

# Journal of Materials Chemistry A

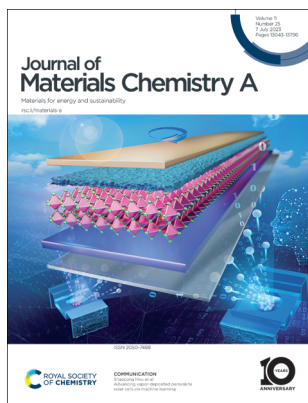
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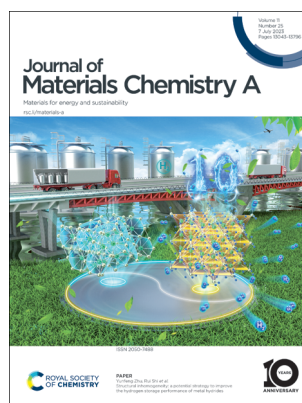
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### Inside cover

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Li-Zhu Wu

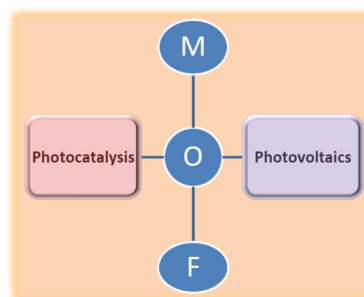


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### Photoelectroactive metal–organic frameworks

Cong Cong and Huaibo Ma\*



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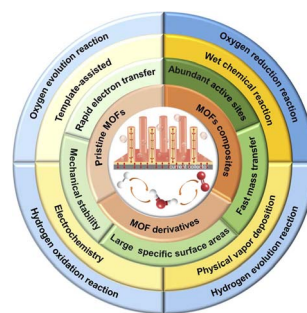
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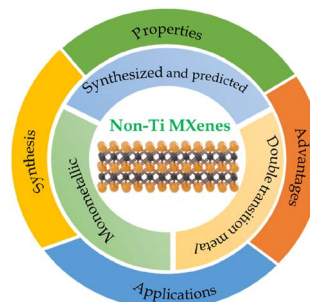


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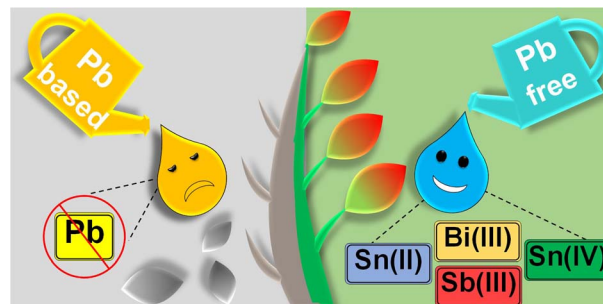
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**Self-supporting metal–organic framework-based hydrogen and oxygen electrocatalysts**Xinran Sun, Sibao Wang, Yidong Hou, Xue Feng Lu,\*  
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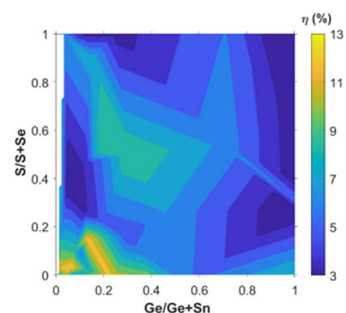
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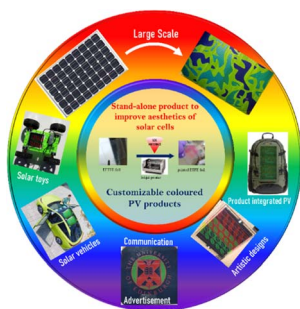
**Design potential and future prospects of lead-free halide perovskites in photovoltaic devices**Mohammad Adil Afroz, Anupriya Singh, Ritesh Kant Gupta,  
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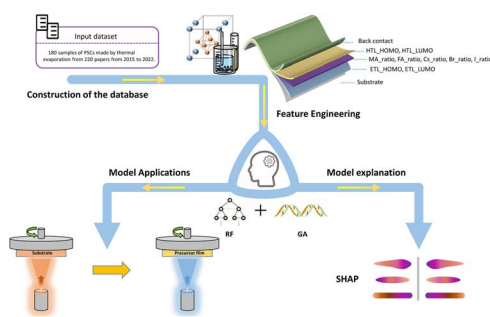


### Visually attractive and efficient photovoltaics through luminescent downshifting

Neena Kurian Kalluvettukuzhy, Michal Robert Maciejczyk, Ian Underwood and Neil Robertson\*

## COMMUNICATIONS

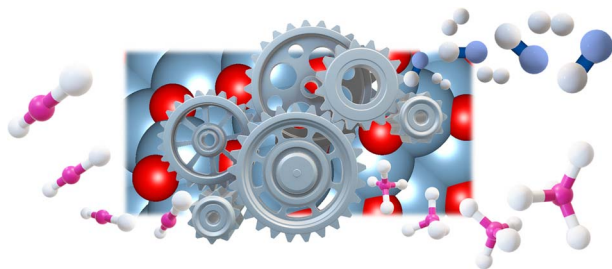
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### Advancing vapor-deposited perovskite solar cells via machine learning

Jiazheng Wang, Yuchen Qi, Haofeng Zheng, Ruilong Wang, Siyou Bai, Yanan Liu, Qi Liu, Jin Xiao, Dechun Zou and Shaocong Hou\*

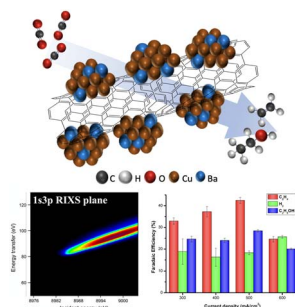
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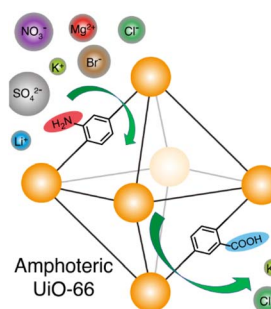
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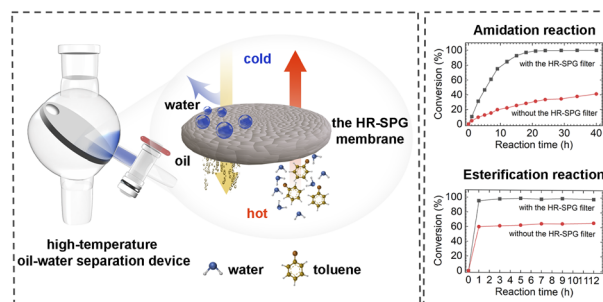
Jue Hou,\* Huacheng Zhang, Huanting Wang, Aaron W. Thornton and Kristina Konstas\*



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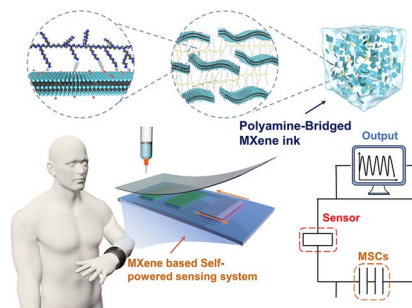
Wenting Zhou, Fan Min, Jing Shi, Deqi Wang, Haikang Huang, Hengchang Liu and Zonglin Chu\*



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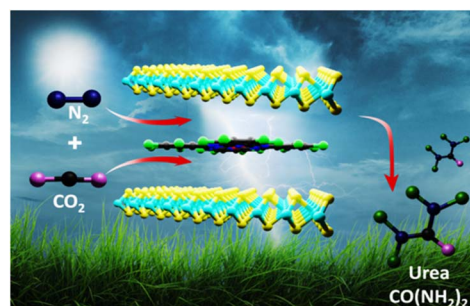
Shuiren Liu,\* Qi Meng, Yadong Gao, Juzhong Zhang, Jiarong Li, Youwei Yang, Xiaomeng Zhang, Hongpeng Li and Xuying Liu\*



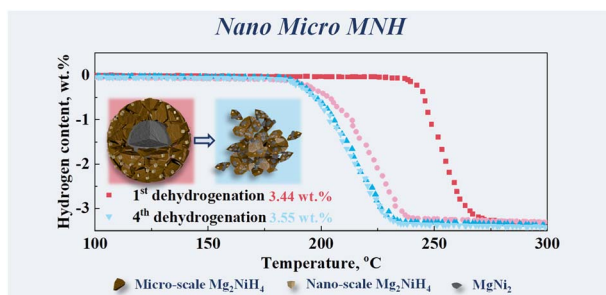
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Sourav Paul, Sougata Sarkar, Ashadul Adalder, Amitava Banerjee and Uttam Kumar Ghorai\*



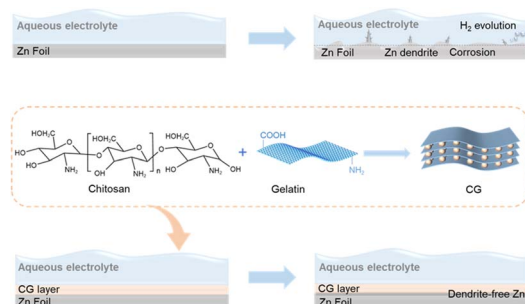
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Yingyan Zhao, Yunfeng Zhu,\* Rui Shi,\* Zhen Jia, Jiguang Zhang, Yana Liu, Honghui Cheng, Qinke Tang, Zhixin Ba, Xiaohui Hu and Liqun Li

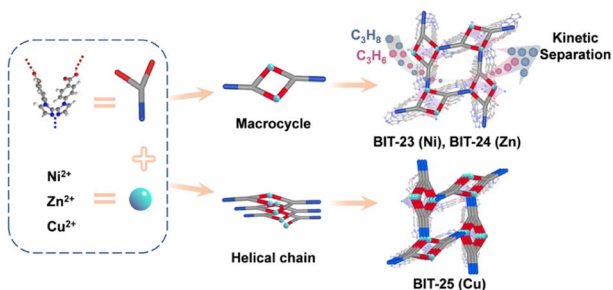
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Lingzhi Kang, Jiale Zheng, Huadong Yuan, Jianmin Luo, Yao Wang, Yujing Liu, Jianwei Nai and Xinyong Tao\*

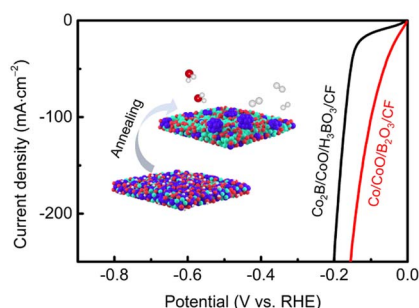
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Xinyu Yu, Xin Huang, Mengchu Feng, Yuanyuan Zhang\* and Bo Wang\*

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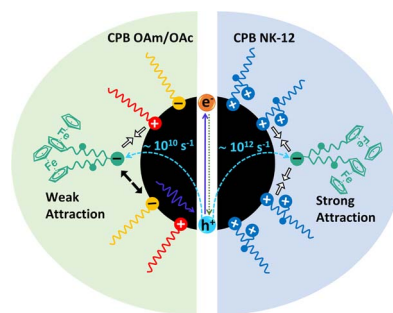
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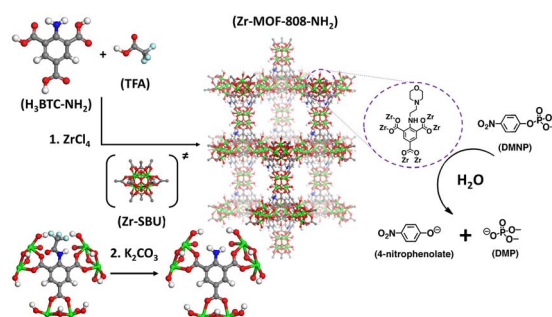
Monika Ahlawat, Santosh Kumari and Vishal Govind Rao\*



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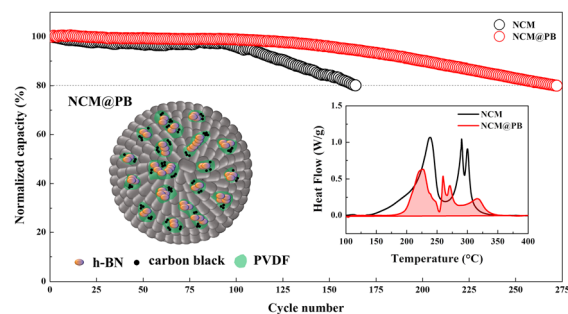
Sergio J. Garibay, Trenton M. Tovar, Ivan O. Iordanov, Gregory W. Peterson and Jared B. DeCoste\*



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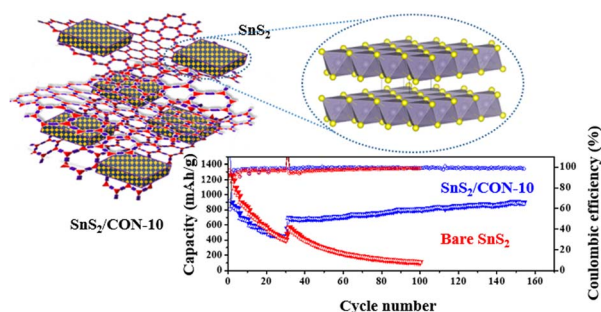
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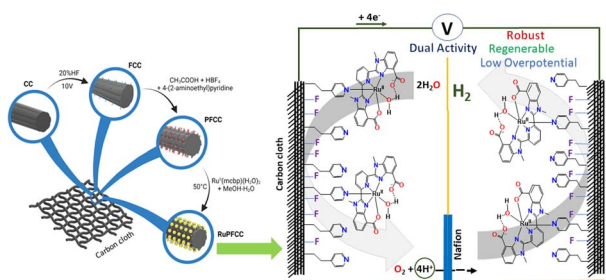
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Jeong-Hun Jang, Minseop Lee, Soohyeon Park, Jae-Min Oh,\* Jin Kuen Park\* and Seung-Min Paek\*



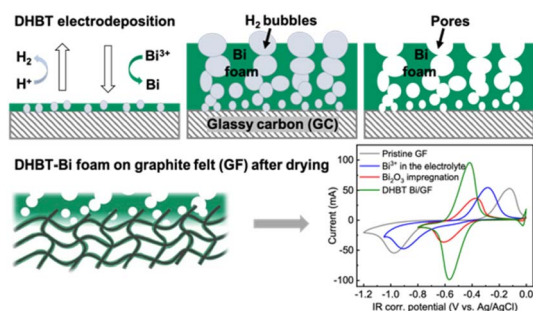
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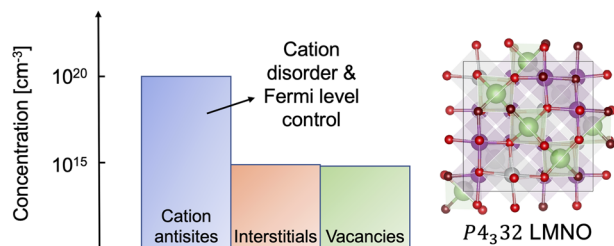
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Ming Cheng, Tintula Kottakkat\* and Christina Roth

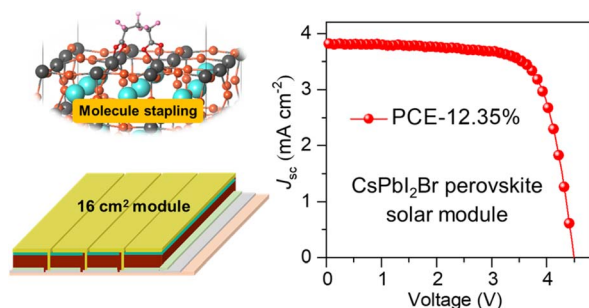
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Jiayi Cen, Bonan Zhu, Seán R. Kavanagh, Alexander G. Squires and David O. Scanlon\*

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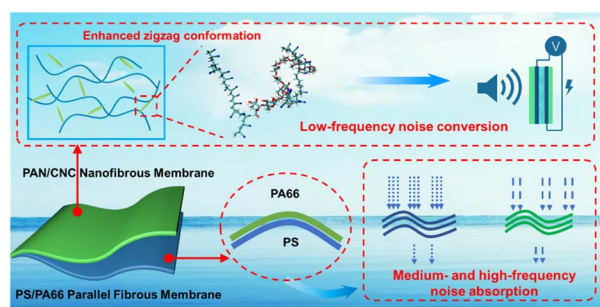
Ruihao Chen,\* Jieru Du, Xuan Zheng, Yuyao Yang, Li Yuan, Yang Yang, Feiming Li and Hongqiang Wang\*



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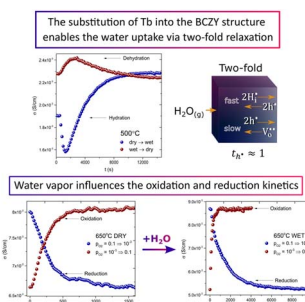
Ziyao Fan, Shuanglin Wu, Kaiyang Fang, Feng Tang, Leibing Zhang and Fenglin Huang\*



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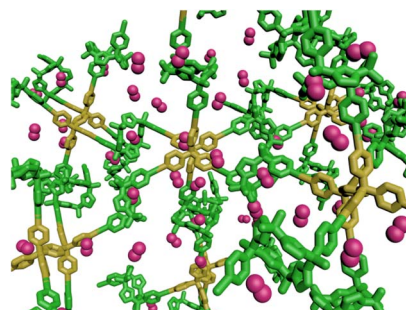
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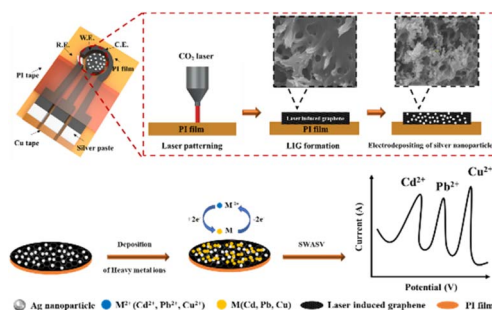
Zhiye Zheng, Qiuyuan Lin, Linhuang Xie, Xiaolong Chen, Huan Zhou, Kunhua Lin, Dengsong Zhang, Xiaodong Chi, Jonathan L. Sessler\* and Hongyu Wang\*



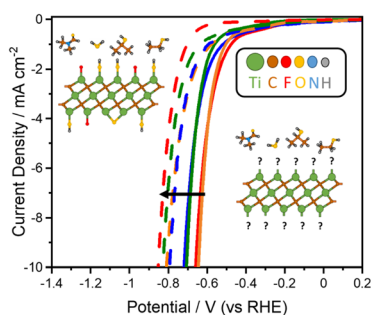
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Seongeun Jeong, Sungwook Yang, Yi Jae Lee and Soo Hyun Lee\*



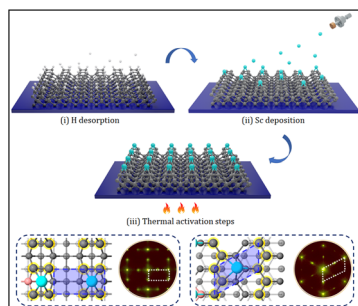
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### Solvents dramatically influence the atomic composition and catalytic properties of $\text{Ti}_3\text{C}_2\text{T}_x$ MXenes

Katarina A. Novčić, Christian Iffelsberger, Mario Palacios-Corella and Martin Pumera\*

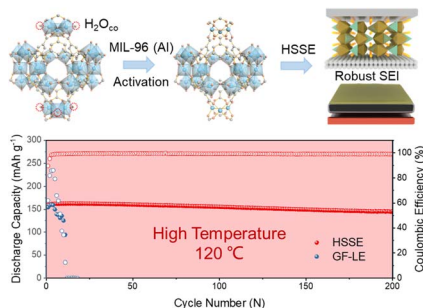
13432



### Experimental evidence for large negative electron affinity from scandium-terminated diamond

Ramiz Zulkharnay\* and Paul W. May

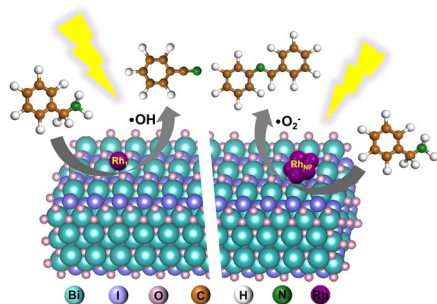
13446



### A hybrid solid-state electrolyte endows a Li metal battery with excellent cycling life at 120 °C

Wen-Xue Liu, Xue-Chun Huang, Yan Meng,\* Dan Xiao\* and Yong Guo\*

13459



### Tuning the selectivity of benzylamine photo-oxidation with different rhodium modes anchored on $\text{BiOIO}_3$

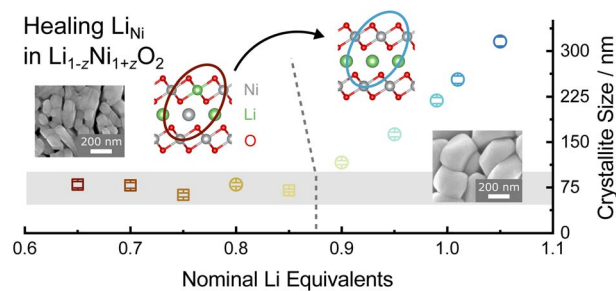
Jiaping Liu, Yan Wu, Qingqing Chen, Rui Yu, Keqing Shi, Tao Jing, Zhujie Li,\* Zaizhu Lou\* and Gang Wang\*



13468

### Stoichiometry matters: correlation between antisite defects, microstructure and magnetic behavior in the cathode material $\text{Li}_{1-z}\text{Ni}_{1+z}\text{O}_2$

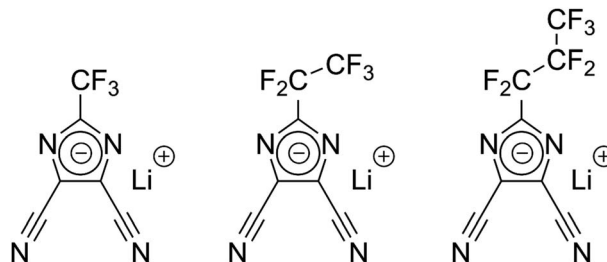
Damian Goonetilleke, Björn Schwarz, Hang Li, Francois Fauth, Emmanuelle Suard, Stefan Mangold, Sylvio Indris, Torsten Brezesinski, Matteo Bianchini and Daniel Weber\*



13483

### Ionic conductivity, viscosity, and self-diffusion coefficients of novel imidazole salts for lithium-ion battery electrolytes

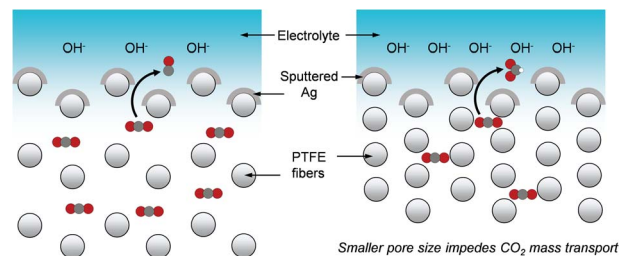
Anna Szczęśna-Chrzan, Monika Vogler, Peng Yan, Grażyna Zofia Żukowska, Christian Wölke, Agnieszka Ostrowska, Sara Szymańska, Marek Marcinek, Martin Winter, Isidora Cekic-Laskovic\*, Władysław Wiczorek\* and Helge S. Stein\*



13493

### Local microenvironment tuning induces switching between electrochemical $\text{CO}_2$ reduction pathways

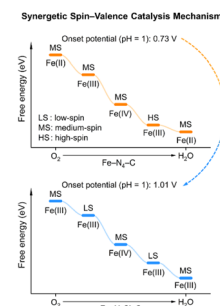
Surani Bin Dolmanan, Annette Böhme, Ziting Fan, Alex J. King, Aidan Q. Fenwick, Albertus Denny Handoko, Wan Ru Leow, Adam Z. Weber, Xinbin Ma, Edwin Khoo, Harry A. Atwater\* and Yanwei Lum\*



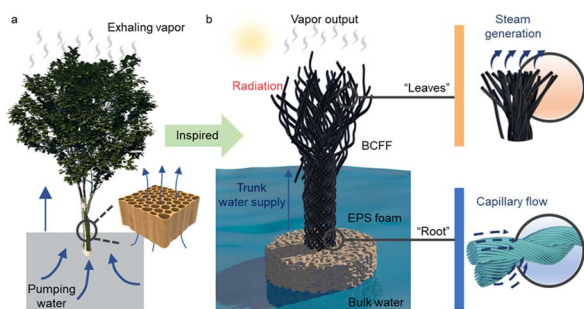
13502

### Synergistic spin–valence catalysis mechanism in oxygen reduction reactions on Fe–N–C single-atom catalysts

Daoxiong Wu, Zhiwen Zhuo, Yiming Song, Peng Rao, Junming Luo, Jing Li, Peilin Deng\*, Jinlin Yang, Xiaojun Wu and Xinlong Tian\*



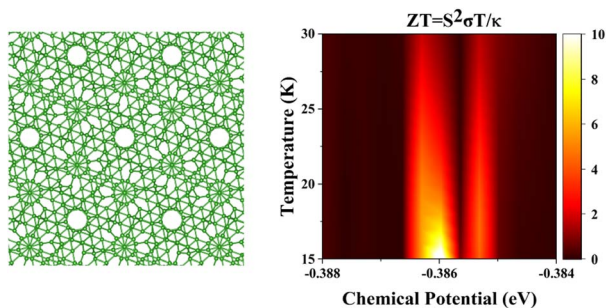
13510



### Tree-inspired braiding fibrous frameworks enabling high-efficiency and salt-rejecting solar evaporation

Duo Xu, Can Ge, Ze Chen, Yingcun Liu, Tao Chen, Chong Gao, Keshuai Liu, Weilin Xu, Qian Zhang\* and Jian Fang\*

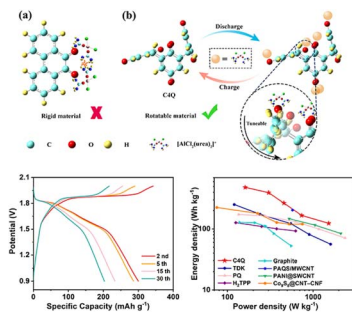
13519



### Challenging breaking thermoelectric performance limits by twistrionics

Jizhe Song and Mengtao Sun\*

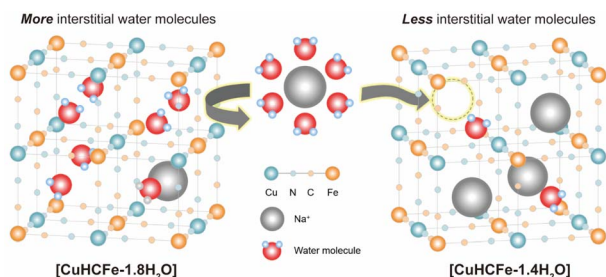
13527



### A rotatable cathode with tunable steric hindrance for high-performance aluminum organic batteries

Mingshan Han, Qinqin Zhou, Meng Zhang, Jinshu Wang,\* Fangyan Cui, Yunfei Yang, Jingwen Su, Weiwei Huang\* and Yuxiang Hu\*

13535



### Investigating the role of interstitial water molecules in copper hexacyanoferrate for sodium-ion battery cathodes

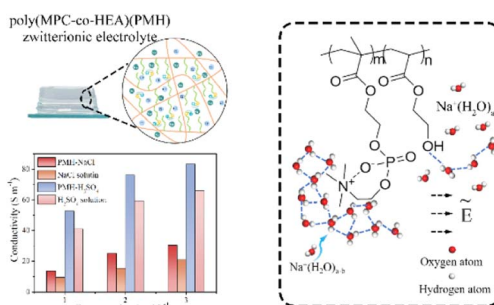
Donghyeon Kim, Ahreum Choi,\* Changhyun Park, Min-Ho Kim and Hyun-Wook Lee\*



13543

### A zwitterionic hydrogel with a surprising function of increasing the ionic conductivity of alkali chloride or sulfuric acid water-soluble electrolyte

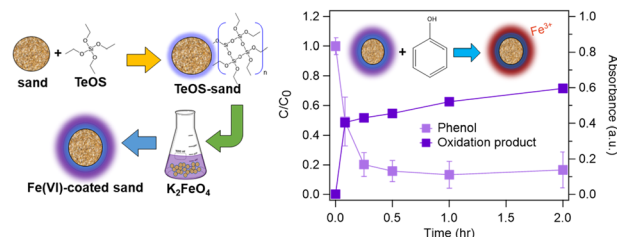
Danchen Fu, Yanfen Lu, Zhiyuan Peng and Wenbin Zhong\*



13552

### Synthesis of ferrate (Fe(VI))-coated sand for stabilized reactivity and enhanced treatment of phenol

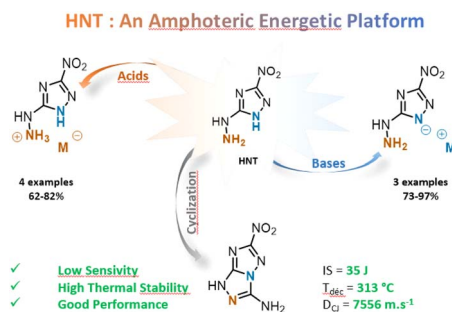
Fanny E. K. Okaikue-Woodi and Jessica R. Ray\*



13564

### Synthesis and reactivity of 5-hydrazino-3-nitro-1,2,4-triazole (HNT): an amphoteric energetic platform

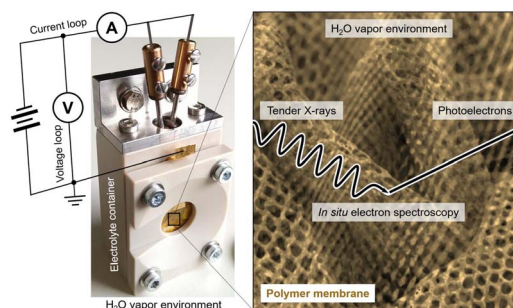
Loïc Habert, Matthieu Daniel, Pascal Palmas and Eric Pasquinet\*



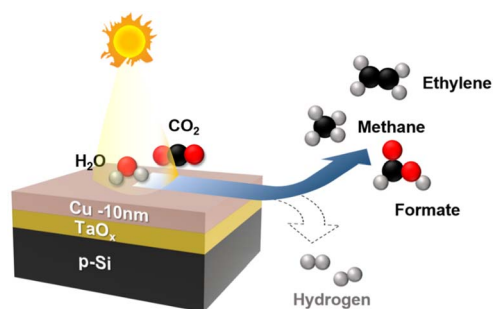
13570

### In situ investigation of ion exchange membranes reveals that ion transfer in hybrid liquid/gas electrolyzers is mediated by diffusion, not electromigration

Maryline Ralairisoa, Senapati Sri Krishnamurti, Wenqing Gu, Claudio Ampelli, Roel van de Krol, Fatwa Firdaus Abdi\* and Marco Favaro\*



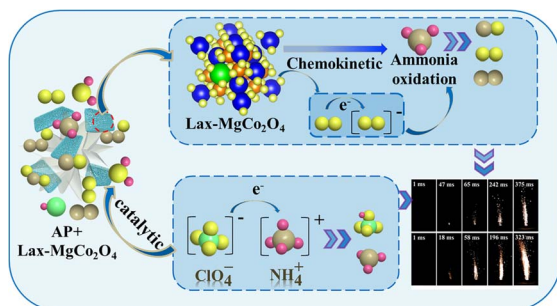
13588



### TaO<sub>x</sub> electron transport layers for CO<sub>2</sub> reduction Si photocathodes

Rajiv Ramanujam Prabhakar, Raphaël Lemerle, Magda Barecka, Minki Kim, Sehun Seo, Elif Nur Dayi, Irene Dei Tos and Joel W. Ager\*

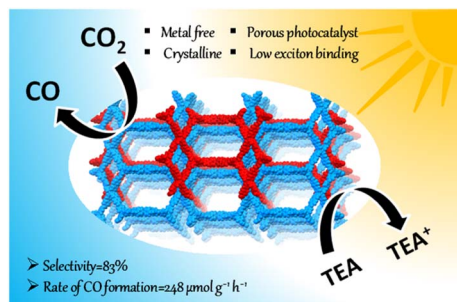
13600



### A strategy for modulating the catalytic active center of AP thermal decomposition and its application: La-doped MgCo<sub>2</sub>O<sub>4</sub>

Guofei Zhang, Xin Yu, Zhenlong Wang, Sirong Li, Zhengyi Zhao, Yunjiong Zhu, Yude Wang\* and Xuechun Xiao\*

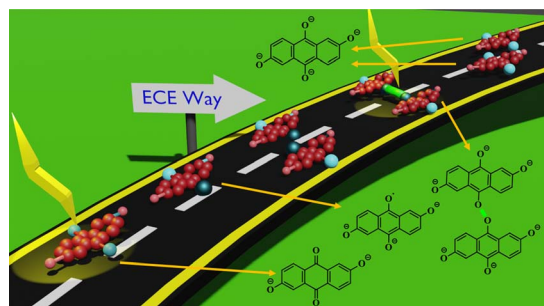
13615



### Metal-free 3D donor–acceptor COF with low exciton binding for solar fuel production based on CO<sub>2</sub> reduction

Anupam Dey, Faruk Ahamed Rahimi, Soumitra Barman, Arpan Hazra and Tapas Kumar Maji\*

13623



### Use of voltage for recomposing degraded redox active molecules for flow battery applications

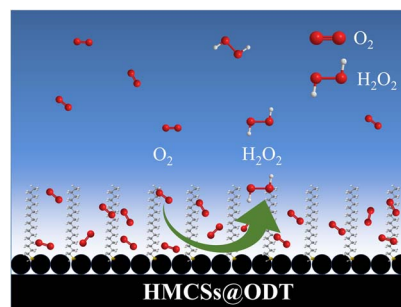
Abhilipsa Sahoo and Kothandaraman Ramanujam\*



13633

### Interface engineering of superhydrophobic octadecanethiol-functionalized hollow mesoporous carbon spheres for alkaline oxygen reduction to hydrogen peroxide

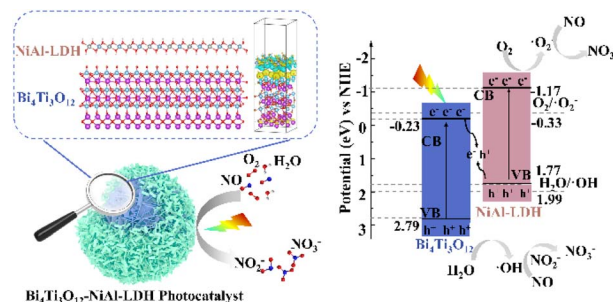
Hongjing Wang, Shaojian Jiang, Hongjie Yu,\* Kai Deng, Ziqiang Wang, Xiaonian Li, You Xu and Liang Wang\*



13640

### Efficient photocatalytic NO oxidation over novel NiAl layered double hydroxide/Bi<sub>4</sub>Ti<sub>3</sub>O<sub>12</sub> Z-scheme heterojunctions with boosted charge separation and O<sub>2</sub> activation

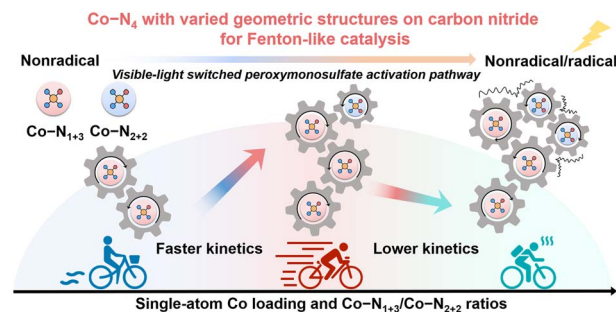
Guojun Li, Yue Deng, Ting Li, Zheng Lian, Qiuqiu Lyu, Zhinian Liu, Shule Zhang\* and Qin Zhong\*



13653

### The structure-dependent mechanism of single-atom cobalt on macroporous carbon nitride in (photo-) Fenton-like reactions

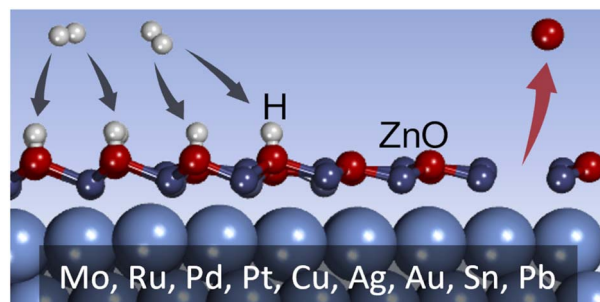
Jingkai Lin, Lin Jiang, Wenjie Tian, Yangyang Yang, Xiaoguang Duan, Yan Jiao,\* Huayang Zhang\* and Shaobin Wang\*



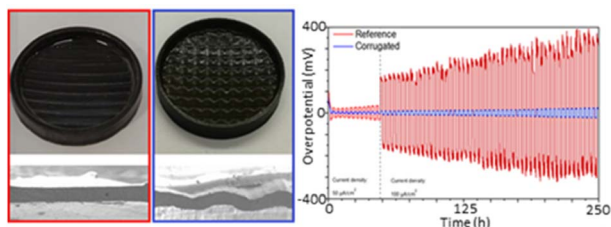
13665

### Tunable properties and composition of ZnO films supported on metal surfaces

Yizhen Song, Paulo C. D. Mendes and Sergey M. Kozlov\*



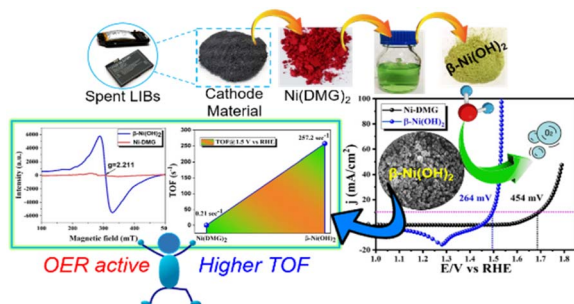
13677



### 3D printing of self-supported solid electrolytes made of glass-derived $\text{Li}_{1.5}\text{Al}_{0.5}\text{Ge}_{1.5}\text{P}_3\text{O}_{12}$ for all-solid-state lithium-metal batteries

A. G. Sabato,\* M. Nuñez Eroles, S. Anelli, C. D. Sierra, J. C. Gonzalez-Rosillo, M. Torrell, A. Pesce, G. Accardo, M. Casas-Cabanas, P. López-Aranguren, A. Morata and A. Tarancón\*

13687



### Waste is the best: end-of-life lithium ion battery-derived ultra-active $\text{Ni}^{3+}$ -enriched $\beta\text{-Ni}(\text{OH})_2$ for the electrocatalytic oxygen evolution reaction

Hiren Jungi, Arun Karmakar, Subrata Kundu\* and Joyee Mitra\*

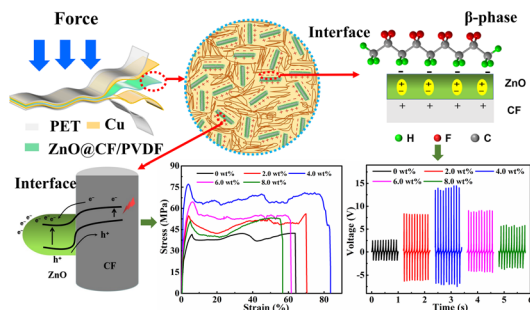
13697



### Novel high-entropy layered double hydroxide microspheres as an effective and durable electrocatalyst for oxygen evolution

Shun Li, Likai Tong, Zhijian Peng,\* Bo Zhang and Xiuli Fu\*

13708



### High-performance piezoelectric nanogenerators based on hierarchical $\text{ZnO}@\text{CF}/\text{PVDF}$ composite film for self-powered meteorological sensor

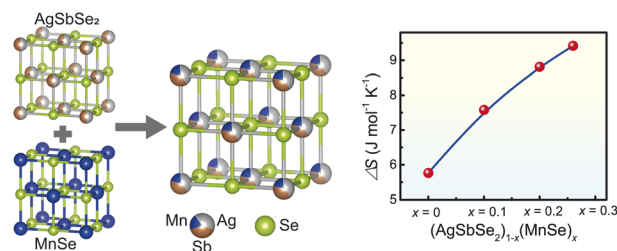
Yinhui Li,\* Jiaojiao Sun, Pengwei Li, Xuran Li, Jianqiang Tan, Hulin Zhang, Tingyu Li, Jianguo Liang, Yunlei Zhou, Zhenyin Hai\* and Jin Zhang\*



13720

### Enhancing the solubility of Mn in AgSbSe<sub>2</sub> for high thermoelectric performance through entropy engineering

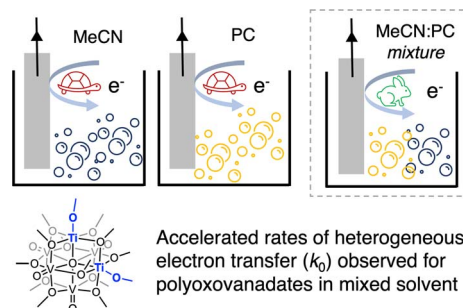
Zheng Ma, Yubo Luo,\* Wang Li, Yingchao Wei, Chengjun Li, Abubakar Yakubu Haruna, Zhihong Zhang, Xin Li, Qinghui Jiang and Junyou Yang\*



13729

### Solvent mixtures for improved electron transfer kinetics of titanium-doped polyoxovanadate-alkoxide clusters

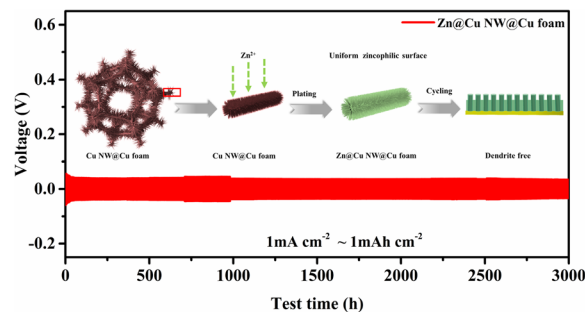
Mamta Dagar, Molly Corr, Timothy R. Cook, James R. McKone\* and Ellen M. Matson\*



13742

### Constructing a well-wettable interface on a three-dimensional copper foam host with reinforced copper nanowires to stabilize zinc metal anodes

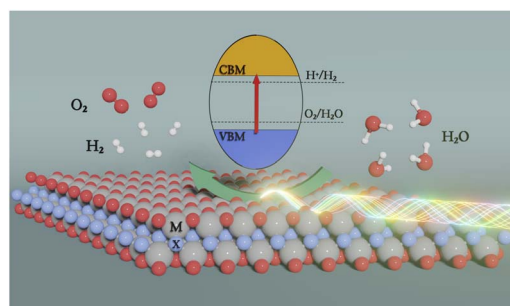
Yixing Fang, Kun Han, Zhen Wang, Jie Shi, Ping Li\* and Xuanhui Qu\*



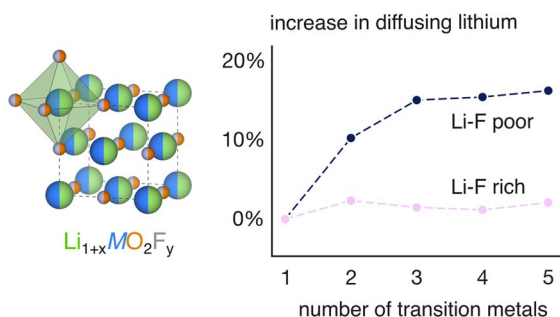
13754

### Bandgap engineering of MXene compounds for water splitting

Diego Ontiveros, Francesc Viñes and Carmen Sousa\*



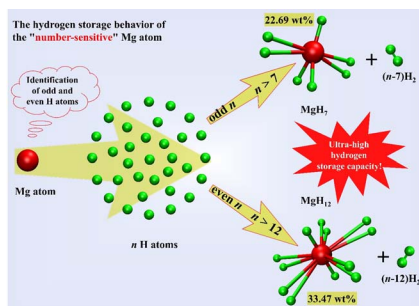
13765



### Understanding the limits to short-range order suppression in many-component disordered rock salt lithium-ion cathode materials

Alexander G. Squires\* and David O. Scanlon\*

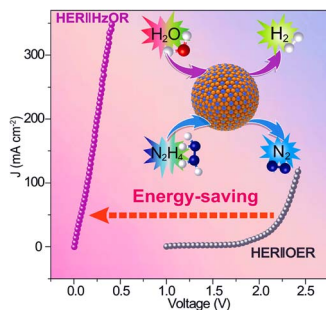
13774



### Study of the hydrogen absorption behaviour of a "number-sensitive" Mg atom: ultra-high hydrogen storage in $\text{MgH}_n$ ( $n = 1-20$ ) clusters

Ben-Chao Zhu, Guang-Hui Liu, Ping-Ji Deng, Chun-Jing Liu, Yan-Hua Liao,\* Lu Zeng\* and Jun Zhao\*

13783



### Regulating Ru active sites by Pd alloying to significantly enhance hydrazine oxidation for energy-saving hydrogen production

Simeng Zhao, Yankai Zhang, Haibo Li, Suyuan Zeng, Rui Li, Qingxia Yao, Hongyan Chen, Yao Zheng\* and Konggang Qu\*

CORRECTION

13793

### Correction: Crystal growth of two-dimensional organic-inorganic hybrid perovskites and their application in photovoltaics

Yuling Zhang, Ruyue Wang and Zhan'ao Tan\*

