

# Energy & Environmental Science

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### Cover

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### Inside cover

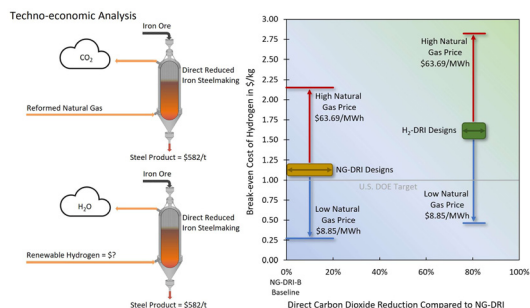
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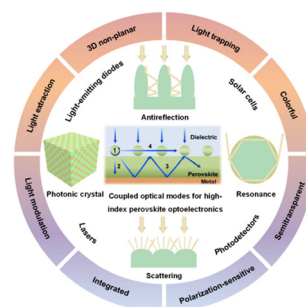


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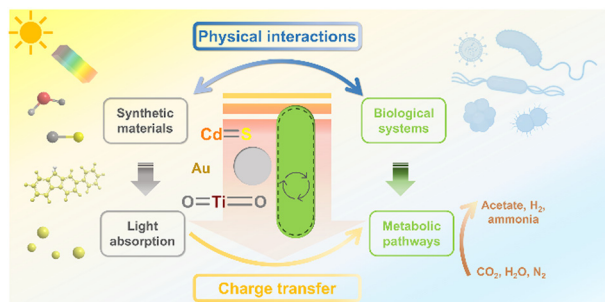
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## PERSPECTIVES

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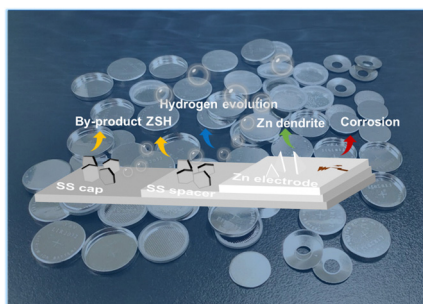


### Making the connections: physical and electric interactions in biohybrid photosynthetic systems

Ying Yang, Lu-Ning Liu, Haining Tian, Andrew I. Cooper\* and Reiner Sebastian Sprick\*

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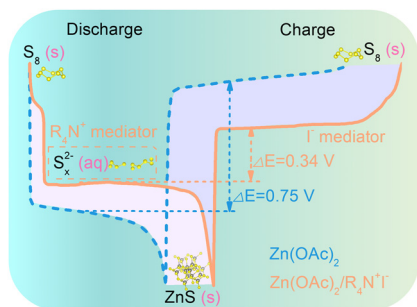
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### The pitfalls of using stainless steel (SS) coin cells in aqueous zinc battery research

Gang Wu, Yang Yang, Ruijie Zhu, Wuhai Yang, Huijun Yang\* and Haoshen Zhou\*

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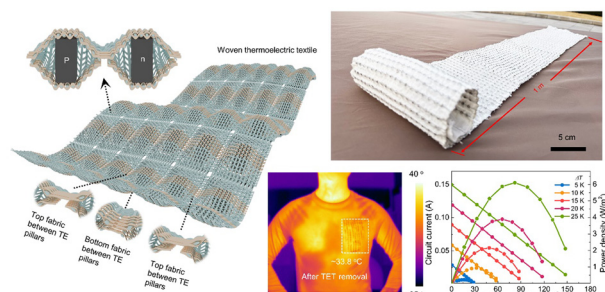


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Wanlong Wu, Sibowang, Lu Lin, Hua-Yu Shi and Xiaoqi Sun\*

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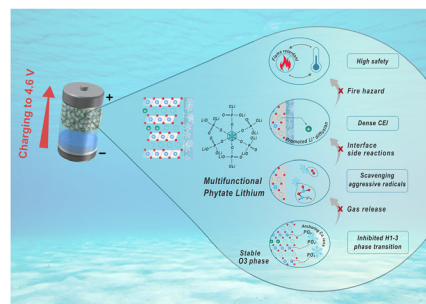
Yuanyuan Jing, Jun Luo, Xue Han, Jiawei Yang, Qiulin Liu, Yuanyuan Zheng, Xinyi Chen, Fuli Huang, Jiawen Chen, Qinliang Zhuang, Yanan Shen, Haisheng Chen, Huaizhou Zhao,\* G. Jeffrey Snyder, Guodong Li,\* Ting Zhang\* and Kun Zhang\*



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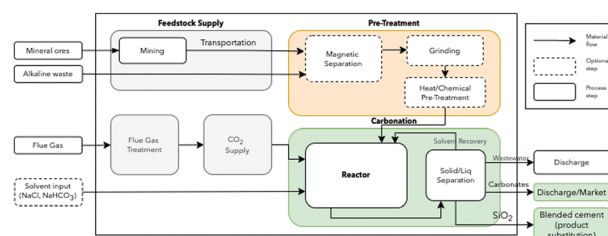
Fangchang Zhang, Ning Qin, Yingzhi Li, Hao Guo, Qingmeng Gan, Chun Zeng, Zhiqiang Li, Zhenyu Wang, Ruo Wang, Guiyu Liu, Shuai Gu, He Huang, Zelin Yang, Jun Wang, Yonghong Deng and Zhouguang Lu\*



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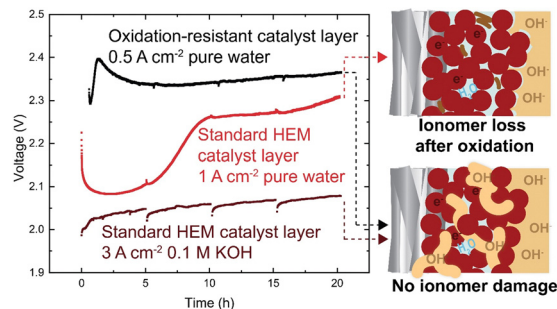
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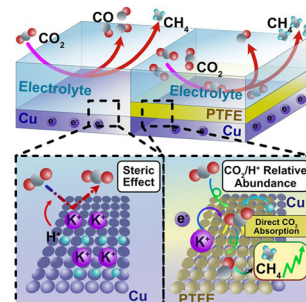
Grace A. Lindquist, Jamie C. Gaitor, Willow L. Thompson, Valerie Brogden, Kevin J. T. Noonan and Shannon W. Boettcher\*



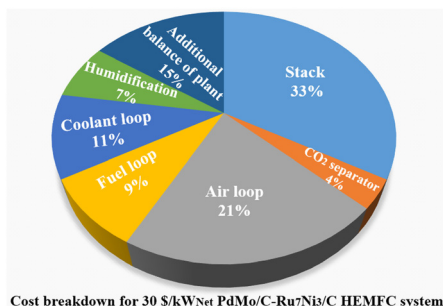
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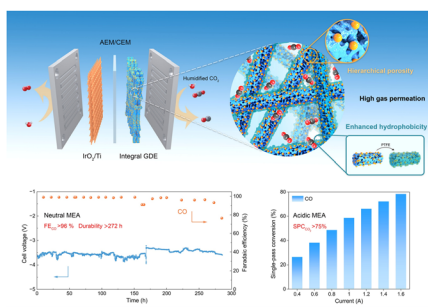
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## Material and system development needs for widespread deployment of hydroxide exchange membrane fuel cells in light-duty vehicles

Reza Abbasi,\* Brian P. Setzler and Yushan Yan\*

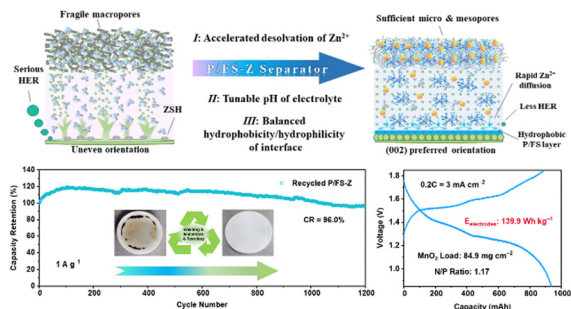
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Min Wang, Ling Lin, Zhangyi Zheng, Zhenyang Jiao, Wei Hua, Guowei Wang, Xiaoxing Ke, Yuebin Lian, Fenglei Lyu,\* Jun Zhong, Zhao Deng and Yang Peng\*

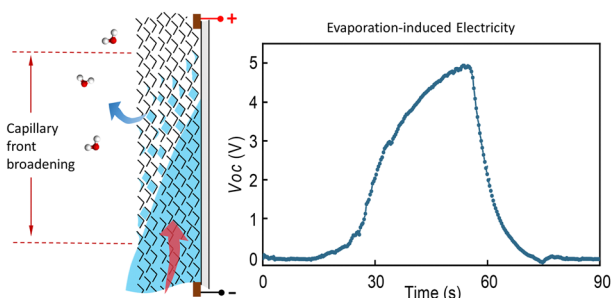
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Lingbo Yao, Gege Wang, Feifan Zhang, Xiaowei Chi\* and Yu Liu\*

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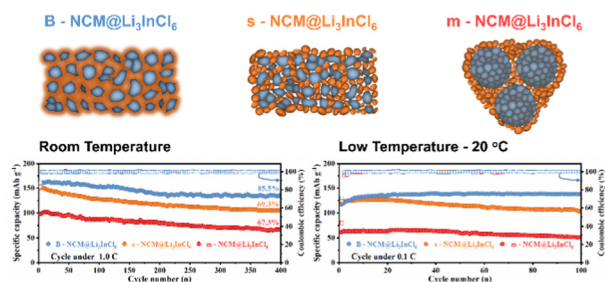
Wei Deng, Gu Feng, Luxian Li, Xiao Wang, Huan Lu, Xuemei Li, Jidong Li, Wanlin Guo\* and Jun Yin\*



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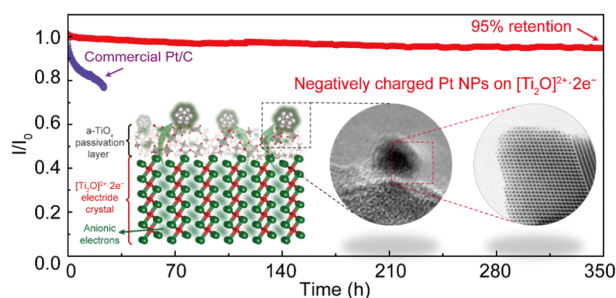
Zichen Zhang, Wanqing Jia, Yu Feng, Ruopeng Ai, Jialu Yu, Xiaofei Bie, Ximin Zhai, Tao Jiang, Shiyu Yao\* and Fei Du\*



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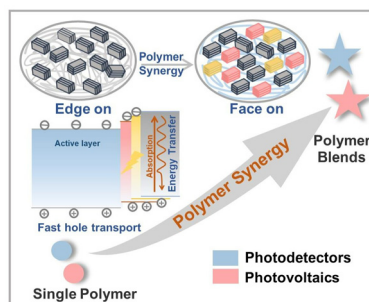
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### Polymer synergy for efficient hole transport in solar cells and photodetectors

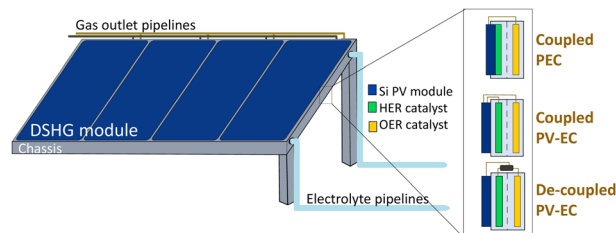
Junwei Liu, Zihua Zhou, Yuping Gao, Yin Wu, Jingjing Wang, Haojin Li, Qian Wang, Kangkang Zhou, Kaihu Xian, Yu Chen, Wenchao Zhao, Fei Zhang, Hang Yin, Yongsheng Liu,\* Kui Zhao,\* Jinyue Yan\* and Long Ye\*



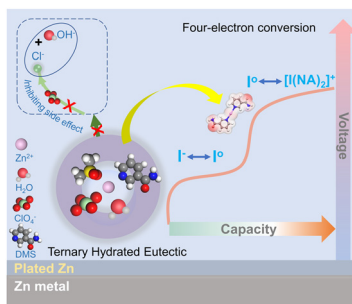
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### Comparative techno-economic analysis of different PV-assisted direct solar hydrogen generation systems

Astha Sharma,\* Thomas Longden, Kylie Catchpole and Fiona J. Beck



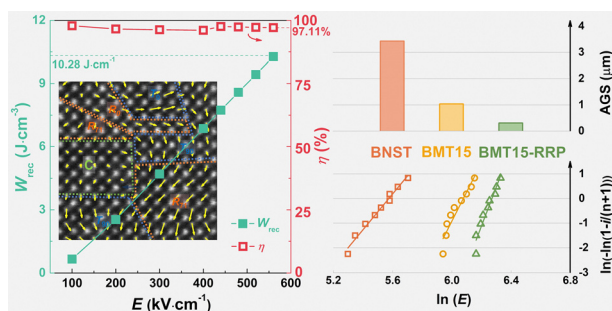
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### Designing ternary hydrated eutectic electrolyte capable of four-electron conversion for advanced Zn-I<sub>2</sub> full batteries

Wenda Li, Hengyue Xu, Hongyi Zhang, Facai Wei, Tingting Zhang, Yong Wu, Lingyan Huang, Jianwei Fu, Chengbin Jing, Jiangong Cheng and Shaohua Liu\*

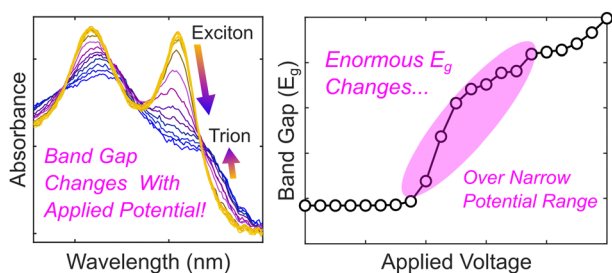
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### A high-temperature performing and near-zero energy loss lead-free ceramic capacitor

Da Li, Diming Xu,\* Weichen Zhao, Max Avdeev, Hongmei Jing, Yan Guo, Tao Zhou, Wenfeng Liu, Dong Wang\* and Di Zhou\*

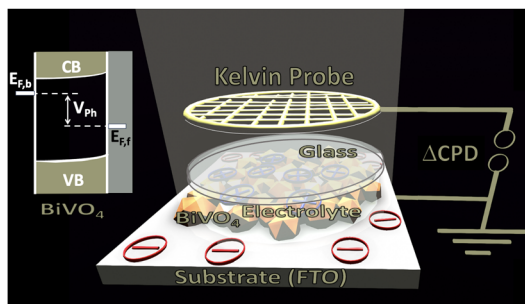
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Rafael Almaraz, Thomas Sayer, Justin Toole, Rachelle Austin, Yusef Farah, Nicholas Trainor, Joan M. Redwing, Amber Krummel, Andrés Montoya-Castillo and Justin Sambur\*

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### Contactless measurement of the photovoltage in BiVO<sub>4</sub> photoelectrodes

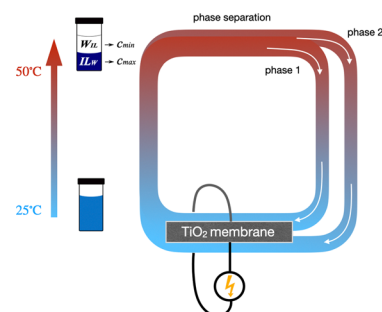
Sahar Daemi, Anna Kundmann, Kathleen Becker, Peter Cendula and Frank E. Osterloh\*



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## Waste heat recovery using thermally responsive ionic liquids through TiO<sub>2</sub> nanopore and macroscopic membranes

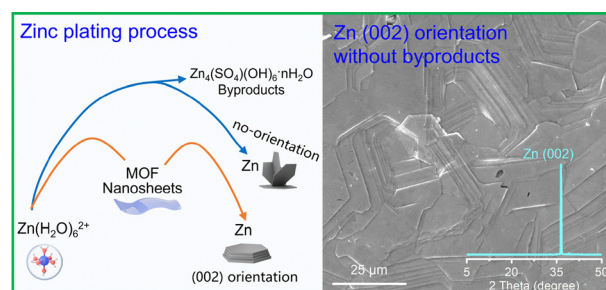
Marc Pascual, Nicolas Chapuis, Soufiane Abdelghani-Idrissi, Marie-Caroline Jullien, Alessandro Siria and Lydéric Bocquet\*



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## MOF nanosheets as ion carriers for self-optimized zinc anodes

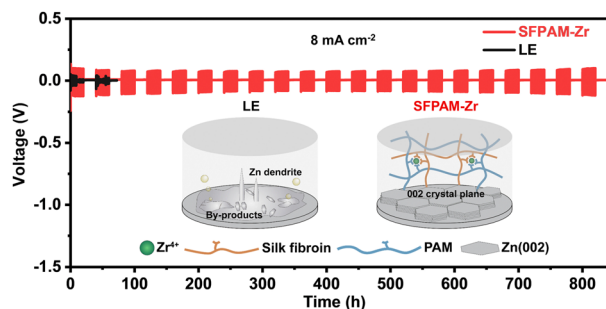
Hanmiao Yang, Kaiyue Zhu,\* Weili Xie, Liming Zhang, Weikang Jiang, Weijian Li, Zhengsen Wang and Weishen Yang\*



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## Manipulating Zn 002 deposition plane with zirconium ion crosslinked hydrogel electrolyte toward dendrite free Zn metal anodes

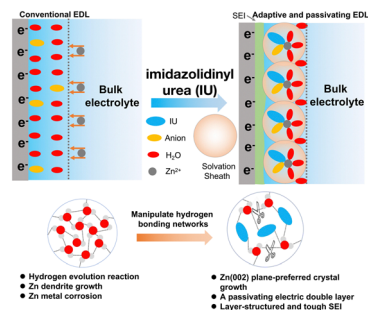
Yong Cheng, Yucong Jiao\* and Peiyi Wu\*



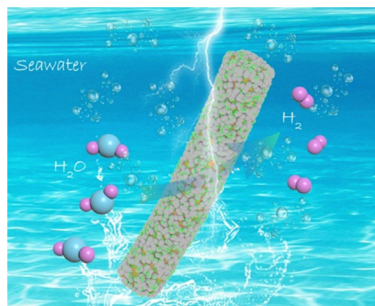
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## Preferred planar crystal growth and uniform solid electrolyte interfaces enabled by anion receptors for stable aqueous Zn batteries

Xinyu Wang, Yiran Ying, Xiaomin Li, Shengmei Chen,\* Guowei Gao, Haitao Huang\* and Longtao Ma\*



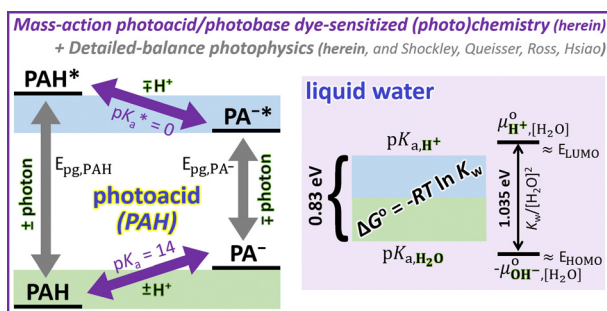
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### An ultra-low Pt metal nitride electrocatalyst for sustainable seawater hydrogen production

Huashuai Hu, Zhaorui Zhang, Yaowen Zhang, Tiju Thomas, Haiying Du, Keke Huang, J. Paul Attfield and Minghui Yang\*

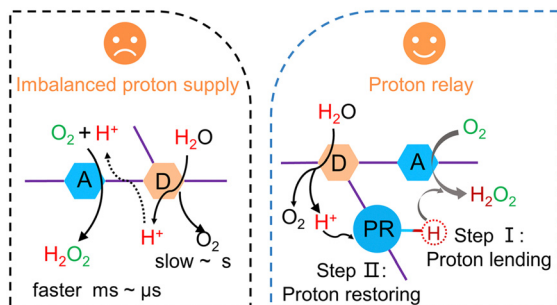
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### Detailed-balance limits for sunlight-to-protonic energy conversion from aqueous photoacids and photobases based on reversible mass-action kinetics

Gabriel S. Phun, Rohit Bhide and Shane Ardo\*

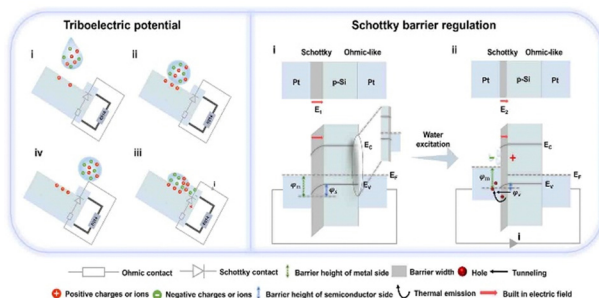
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### Proton reservoirs in polymer photocatalysts for superior H<sub>2</sub>O<sub>2</sub> photosynthesis

Bo Sheng, Yangen Xie, Qi Zhao, Hua Sheng\* and Jincai Zhao

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### A constant-current generator *via* water droplets driving Schottky diodes without a rectifying circuit

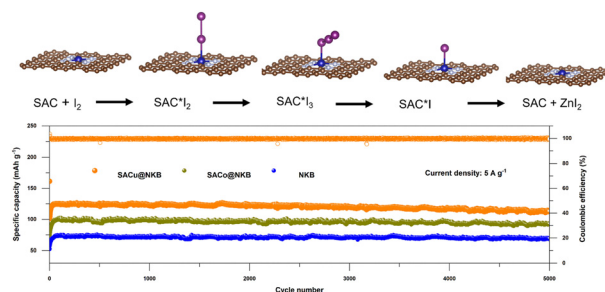
Yahui Li, Qi Zhang, Yuhong Cao, Zhipeng Kang, Han Ren, Zhiyuan Hu, Mang Gao, Xiaole Ma, Jinyuan Yao, Yan Wang, Congchun Zhang, Guifu Ding, Junshan Liu, Jiming Bao,\* Hui Wang\* and Zhuoqing Yang\*



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### Single atom catalysts for triiodide adsorption and fast conversion to boost the performance of aqueous zinc–iodine batteries

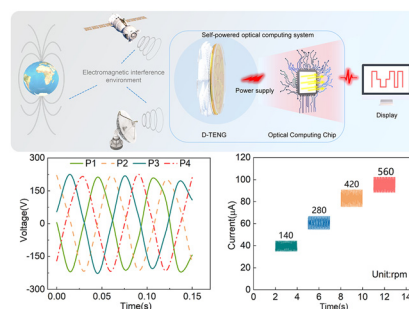
Fuhua Yang, Jun Long, Jodie A. Yuwono, Huifang Fei, Yameng Fan, Peng Li, Jinshuo Zou, Junnan Hao, Sailin Liu, Gemeng Liang, Yanqiu Lyu, Xiaobo Zheng, Shiyong Zhao,\* Kenneth Davey and Zaiping Guo\*



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### High power and low crest factor of direct-current triboelectric nanogenerator for self-powered optical computing system

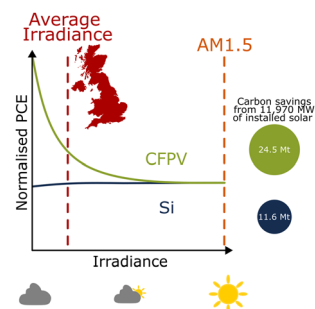
Hongyun Li, Shaobo Lv, Binbin Zhang, Bochao Liu, Jin Yang, Hengyu Guo, Yiyuan Xie\* and Zhiming Lin\*



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### Decarbonising electrical grids using photovoltaics with enhanced capacity factors

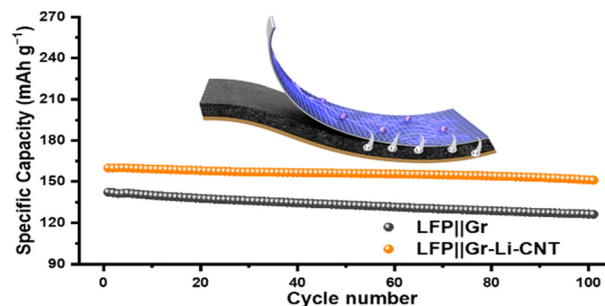
Cai Williams, Hannes Michaels, Andrew F. Crossland, Zongtai Zhang, Natasha Shirshova, Roderick C. I. MacKenzie, Hongjian Sun, Jeff Kettle, Marina Freitag and Christopher Groves\*



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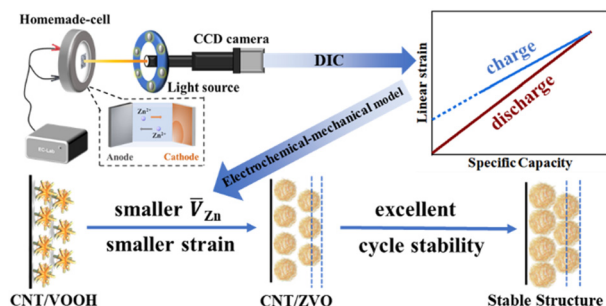
### A large-area lithium metal–carbon nanotube film for precise contact prelithiation in lithium-ion batteries

Chao Wang,\* Fangzhou Yang, Wang Wan, Shihe Wang, Yongyi Zhang,\* Yunhui Huang\* and Ju Li\*



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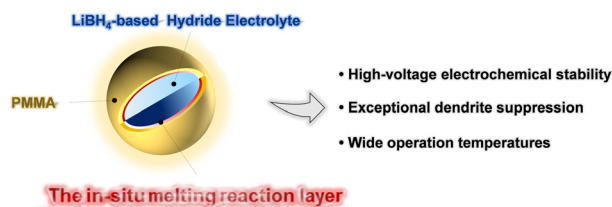
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### Operando chemical strain analysis of CNT/VOOH during zinc insertion in Zn-ion batteries

Xiuling Shi, Yuchuan Sun, Yibo Weng, Xiaoying Long, Tongxing Lei, Jianli Zhou, Deping Li, Jin Zhang, Yan Huang,\* Lijie Ci, Kaikai Li\* and Tong-Yi Zhang\*

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### A wide temperature 10 V solid-state electrolyte with a critical current density of over 20 mA cm<sup>-2</sup>

Yiqi Wei, Zhenglong Li, Zichong Chen, Panyu Gao, Mingxi Gao, Chenhui Yan, Zhijun Wu, Qihang Ma, Yinzhu Jiang, Xuebin Yu, Xin Zhang, Yongfeng Liu, Yaxiong Yang,\* Mingxia Gao, Wenping Sun, Zhiguo Qu, Jian Chen\* and Hongge Pan\*

## CORRECTION

4693

### Correction: Scalable manufacturing of a durable, tailorable, and recyclable multifunctional woven thermoelectric textile system

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