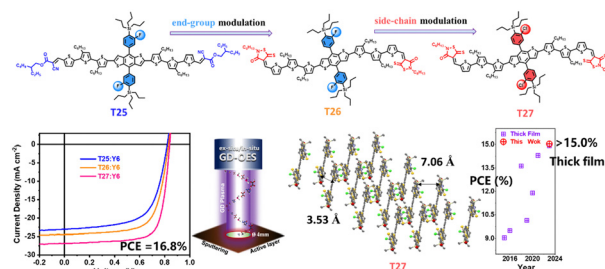
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Regulating the reorganization energy and crystal packing of small-molecule donors enables the high performance of binary all-small-molecule organic solar cells with a slow film growth rate

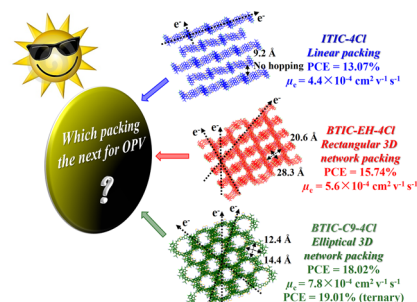
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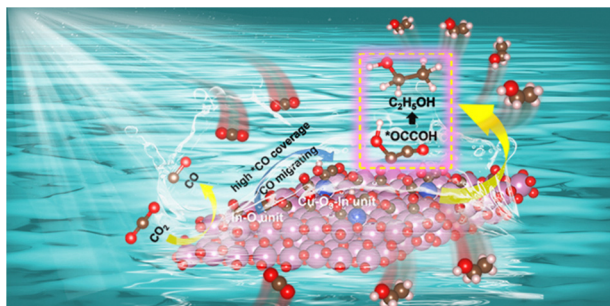
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Exploring the significance of packing modes and 3D framework sizes and utilizing three chlorine-mediated acceptors and the “like dissolves like” approach for achieving an efficiency over 19%

Hanjian Lai, Hui Chen, Zi-Yi Chen, Yongwen Lang, Yulin Zhu, Shi-Tong Zhang, Xue Lai, Pu Tan, Yuanzhu Zhang, Bing Yang, Gang Li and Feng He*



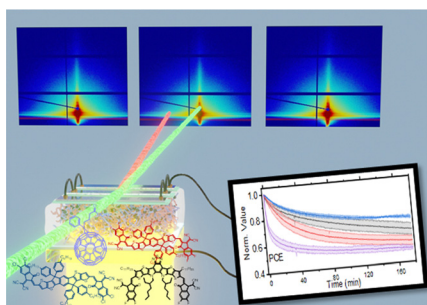
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Electronic modulation of a single-atom-based tandem catalyst boosts CO₂ photoreduction to ethanol

Shuaiqi Gong, Baoxin Ni, Xiaoyang He, Jianying Wang, Kun Jiang, Deli Wu, Yulin Min, Hexing Li* and Zuofeng Chen*

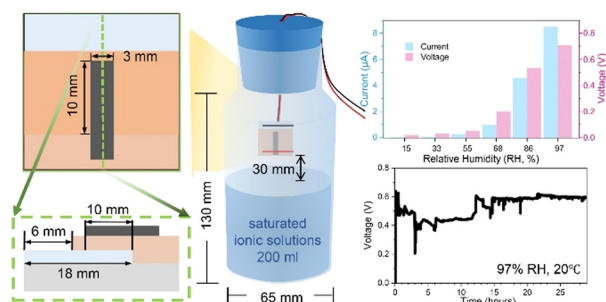
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Operando study of the influence of small molecule acceptors on the morphology induced device degradation of organic solar cells with different degrees of π - π stacking

Xinyu Jiang, Alexander J. Gillett, Tianle Zheng, Xin Song, Julian E. Heger, Kun Sun, Lukas V. Spanier, Renjun Guo, Suzhe Liang, Sigrid Bernstorff and Peter Müller-Buschbaum*

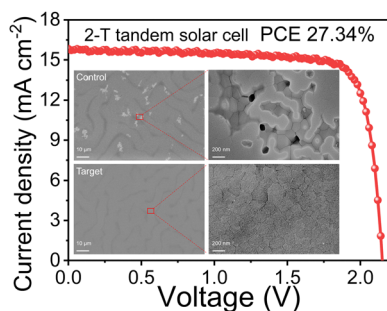
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Moisturized 2-dimensional halide perovskite generates a power density of 30 mW cm⁻³

Chunqing Ma, Yeon-Woo Choi, Donghyeon Kang, Bosung Kim, Seung-Gu Choi, Jin-Wook Lee, Sang-Woo Kim* and Nam-Gyu Park*

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Lead halide coordination competition at buried interfaces for low V_{OC} -deficits in wide-bandgap perovskite solar cells

Hongsen Cui, Lishuai Huang, Shun Zhou, Chen Wang, Xuzhi Hu, Hongling Guan, Shuxin Wang, Wenlong Shao, Dexin Pu, Kailian Dong, Jin Zhou, Peng Jia, Weizhong Wang,* Chen Tao,* Weijun Ke* and Guojia Fang*

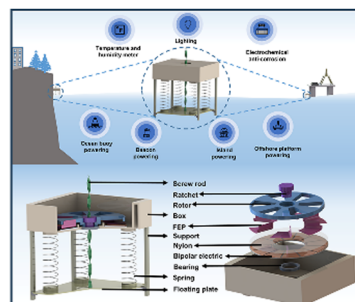


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Design of triboelectric nanogenerators featuring motion form conversion, motion rectification, and frequency multiplication for low-frequency ocean energy harvesting

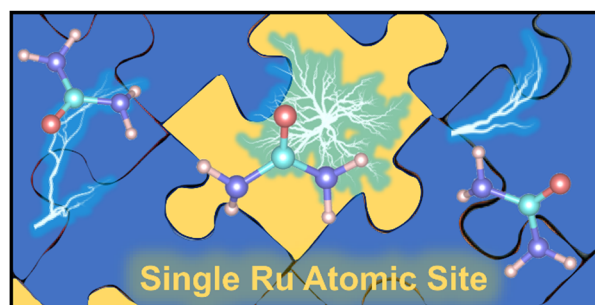
Wenyong Jiang, Chengjun Chen,* Congyu Wang, Jiawei Li, Maomi Zhao, Tengfei Xiang and Peng Wang*



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Balancing dynamic evolution of active sites for urea oxidation in practical scenarios

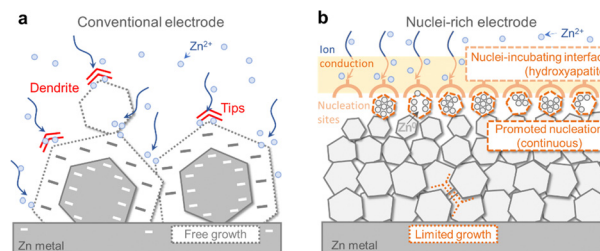
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A nuclei-rich strategy for highly reversible dendrite-free zinc metal anodes

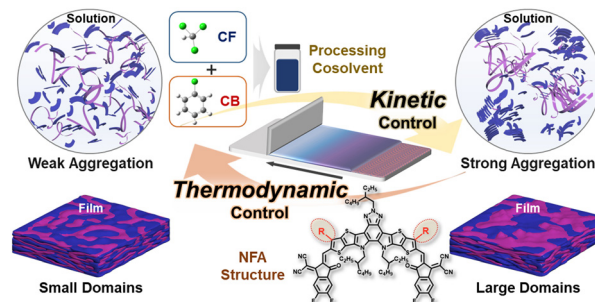
Qingli Zou, Zhuojian Liang, Wanwan Wang, Dejian Dong and Yi-Chun Lu*



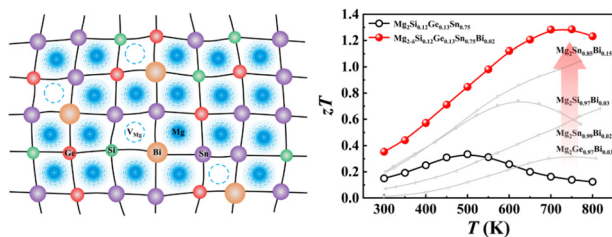
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Role of simultaneous thermodynamic and kinetic variables in optimizing blade-coated organic solar cells

Yongjoon Cho, Byoungkyu Lee, Sungwoo Jung, Seonghun Jeong, Jeewon Park, Geunhyung Park, Sangjin Yang and Changduk Yang*



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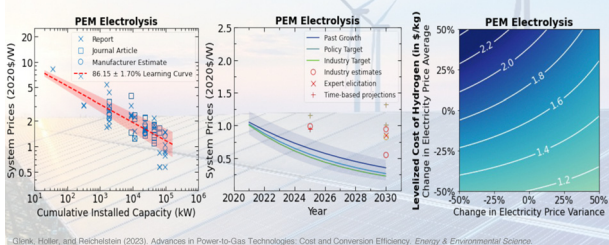
Adaptable sublattice stabilized high-entropy materials with superior thermoelectric performance

Haotian Gao, Kunpeng Zhao,* Hexige Wuliji,* Min Zhu, Beibei Xu, He Lin, Liting Fei, Hongyao Zhang, Zhengyang Zhou, Jingdan Lei, Heyang Chen, Shun Wan, Tian-Ran Wei and Xun Shi*

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Electrolyzers become much cheaper and more energy efficient

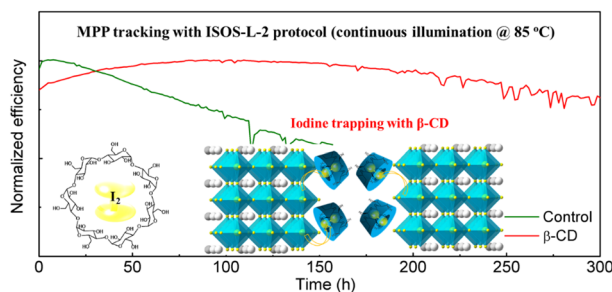
Life-cycle cost of electrolytic hydrogen production will likely approach but not reach \$1.0/kg by 2030



Advances in power-to-gas technologies: cost and conversion efficiency

Gunther Glenk,* Philip Holler and Stefan Reichelstein

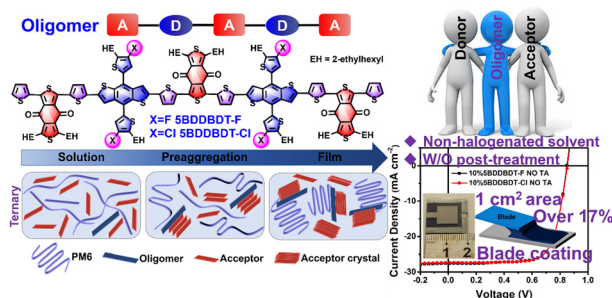
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Iodine-trapping strategy for light-heat stable inverted perovskite solar cells under ISOS protocols

Xiaodong Li,* Hui Yang, Acan Liu, Chunyan Lu, Haobo Yuan, Wenxiao Zhang and Junfeng Fang*

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Oligomeric semiconductors enable high efficiency open air processed organic solar cells by modulating pre-aggregation and crystallization kinetics

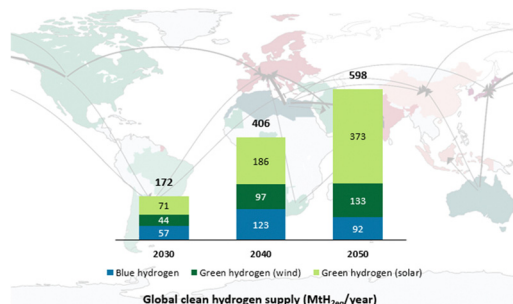
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Towards a resilient and cost-competitive clean hydrogen economy: the future is green

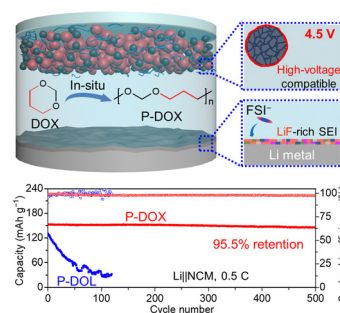
Behrang Shirizadeh,* Aurelien Ailleret, Augustin Guillon, Emmanuel Bovari, Nazem El Khatib, Sebastien Douguet, Charbel Bou Issa, Johannes Brauer and Johannes Trüby



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In situ polymerization of 1,3-dioxane as a highly compatible polymer electrolyte to enable the stable operation of 4.5 V Li-metal batteries

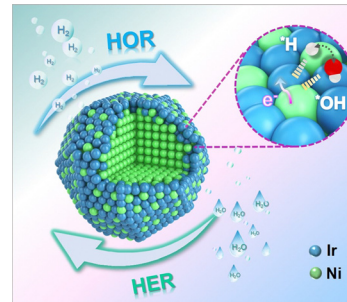
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Prominent electronic effect in iridium-alloy-skinned nickel nanoparticles boosts alkaline hydrogen electrocatalysis

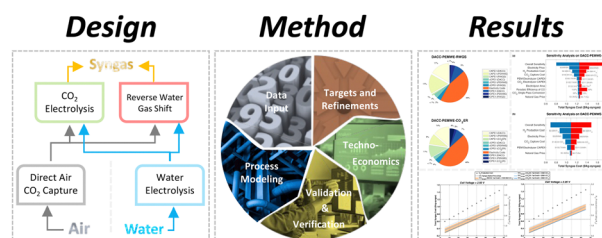
Jie Xu, Xuyan Wang, Xinnan Mao, Kun Feng, Jiabin Xu, Jun Zhong,* Lu Wang,* Na Han* and Yanguang Li*



6127

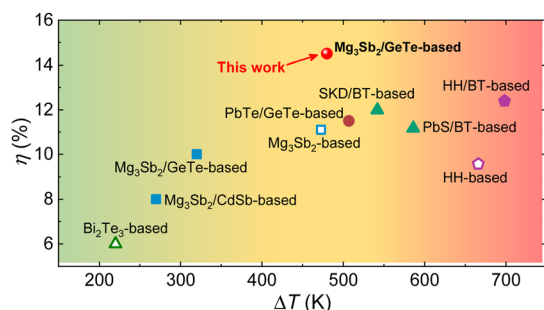
Evaluating the techno-economic potential of defossilized air-to-syngas pathways

Hussain M. Almajed, Omar J. Guerra, Wilson A. Smith, Bri-Mathias Hodge* and Ana Somoza-Tornos*



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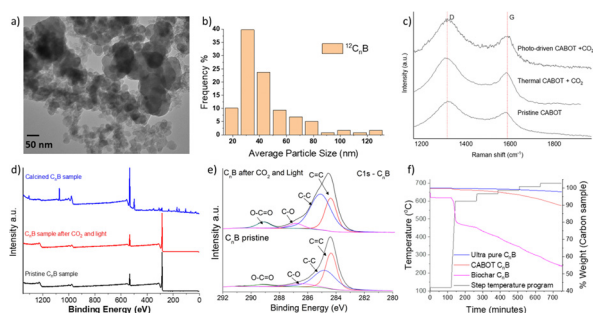
6147



Realizing an excellent conversion efficiency of 14.5% in the $\text{Mg}_3\text{Sb}_2/\text{GeTe}$ -based thermoelectric module for waste heat recovery

Xiaofang Li, Chen Chen,* Li Yin, Xinyu Wang, Jun Mao, Feng Cao* and Qian Zhang*

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Carbon photochemistry: towards a solar reverse boudouard refinery

Camilo J. Viasus Pérez,* Juan Manuel Restrepo-Florez, Jessica Ye, Nhat Truong Nguyen, Athanasios A. Tountas, Rui Song, Chengliang Mao, Andrew Wang, Abdelaziz Gouda, Samantha Corapi, Shufang Ji, Hamish MacLeod, Jiaze Wu, Alán Aspuru-Guzik, Christos T. Maravelias and Geoffrey A. Ozin*

CORRECTIONS

6168

Correction: Solid-state cooling: thermoelectrics

Yongxin Qin, Bingchao Qin,* Dongyang Wang, Cheng Chang and Li-Dong Zhao*

6170

Correction: From the Birkeland–Eyde process towards energy-efficient plasma-based NO_x synthesis: a techno-economic analysis

Kevin H. R. Rouwenhorst,* Fatme Jardali,* Annemie Bogaerts* and Leon Lefferts*

