

# Energy & Environmental Science

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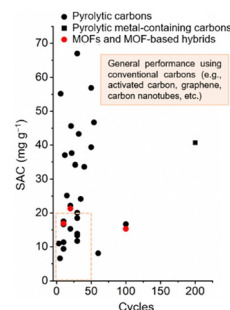
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## OPINION

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### Metal–organic framework derivatives for promoted capacitive deionization of oxygenated saline water

Xingtao Xu,\* Miharu Eguchi, Yusuke Asakura, Likun Pan and Yusuke Yamauchi\*

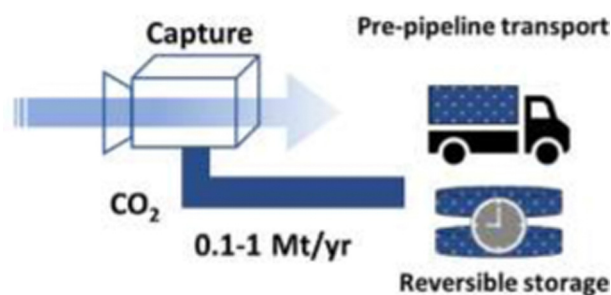


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## Inorganic non-carbon supported Pt catalysts and synergetic effects for oxygen reduction reaction

## Advances in Ag<sub>2</sub>Se-based thermoelectrics from materials to applications

The diagram is a circular flow chart illustrating the relationship between various properties of thermoelectric materials. The outer ring lists properties: Mechanical strength, Carrier mobility, Phase transition, Thermal stability, Thermal conductivity, Output power density, Flexibility, and Anisotropy. The inner ring lists: Alloy and Dope, Stoichiometry ratio, Secondary phases, Superiority, Band structures, Thermodynamics, Crystal structures, and In situ polymerization. The center features a diamond shape labeled 'Fundamental' with 'Phase' (top), 'Films' (left), and 'Devices' (right).

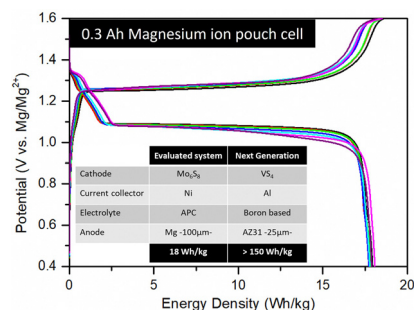
## Fundamentals of Li/CF<sub>x</sub> battery design and application

# The significance of mitigating crosstalk in lithium-ion batteries: a review

The figure illustrates the battery structure and its performance degradation mechanisms. The left panel shows a battery cross-section with a Cathode (R-H<sup>+</sup>, C<sub>2</sub>H<sub>4</sub>F, CO<sub>2</sub>), Electrolyte/Separator, and Anode (-) (R<sub>2</sub>PO, PO<sub>x</sub>(OH), C-H, R<sub>2</sub>CO). A 'Crosstalk' arrow indicates interaction between the cathode and anode. The right panel shows two graphs: 'Thermal runaway' (Temperature vs. Time) and 'Capacity fading' (Capacity vs. Cycle number). Both graphs show a sharp increase in the respective metric after a 'Crosstalk' event, indicated by a dashed arrow from the battery diagram.

## PERSPECTIVE

1964

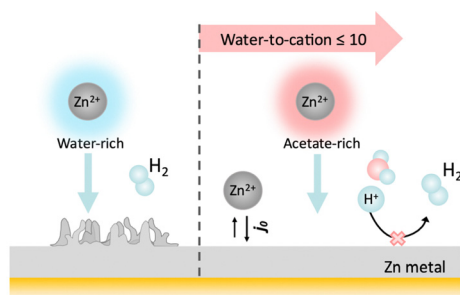


### A practical perspective on the potential of rechargeable Mg batteries

J. Alberto Blázquez\*, Rudi R. Maça, Olatz Leonet, Eneko Azaceta, Ayan Mukherjee, Zhirong Zhao-Karger, Zhenyou Li, Aleksey Kovalevsky, Ana Fernández-Barquín, Aroa R. Mainar, Piotr Jankowski, Laurin Rademacher, Sunita Dey, Siân E. Dutton, Clare P. Grey, Janina Drews, Joachim Häcker, Timo Danner, Arnulf Latz, Dane Sotta, M. Rosa Palacin, Jean-Frédéric Martin, Juan Maria García Lastra, Maximilian Fichtner, Sumana Kundu, Alexander Kraysberg, Yair Ein-Eli, Malachi Noked\* and Doron Aurbach\*

## PAPERS

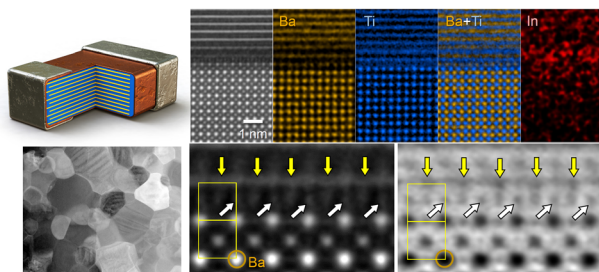
1982



### Creating water-in-salt-like environment using coordinating anions in non-concentrated aqueous electrolytes for efficient Zn batteries

Dario Gomez Vazquez, Travis P. Pollard, Julian Mars, Ji Mun Yoo, Hans-Georg Steinrück, Sharon E. Bone, Olga V. Safonova, Michael F. Toney, Oleg Borodin and Maria R. Lukatskaya\*

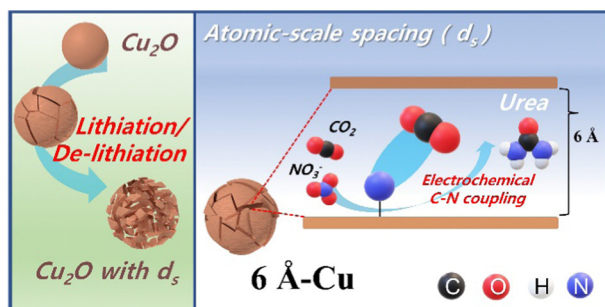
1992



### Unveiling of interstitial-occupying dopant segregation at grain boundaries in perovskite oxide dielectrics for a new class of ceramic capacitors

Ji-Sang An, Hae-Seung Lee, Pilgyu Byeon, Dongho Kim, Hyung Bin Bae, Si-Young Choi, Jungho Ryu and Sung-Yoon Chung\*

2003



### Copper with an atomic-scale spacing for efficient electrocatalytic co-reduction of carbon dioxide and nitrate to urea

Seokmin Shin, Siraj Sultan, Zong-Xian Chen, Hojeong Lee, Hansaem Choi, Tae-Ung Wi, Changhyun Park, Taewon Kim, Chanhee Lee, Jihong Jeong, Hyeju Shin, Tae-Hee Kim, Hyungkuk Ju, Hyung Chul Yoon, Hyun-Kon Song\*, Hyun-Wook Lee\*, Mu-Jeng Cheng\* and Youngkook Kwon\*



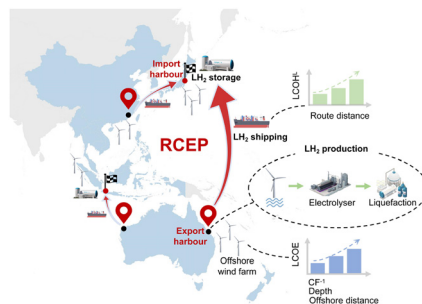


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2014

## Hydrogen economy driven by offshore wind in regional comprehensive economic partnership members

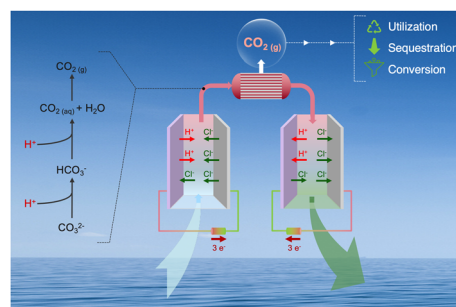
Wennan Zhuang, Guangsheng Pan, Wei Gu,\*  
Suyang Zhou, Qinran Hu, Zhongfan Gu, Zhi Wu,  
Shuai Lu and Haifeng Qiu



2030

## Asymmetric chloride-mediated electrochemical process for CO<sub>2</sub> removal from oceanwater

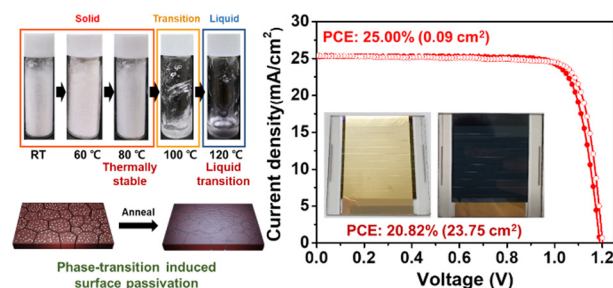
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Jack R. Lake, Kripa K. Varanasi\* and T. Alan Hatton\*



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## Phase transition engineering for effective defect passivation to achieve highly efficient and stable perovskite solar cells

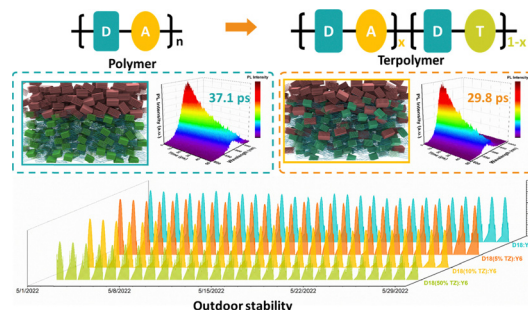
Dohyun Kim, Hyuntae Choi, Wooteak Jung,  
Chanhyeok Kim, Eun Young Park, Sungryong Kim,  
Nam Joong Jeon,\* Seulki Song\* and Taiho Park\*



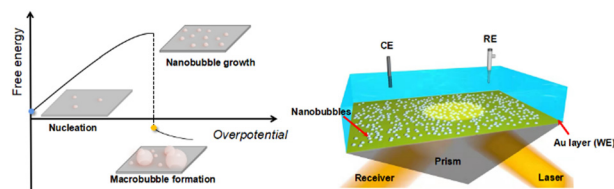
2056

## Rationale for highly efficient and outdoor-stable terpolymer solar cells

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Maryam Alqurashi, Yakun He, Julien Gorenflot,  
Jiaming Huang, Gang Li, Stefaan De Wolf, Xinhui Lu,  
Christoph J. Brabec, Frédéric Laquai and Shirong Lu\*



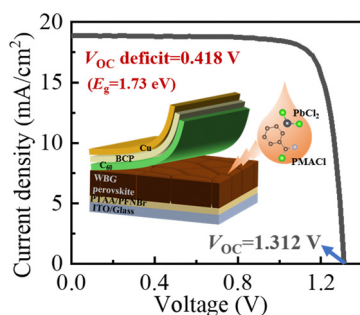
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### Interfacial nanobubbles' growth at the initial stage of electrocatalytic hydrogen evolution

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Haijun Xu, Hui Li,\* Haohong Duan and Xiaoming Sun\*

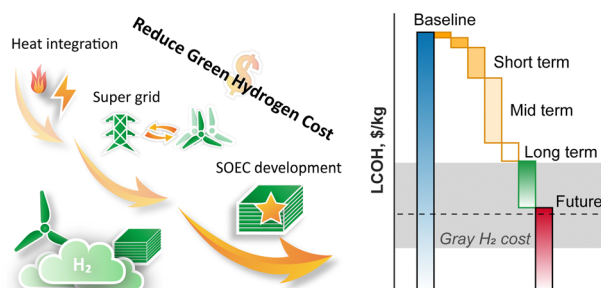
2080



### Reduced 0.418 V $V_{OC}$ -deficit of 1.73 eV wide-bandgap perovskite solar cells assisted by dual chlorides for efficient all-perovskite tandems

Yue Zhao, Changlei Wang,\* Tianshu Ma, Luwei Zhou,  
Zhanghao Wu, Huayang Wang, Cong Chen, Zhenhua Yu,  
Weiwei Sun, Aolin Wang, Hao Huang, Bingsuo Zou,  
Dewei Zhao\* and Xiaofeng Li\*

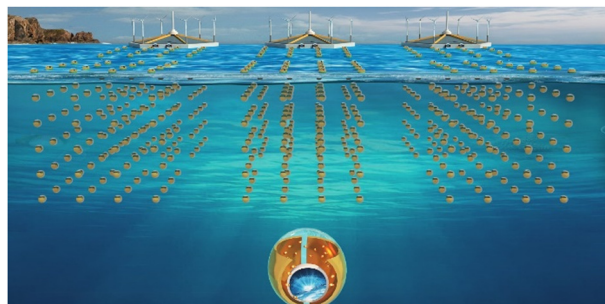
2090



### Pathway toward cost-effective green hydrogen production by solid oxide electrolyzer

Hua Liu, Lasse Røngaard Clausen, Ligang Wang and  
Ming Chen\*

2112



### Environmental lifecycle assessment of $\text{CO}_2$ -filled triboelectric nanogenerators to help achieve carbon neutrality

Guoqiang Xu, Xinyuan Li, Jingjing Fu,  
Yuekuan Zhou, Xin Xia\* and Yunlong Zi\*



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**On biosafety of Sn-containing halide perovskites**

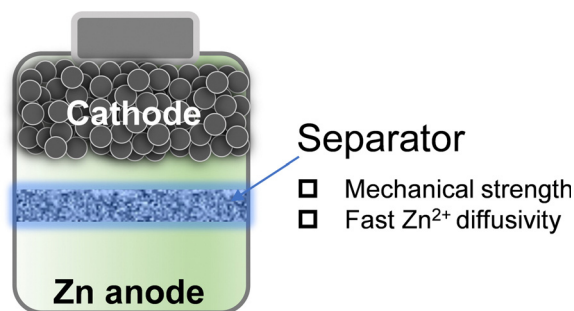
Lian Xiao, Tingting An, Chuxia Deng, Xiaoling Xu\* and Handong Sun\*



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**Sustainable high-energy aqueous zinc–manganese dioxide batteries enabled by stress-governed metal electrodeposition and fast zinc diffusivity**

Huijun Yang, Ruijie Zhu, Yang Yang, Ziyang Lu, Zhi Chang, Ping He, Chunyu Zhu, Sho Kitano, Yoshitaka Aoki, Hiroki Habazaki and Haoshen Zhou\*



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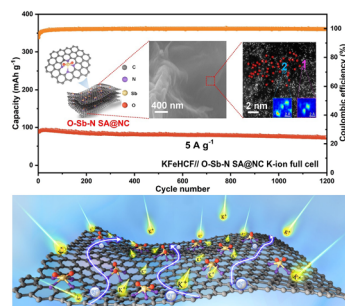
Tenghuan Ma, Zhixuan Wang, Dengxu Wu, Pushun Lu, Xiang Zhu, Ming Yang, Jian Peng, Liquan Chen, Hong Li and Fan Wu\*



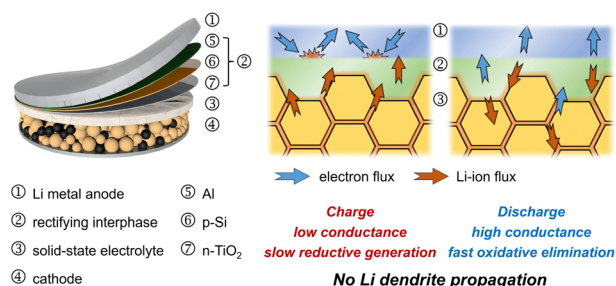
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**Enabling highly-efficient and stable potassium-ion storage by exposing atomic-dispersed super-coordinated antimony  $\text{O}_2\text{Sb}_1\text{N}_4$  sites on N-doped carbon nanosheets**

Bensheng Xiao, Zhefei Sun, Hehe Zhang, Ying Wu, Ji Li, Jiang Cui, Jiajia Han,\* Miao Li, Hongfei Zheng, Jiamin Chen, Mengting Cai, Chengzhi Ke, Xuefeng Wang, Haodong Liu, Zheng Jiang, Shilin Zhang, Dong-Liang Peng, Zaiping Guo\* and Qiaobao Zhang\*



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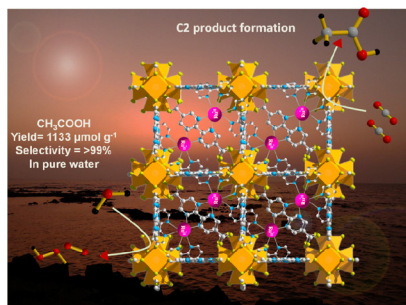
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## Environmentally friendly anti-solvent engineering for high-efficiency tin-based perovskite solar cells

Yang Su, Jia Yang, Huan Rao, Yang Zhong, Wangping Sheng, Licheng Tan\* and Yiwang Chen\*

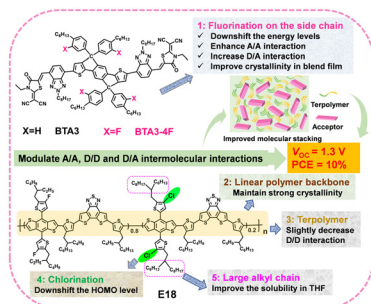
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## Developing post-modified Ce-MOF as a photocatalyst: a detail mechanistic insight into CO<sub>2</sub> reduction toward selective C2 product formation

Sanchita Karmakar, Soumitra Barman, Faruk Ahamed Rahimi, Sandip Biswas, Sukhendu Nath and Tapas Kumar Maji\*

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## Modulating intermolecular interactions by collaborative material design to realize THF-processed organic photovoltaic with 1.3 V open-circuit voltage

Tingting Dai, Ailing Tang, Zehua He, Mengzhen Du, Peng Lei, Qingdao Zeng, Zongtao Wang, Yuheng Wang, Shirong Lu, Yufei Zhong and Erjun Zhou\*



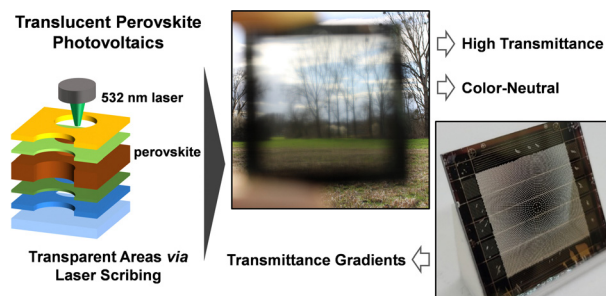


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### Translucent perovskite photovoltaics for building integration

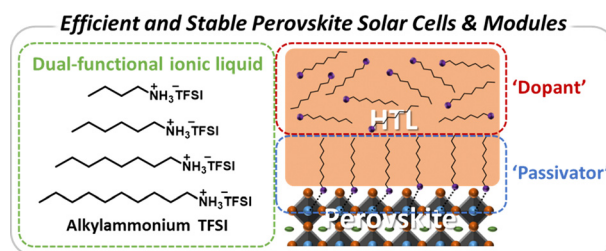
D. B. Ritzer,\* B. Abdollahi Nejand, M. A. Ruiz-Preciado, S. Gharibzadeh, H. Hu, A. Diercks, T. Feeney, B. S. Richards, T. Abzieher and U. W. Paetzold\*



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### Alkylammonium bis(trifluoromethylsulfonyl)imide as a dopant in the hole-transporting layer for efficient and stable perovskite solar cells

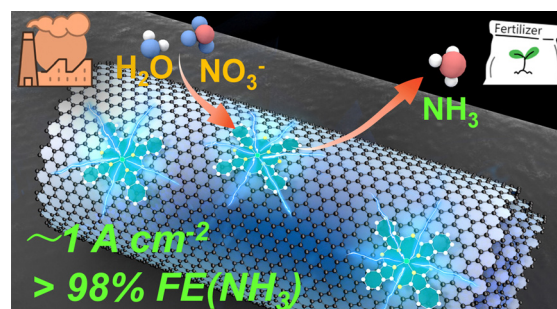
Youngwoong Kim, Geunjin Kim, Eun Young Park, Chan Su Moon, Seung Joo Lee, Jason J. Yoo, Seongsik Nam, Jino Im, Seong Sik Shin, Nam Joong Jeon\* and Jangwon Seo\*



2239

### Molecular electrocatalysts for rapid and selective reduction of nitrogenous waste to ammonia

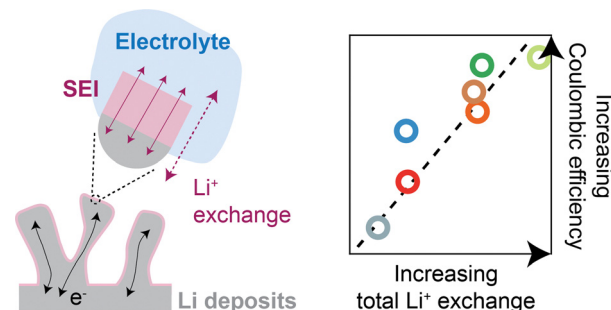
Zhan Jiang, Yamin Wang, Zhicao Lin, Yubo Yuan, Xiao Zhang, Yirong Tang, Hongxuan Wang, Huan Li, Chuyao Jin and Yongye Liang\*



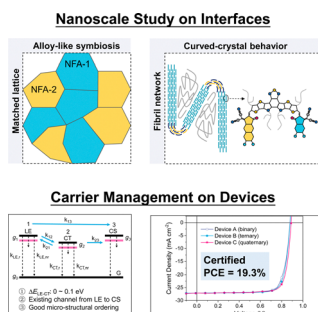
2247

### Beneficial vs. inhibiting passivation by the native lithium solid electrolyte interphase revealed by electrochemical Li<sup>+</sup> exchange

Gustavo M. Hobold, Kyeong-Ho Kim and Betar M. Gallant\*



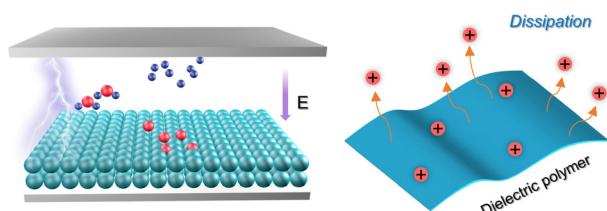
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## Refined molecular microstructure and optimized carrier management of multicomponent organic photovoltaics toward 19.3% certified efficiency

Shuixing Li, Chengliang He, Tianyi Chen, Jiale Zheng, Rui Sun, Jin Fang, Yiyao Chen, Youwen Pan, Kangrong Yan, Chang-Zhi Li, Minmin Shi, Lijian Zuo, Chang-Qi Ma, Jie Min, Yujing Liu\* and Hongzheng Chen\*

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## Ultrahigh output charge density achieved by charge trapping failure of dielectric polymers

Huiyuan Wu, Jian Wang, Wencong He, Chuncai Shan, Shaoke Fu, Gui Li, Qionghua Zhao, Wenlin Liu\* and Chenguo Hu\*

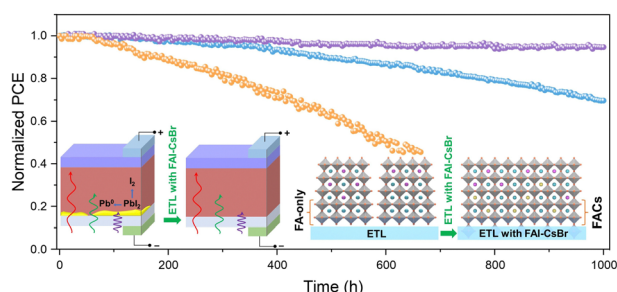
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## Versatile organic photovoltaics with a power density of nearly 40 W g<sup>-1</sup>

Xiangjun Zheng, Lijian Zuo,\* Kangrong Yan, Shiqi Shan, Tianyi Chen, Guanyu Ding, Bowei Xu, Xi Yang, Jianhui Hou, Minmin Shi\* and Hongzheng Chen\*

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## Elimination of unstable residual lead iodide near the buried interface for the stability improvement of perovskite solar cells

You Gao, Fumeng Ren, Derun Sun, Sibao Li, Guanhaojie Zheng, Jianan Wang, Hasan Raza, Rui Chen, Haixin Wang, Sanwan Liu, Peng Yu, Xin Meng, Jizhou He, Jing Zhou, Xiaodong Hu, Zhengping Zhang,\* Longbin Qiu, Wei Chen and Zonghao Liu\*

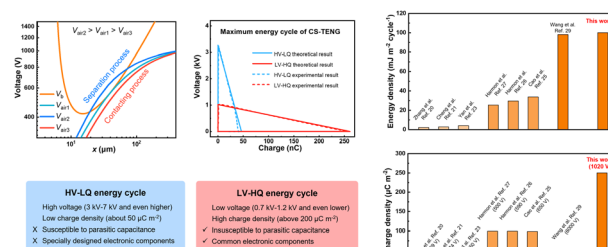


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# Achieving high-efficiency triboelectric nanogenerators by suppressing the electrostatic breakdown effect

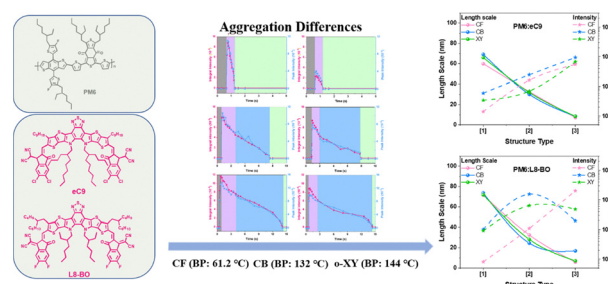
Yikui Gao, Di Liu, Yanhong Li, Jiaqi Liu, Linglin Zhou, Xinyuan Li, Zhihao Zhao, Shaoxin Li, Peiyuan Yang, Zhong Lin Wang\* and Jie Wang\*



2316

# Revealing the underlying solvent effect on film morphology in high-efficiency organic solar cells through combined *ex situ* and *in situ* observations

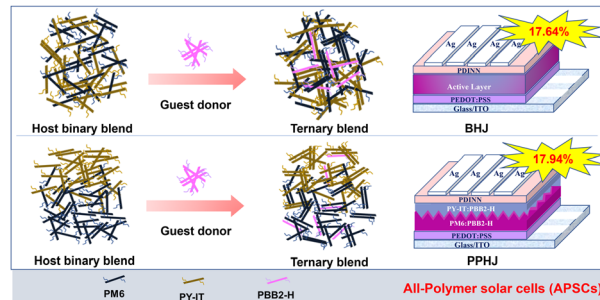
Ruijie Ma, Xinyu Jiang, Jiehao Fu, Tao Zhu, Cenqi Yan, Kexin Wu, Peter Müller-Buschbaum\* and Gang Li\*



2327

# Achieving 17.94% efficiency all-polymer solar cells by independently induced D/A orderly stacking

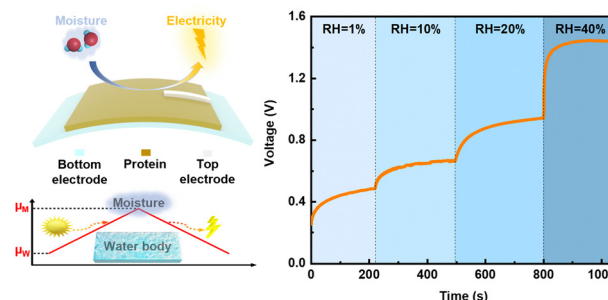
Jianxiao Wang, Chenyu Han, Shuguang Wen, Fuzhen Bi, Zunyuan Hu, Yonghai Li, Chunming Yang, Xichang Bao\* and Junhao Chu



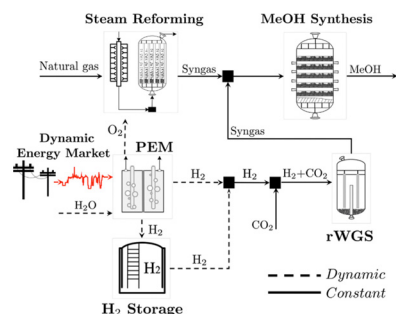
2338

# Lab free protein-based moisture electric generators with a high electric output

Renbo Zhu, Yanzhe Zhu, Long Hu,\* Peiyuan Guan, Dawei Su, Shuo Zhang, Chao Liu, Ziheng Feng, Guangyu Hu, Fandi Chen, Tao Wan,\* Xinwei Guan, Tom Wu, Rakesh Joshi, Mengyao Li, Claudio Cazorla,\* Yuerui Lu, Zhaojun Han,\* Haolan Xu and Dewei Chu



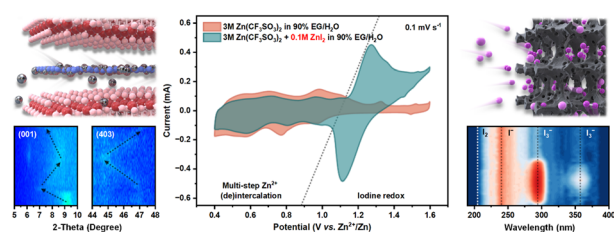
2346



## Exploiting electricity market dynamics using flexible electrolysis units for retrofitting methanol synthesis

Jiaze Ma, Michael Rebarchik, Saurabh Bhandari, Manos Mavrikakis, George W. Huber and Victor M. Zavala\*

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## Dual mechanism of ion (de)intercalation and iodine redox towards advanced zinc batteries

Yongqiang Yang, Shan Guo, Yicai Pan, Bingan Lu, Shuquan Liang\* and Jiang Zhou\*

