

# Journal of Materials Chemistry A

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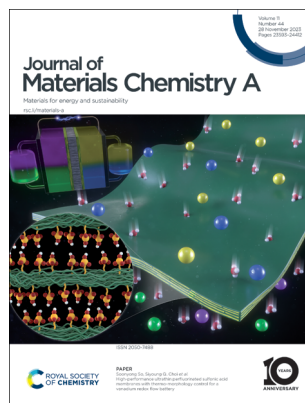
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ISSN 2050-7488 CODEN JMCAET 11(44) 23593–24412 (2023)



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See Lifeng Zhu, Wenbin Cao, Kexin Chen, Qi Wang *et al.*, pp. 23787–23797. Image reproduced by permission of Qi Wang from *J. Mater. Chem. A*, 2023, **11**, 23787.



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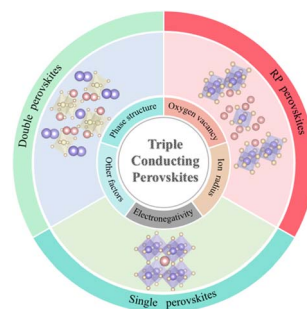
See Soonyong So, Siyoung Q. Choi *et al.*, pp. 23798–23808. Image reproduced by permission of Jongmin Kim from *J. Mater. Chem. A*, 2023, **11**, 23798.

## REVIEWS

23613

### Exploring the potential of triple conducting perovskite cathodes for high-performance solid oxide fuel cells: a comprehensive review

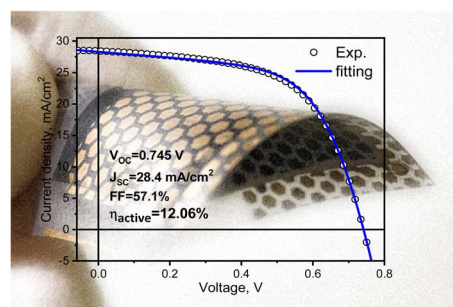
Lingxiao Lu, Yu Liu,\* Hualiang Zhang, Yujie Xu\* and Haisheng Chen



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### Cu<sub>2</sub>ZnSnS<sub>4</sub> monograin layer solar cells for flexible photovoltaic applications

Marit Kauk-Kuusik,\* Kristi Timmo, Maris Pilvet, Katri Muska, Mati Danilson, Jüri Krustok, Raavo Josepson, Valdek Mikli and Maarja Grossberg-Kuusk



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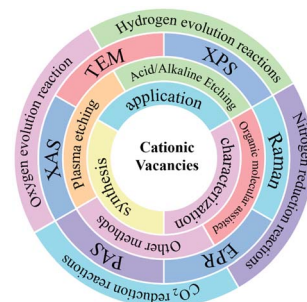


## REVIEWS

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**Defect engineering: the role of cationic vacancies in photocatalysis and electrocatalysis**

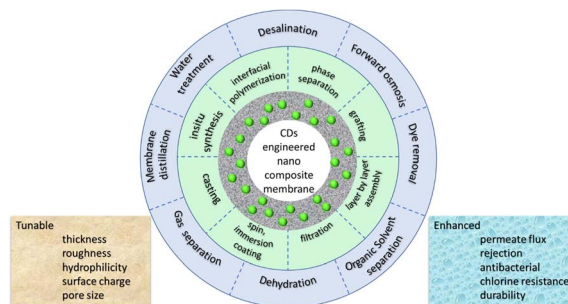
Wenming Ding, Shengbo Yuan, Yang Yang, Xiaoman Li\* and Min Luo\*



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**Carbon dot engineered membranes for separation – a comprehensive review and current challenges**

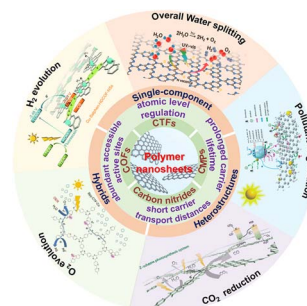
Sundararajan Parani,\* Eun-young Choi, Oluwatobi Samuel Oluwafemi and Jang-Kun Song\*



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**Recent progress in polymer nanosheets for photocatalysis**

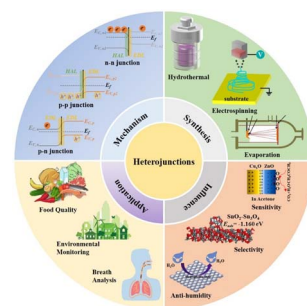
Shunhang Wei, Lei Wang, Jianyong Yue, Rong Wu, Zebo Fang\* and Yuxi Xu\*



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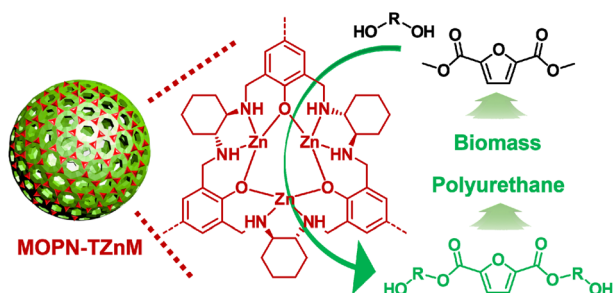
**Nanostructured metal oxide heterojunctions for chemiresistive gas sensors**

Shuai Ma and Jinyong Xu\*



## COMMUNICATIONS

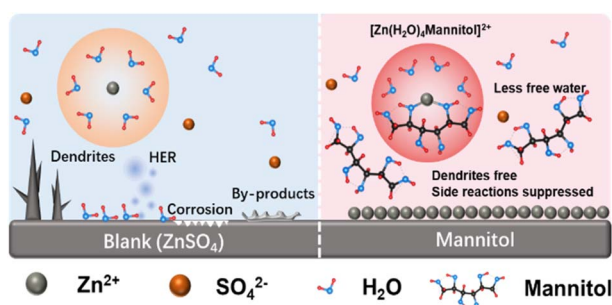
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### Microporous organic nanoparticles bearing tri-Zn macrocycles: heterogeneous catalysts for the conversion of biomass-derived furan esters to polymer platforms

June Young Jang, Gang Min Lee, Jong Doo Lee and Seung Uk Son\*

23779

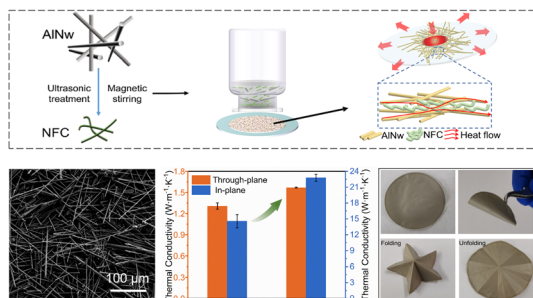


### A long-term stable zinc metal anode enabled by a mannitol additive

Dongdong Zhang, Jin Cao,\* Zhiqiang Dai, Rungroj Chanajaree, Chengwu Yang, Xiang Wu, Xinyu Zhang\* and Jiaqian Qin\*

## PAPERS

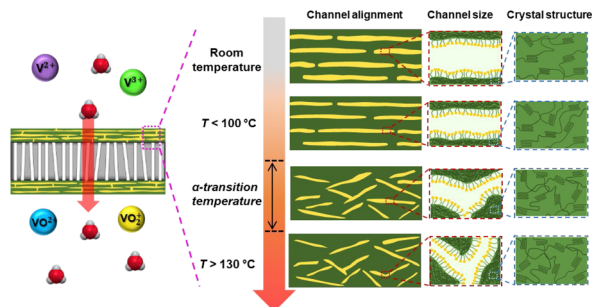
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### Boosting the in-plane thermal conductivity of nanofibrillated cellulose films: alignment engineering of cross-linked AlN whiskers

Mengyang Niu, Zheng Zhao, Baokai Wang, Chang Yu, Mengyi Li, Jiajun Hu, Lifeng Zhu,\* Xu Hao, Shiqin Wan, Ming Yue, Weiwei Xuan, Qipeng Lu, Wenbin Cao,\* Kexin Chen\* and Qi Wang\*

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### High-performance ultrathin perfluorinated sulfonic acid membranes with thermo-morphology control for a vanadium redox flow battery

Jongmin Q. Kim, Yecheol Rho, Soonyong So\* and Siyoung Q. Choi\*



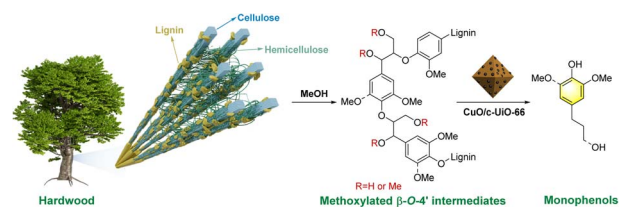


## PAPERS

23809

# Metal–organic framework-derived CuO catalysts for the efficient hydrogenolysis of hardwood lignin into phenolic monomers

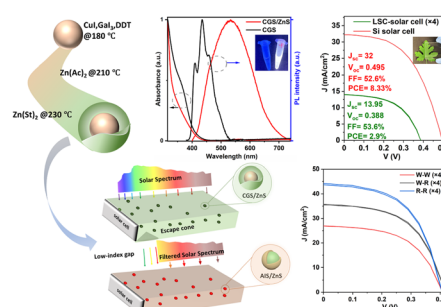
Qian Xu, Qiang Wang, Ling-Ping Xiao,\* Xiao-Ying Li, Xi Xiao, Meng-Xin Li, Meng-Ran Lin, Yu-Man Zhao and Run-Cang Sun\*



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# Solar light selective-harvesting eco-friendly colloidal quantum dots for transparent luminescent solar concentrators

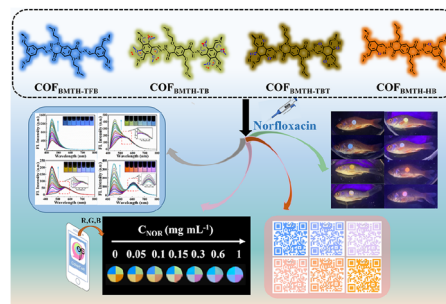
Lei Jin,\* Ehsan Hamzehpoor, Jiabin Liu, Xin Liu, Daniele Benetti, Gurpreet Singh Selopal, Dmytro F. Perepichka,\* Zhiming M. Wang\* and Federico Rosei\*



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# Linker engineering to regulate the fluorescence of hydrazone-linked covalent organic frameworks for the real-time visual detection of norfloxacin and multiple information encryption

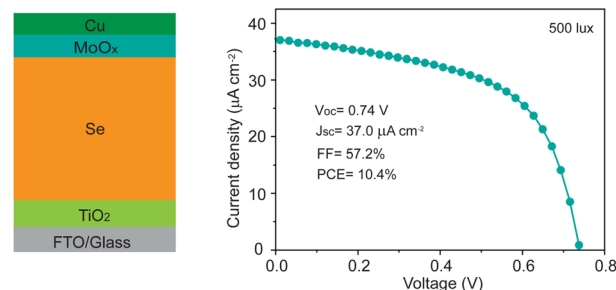
Haifei Wan, Mengyao Li, Li Wang\* and Yonghai Song\*



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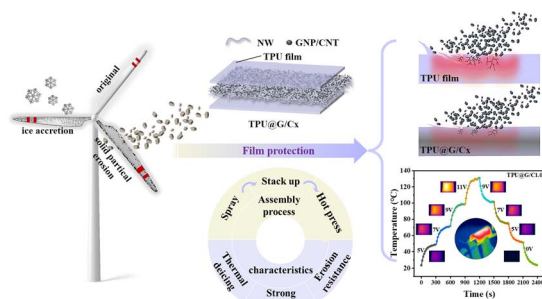
# Low-cost and high-performance selenium indoor photovoltaics

Zhouqing Wei, Wenbo Lu, Zongbao Li, Mingjie Feng, Bin Yan, Jin-Song Hu and Ding-Jiang Xue\*



## PAPERS

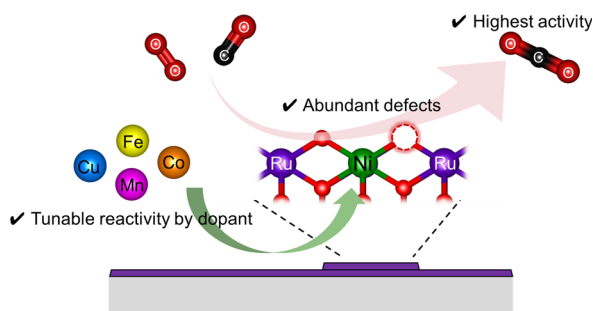
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### Polyurethane-based nanocomposite film with thermal deicing capability and anti-erosion for wind turbine blades protection in extreme environments

Xiaofeng Cui, Na Zhang,\* Ming Huang, Guoli Gao, Shihai Liu and Chuntai Liu

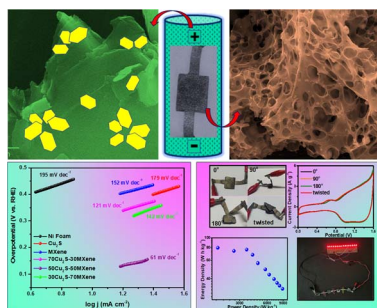
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### Self-organized defect-rich RuMO<sub>x</sub> epitaxial layers (M = Mn, Fe, Co, Ni, Cu) for catalytic applications

Akira Oda,\* Risa Ichihashi, Yuta Yamamoto, Kyoichi Sawabe and Atsushi Satsuma\*

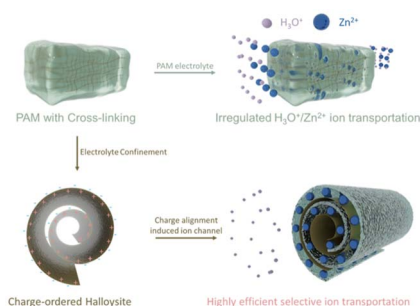
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### 2D-Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene-supported Cu<sub>2</sub>S nanoflakes for supercapacitors and electrocatalytic oxygen evolution reaction

Debika Gogoi, Rajeshvari Samatbhai Karmur, Manash R. Das and Narendra Nath Ghosh\*

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### Building fast and selective Zn ion channels for highly stable quasi-solid-state Zn-ion batteries

Chun-Chuan Kao, Jiahao Liu, Chao Ye,\* Shao-Jian Zhang, Junnan Hao and Shi-Zhang Qiao\*

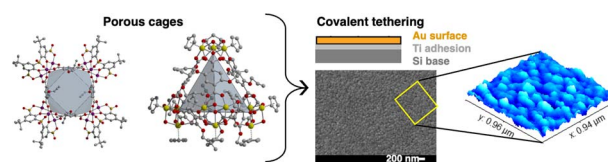


## PAPERS

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## Covalent modification of surfaces with porous metal–organic materials

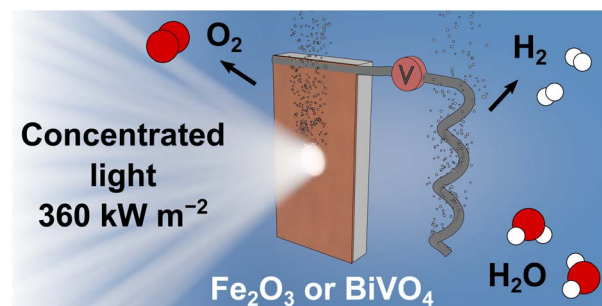
Christine M. Montone, Michael R. Dworzak, Glenn P. A. Yap and Eric D. Bloch\*



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## Photoelectrochemical behaviour of photoanodes under high photon fluxes

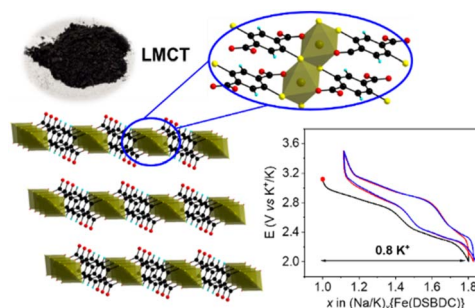
Isaac Holmes-Gentle, Franky E. Bedoya-Lora, Lorenzo Aimone and Sophia Haussener\*



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## Fe(III)-carboxythiolate layered metal–organic frameworks with interest as active materials for rechargeable alkali-ion batteries

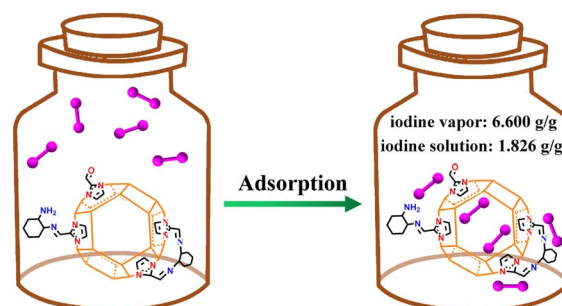
Nusik Gedikoglu, Pablo Salcedo-Abraira, Long H. B. Nguyen, Nathalie Guillou, Nicolas Dupré, Christophe Payen, Nicolas Louvain, Lorenzo Stievano, Philippe Poizot and Thomas Devic\*



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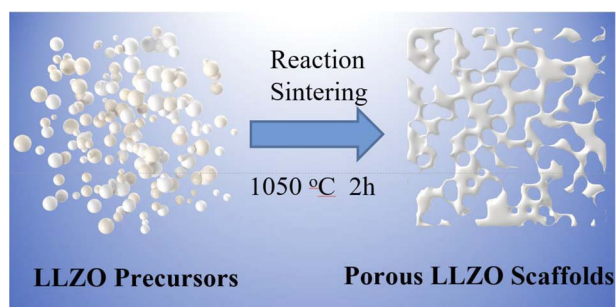
## Post-synthetic modification of zeolitic imidazolate framework-90 via Schiff base reaction for ultrahigh iodine capture

Zilong Zhang, Yanchun Chen, Yiheng Sun, Zilu Chen,\* Zhan-Yun Zhang,\* Fupei Liang, Dongcheng Liu and Huan-Cheng Hu\*



## PAPERS

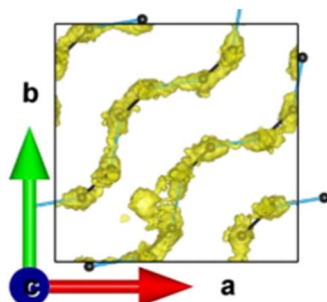
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**Porous  $\text{Ga}_{0.25}\text{Li}_{6.25}\text{La}_3\text{Zr}_2\text{O}_{12}$  frameworks by gelcasting–reaction sintering for high-performance hybrid quasi-solid lithium metal batteries**

Ying Zhou, Ying Tian, Wen Wang\* and Yu Zhou

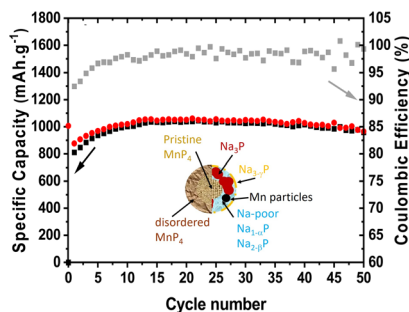
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**Topology driven and soft phonon mode enabled Na-ion diffusion in quaternary chalcogenides,  $\text{Na}_3\text{ZnGaX}_4$  ( $\text{X} = \text{S}$ , and  $\text{Se}$ )**

Sajan Kumar, Mayanak K. Gupta,\* Ranjan Mittal,\*  
Santhoshkumar Sundaramoorthy, Amitava Choudhury,\*  
Naresh C. Osti, Alexander I. Kolesnikov, Matthew B. Stone,  
Yongqiang Cheng and Samrath L. Chaplot

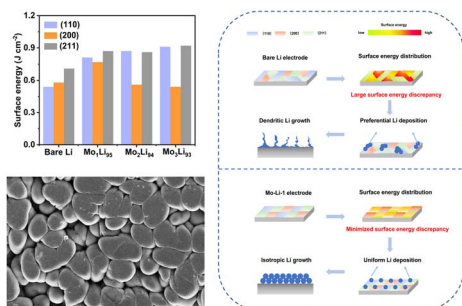
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**$\text{MnP}_4$  electrode for Na-ion batteries: a complex and effective electrochemical mechanism**

Julien Fullenwarth, Bernard Fraisse, Nicolas Dupré,  
Lorenzo Stievano and Laure Monconduit\*

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**Enabling isotropic Li growth via Li foil facet-engineering for high-performance Li metal batteries**

Yanyan Liu, Shuyue Wang, Minghao Sun,\* Min Ling,\*  
Shaodong Zhou\* and Chengdu Liang\*



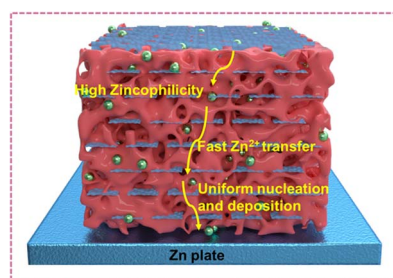


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# A bio-inspired multifunctional interface layer for high performance zinc-ion batteries via novel *in situ* electropolymerization

Jun Wang, Xiuyang Zou, Lina Song, Yang Hou, Jianguo Lu, Xiang Gao, Qinggang He, Yongyuan Ren,\* Xiaoli Zhan and Qinghua Zhang\*

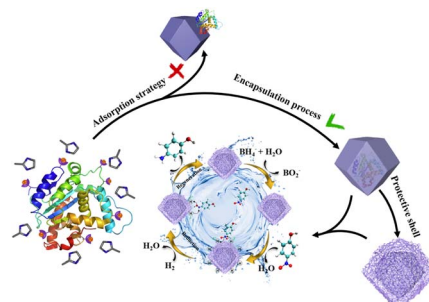


Bio-inspired Multifunctional Interface Layer

23984

# Albumin protein encapsulation into a ZIF-8 framework with Co-LDH-based hierarchical architectures for robust catalytic reduction

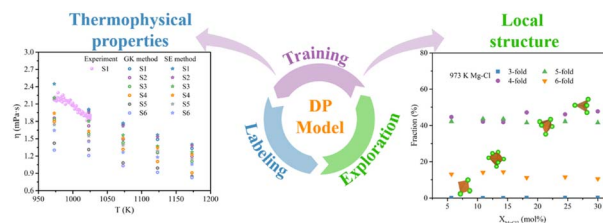
Maryam Chafiq, Abdelkarim Chaouiki,\* Tri Suhartono and Young Gun Ko\*



23999

# Insights into the local structure evolution and thermophysical properties of NaCl–KCl–MgCl<sub>2</sub>–LaCl<sub>3</sub> melt driven by machine learning

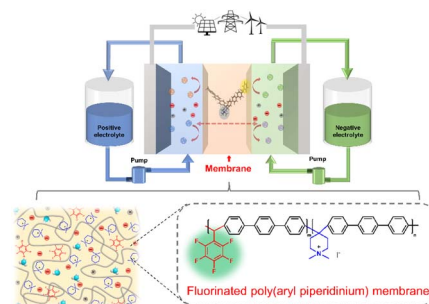
Jia Zhao, Taixi Feng, Guimin Lu\* and Jianguo Yu



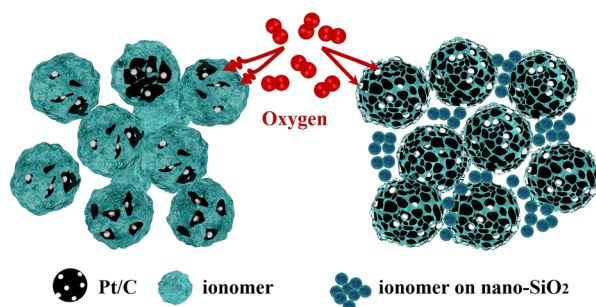
24013

# Efficient and durable vanadium flow batteries enabled by high-performance fluorinated poly(aryl piperidinium) membranes

Tao Ban, Maolian Guo, Yajie Wang, Jiawang Ma, Xinxin Wang, Zihui Wang and Xiuling Zhu\*



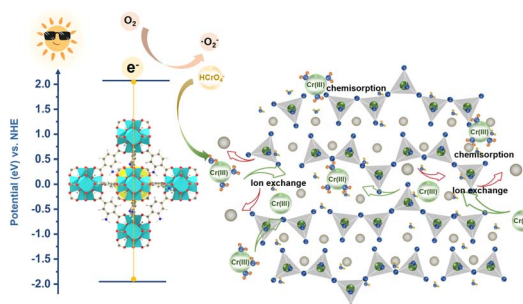
24026



### Tailoring the Pt/ionomer interface for enhancing the local oxygen transport in proton exchange membrane fuel cells

Fengman Sun, Haijun Liu, Qian Di, Keyi Xu, Ming Chen\* and Haijiang Wang\*

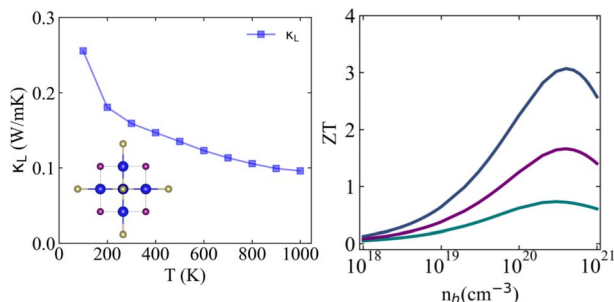
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### Removal of total chromium in wastewater via simultaneous photocatalysis and adsorption using calcium silicate hydrate-based composites

Min Liu, Qi Liu, Xue-Ting Jin, Ya-Chen Zou, Di-Ning Li, Pan Feng\* and Yang-Hui Luo\*

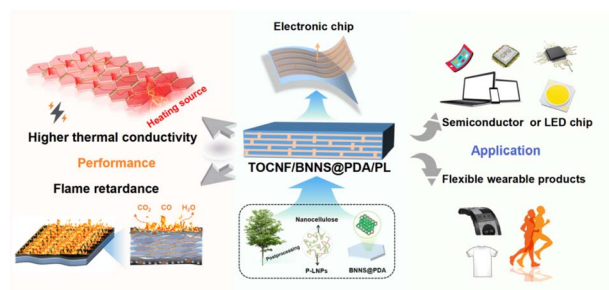
24047



### Remarkable thermoelectric efficiency of cubic antiperovskites Rb<sub>3</sub>X(Se & Te)I with strong anharmonicity

Shuming Zeng,\* Qian Shen, Lina Guo, Yinchang Zhao,\* Hao Huang, Geng Li\* and Yusong Tu\*

24057



### Flexible nanocellulose-based layered films by crosslinking phosphorus lignin nanoparticles and functionalized boron nitride nanosheets for flame-resistant and thermal conductivity applications

Bingyang Liu, Jinsong Zeng,\* Pengfei Li,\* Jinpeng Li, Bin Wang, Jun Xu, Wenhua Gao and Kefu Chen

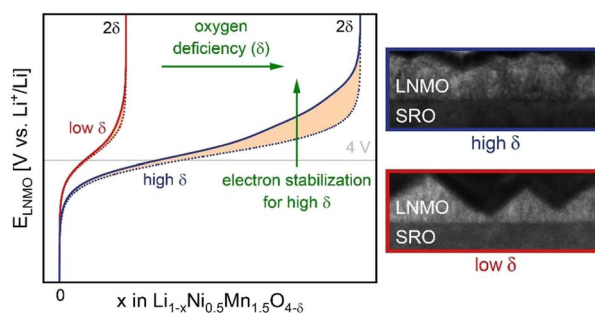


## PAPERS

24072

# Chemical capacitance measurements reveal the impact of oxygen vacancies on the charge curve of $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_{4-\delta}$ thin films

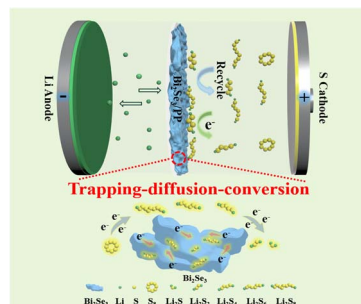
Andreas E. Bumberger,\* Sergej Ražnjević, Zaoli Zhang, Gernot Friedbacher and Juergen Fleig



24089

# Topological insulator bismuth selenide with a unique cloud-like hollow structure as a bidirectional electrocatalyst for robust lithium–sulfur batteries

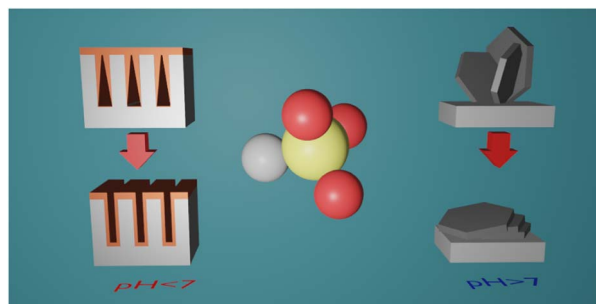
Mincai Zhao, Junjie Fu, Daoping Cai,\* Chaoqi Zhang, Ban Fei, Yinggan Zhang,\* Baisheng Sa, Qidi Chen and Hongbing Zhan



24099

# Sulfonate compounds embraced from *acid* copper electroplating baths as innovative additives for *alkaline* Zn batteries

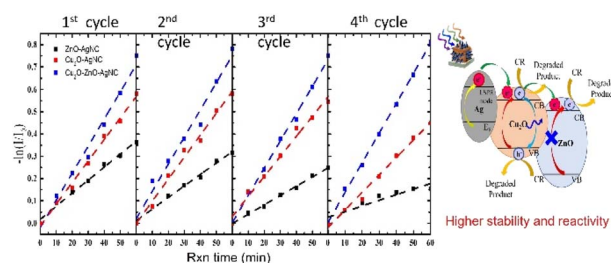
Katerina Bogomolov, Ekaterina Grishina and Yair Ein-Eli\*



24114

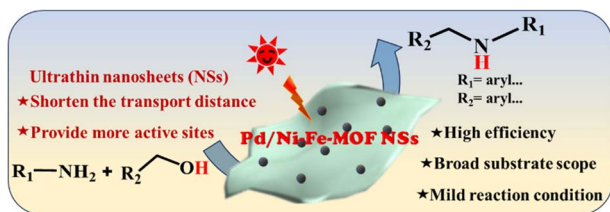
# Synthesis of three-component $\text{Cu}_2\text{O}/\text{ZnO}/\text{Ag}$ nanocrystal heterogeneous photocatalysts with high reactivity and stability for dye reduction

Chih-Wu Chiang, Chieh-Yu Lai and Su-Wen Hsu\*



## PAPERS

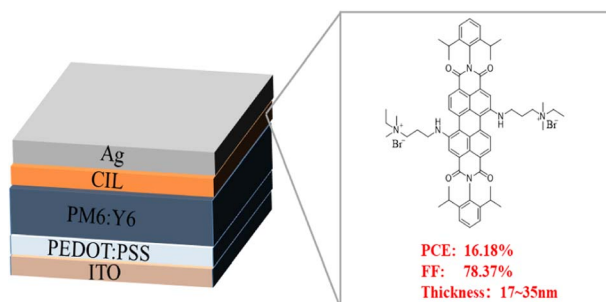
24127



### Deposition of Pd nanoparticles on 2D Ni-Fe-MOF ultrathin nanosheets for efficient *N*-alkylation of amines by alcohols under visible light

Yun Yuan, Jiaqi Wang, Hurunqing Liu and Zhaohui Li\*

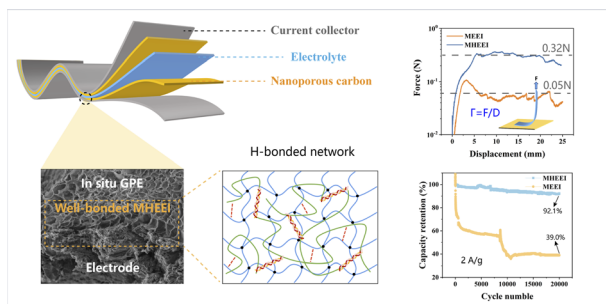
24136



### Cathode interface materials based on perylene-diimide derivatives for thickness insensitivity and high fill factor heterojunction organic solar cells

Lei Li, Jie Xu, Wenli Luo, Ke Zhong, Xiaohong Zhao,\*  
Yu Hu, Zhongyi Yuan\* and Yiwang Chen

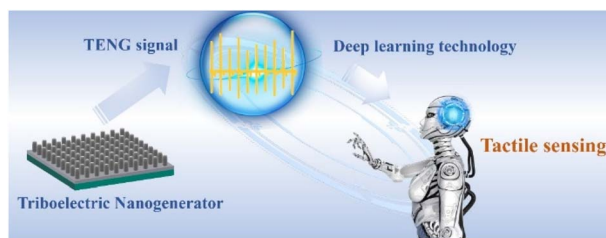
24146



### Cartilage-inspired rapid *in situ* fabrication of seamless interlocked electrolyte–electrode interface for high-performance flexible supercapacitors

Yu Guo, Yinghui Shang,\* Bingqian Jiao, Yuting Guo,  
Yujing Tang, Saiji Shen, Dongbei Wu, Xia Wang, Wenju Li\*  
and Qigang Wang\*

24158



### A multimodal PDMS triboelectric nanogenerator sensor based on anodised aluminium oxide template preparation for object recognition

Hongde Zhu, Junlan Liang, Sanlong Wang, Junjun Huang\*  
and Zhenming Chen\*

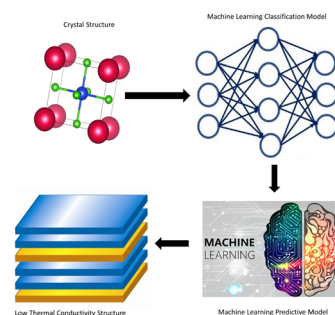


## PAPERS

24169

# High-throughput computational discovery of 3218 ultralow thermal conductivity and dynamically stable materials by dual machine learning models

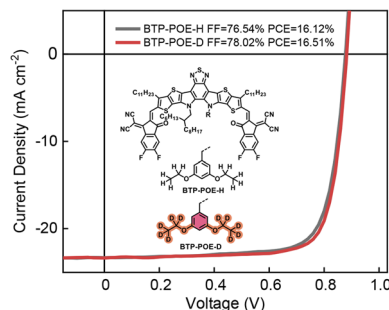
Joshua Ojih, Chen Shen, Alejandro Rodriguez, Hongbin Zhang,\* Kamal Choudhary and Ming Hu\*



24184

# Impact of side-chain deuteration on the molecular stacking and photovoltaic performance of non-fullerene acceptors

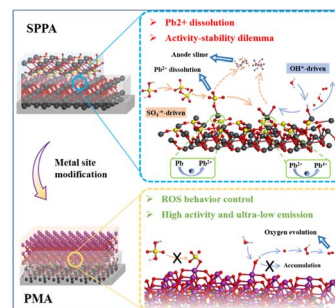
Liang Zeng, Ming Zhang, Mengyuan Gao, Lingwei Xue, Haiqiao Wang, Zhi-Guo Zhang\* and Long Ye\*



24192

# Contradictory role of reactive oxygen species in dissolution-dependent activity of Pb-based anodes in acidic electrooxidation

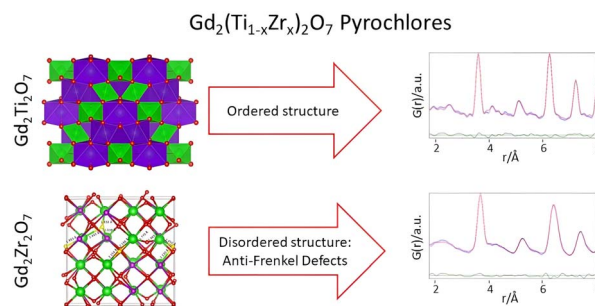
Siwei Zhuang, Ning Duan,\* Linhua Jiang, Feilong Zhang and Fuyuan Xu\*



24203

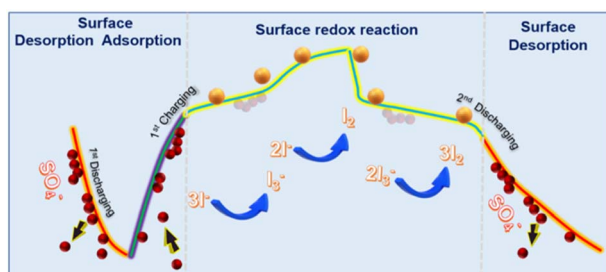
# Emerging disorder in Gd<sub>2</sub>(Ti<sub>1-x</sub>Zr<sub>x</sub>)<sub>2</sub>O<sub>7</sub> pyrochlores matrices for radioactive waste disposal: symmetry lowering *versus* defect clustering

Armando di Biase,\* Carlo Castellano,\* Giorgia Confalonieri, Patrizia Fumagalli, Simone Tumati, Davide Ceresoli and Marco Scavini\*



## PAPERS

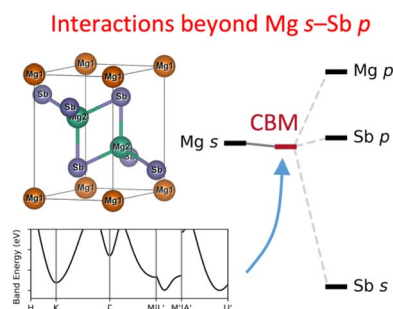
24219



### A low cost $\text{Zn}^{2+}/\text{I}^-$ redox active electrolyte for a high energy and long cycle-life zinc hybrid battery–capacitor

Balamurugan Selvaraj, Balaji Sambandam, Sungjin Kim, Vinod Mathew, Sehong Seo, Moon-su Song and Jaekook Kim\*

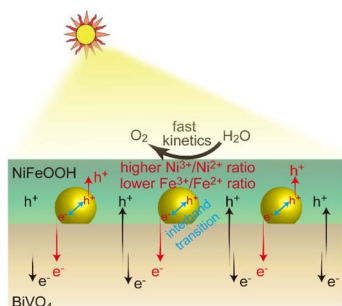
24228



### Understanding the complex electronic structure of $\text{Mg}_3\text{Sb}_2$ and the effect of alloying through first-principles tight-binding models

Wenhao Zhang, Jean-François Halet\* and Takao Mori\*

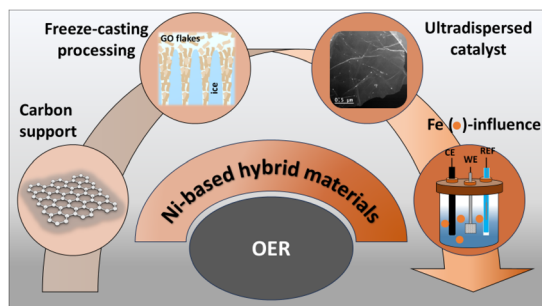
24239



### Boosting photoelectrochemical water oxidation by sandwiching gold nanoparticles between $\text{BiVO}_4$ and $\text{NiFeOOH}$

Hang Yin, Yanzhen Guo, Nan Zhang,\* Yuyang Wang, Shouren Zhang and Ruibin Jiang\*

24248



### Ultra-high dispersion of Ni-based OER catalysts on graphene 3D networks enhances the *in situ* $\text{Fe}^{3+}$ catalytic activation

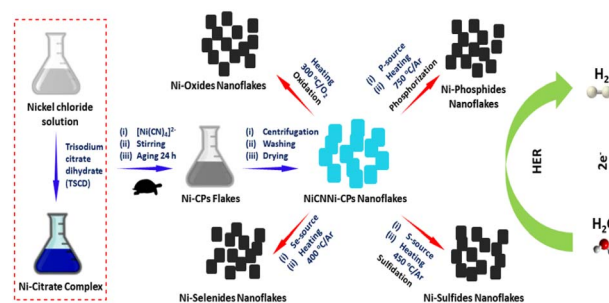
María González-Ingelmo, Miriam López García, Freddy E. Oropeza, Patricia Álvarez, Clara Blanco, Ricardo Santamaría and Victoria G. Rocha\*



24261

## Two-dimensional nickel cyano-bridged coordination polymer thermally derived potent electrocatalysts for alkaline hydrogen evolution reaction

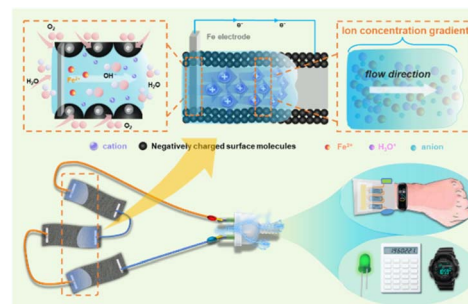
Manar M. Abdel Naby, Mohamed B. Zakaria,\*  
Haitham M. El-Bery, Gehad G. Mohamed  
and Mohamed E. El-Khouly\*



24272

## Enhancing energy extraction from water microdroplets through synergistic electrokinetic and galvanic effects

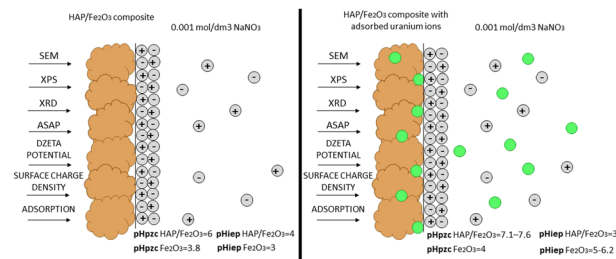
Haitao Li,\* Wenxing Wang, Xiangming Li, Tharishinny Raja Mogan, Linan Xu, Hiang Kwee Lee\* and Jie Han\*



24281

## Study of the effect of uranium recovery at Hap/Fe<sub>2</sub>O<sub>3</sub> composite and Fe<sub>2</sub>O<sub>3</sub> interfaces on the parameters of the electrical double layer

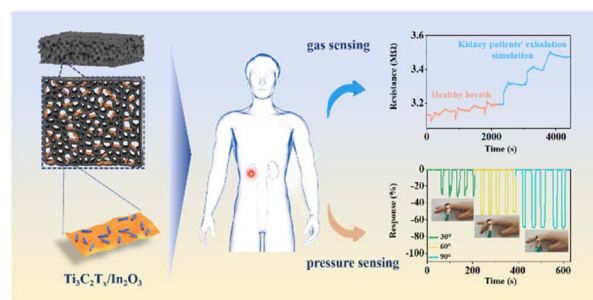
Adrianna Biedrzycka, Agnieszka Gładysz-Ptaska  
and Ewa Skwarek\*



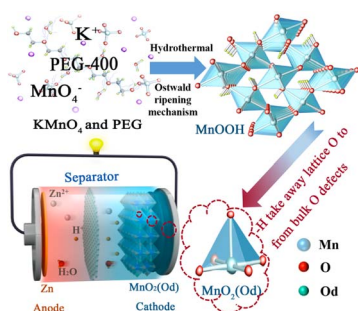
24299

## A dual-mode foam sensor employing Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub>/In<sub>2</sub>O<sub>3</sub> composites for NH<sub>3</sub> detection with memory function and body movement monitoring for kidney disease diagnosis

Zitong Kan, Fangyu Shi, Long Yang, Qingqing Zhou,  
Yuhong Zhang, Yu Qi, Huan Zhang, Biao Dong,  
Luquan Ren, Hongwei Song and Lin Xu\*



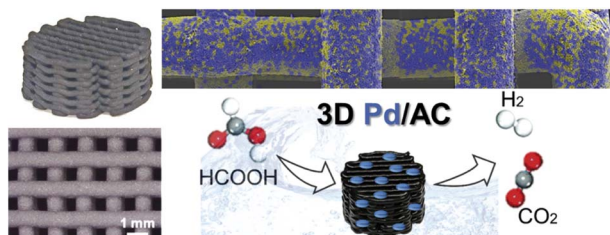
24311



### Ostwald ripening mechanism-derived MnOOH induces lattice oxygen escape for efficient aqueous MnO<sub>2</sub>–Zn batteries

Junjie Zheng, Chenchen Qin, Chi Chen,<sup>\*</sup> Chuankun Zhang, Pei Shi, Xin Chen, Yi Gan, Jingying Li, Jia Yao, Xin Liu, Junyan Cheng, Dan Sun, Houzhao Wan<sup>\*</sup> and Hao Wang<sup>\*</sup>

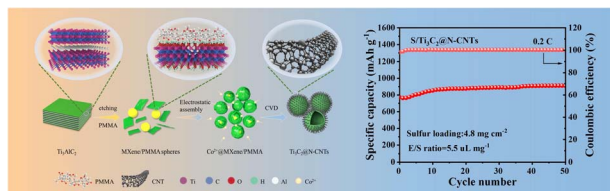
24321



### 3D-printed palladium/activated carbon-based catalysts for the dehydrogenation of formic acid as a hydrogen carrier

Irene Diaz-Herrezuelo, Gonzalo Vega,<sup>\*</sup> Marina Navarro, Pilar Miranzo, M. Isabel Osendi, Jose A. Casas, Asuncion Quintanilla and Manuel Belmonte<sup>\*</sup>

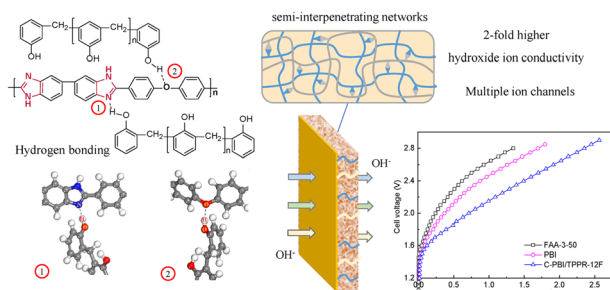
24330



### Constructing carbon nanotube-optimized hollow Ti<sub>3</sub>C<sub>2</sub> MXene hierarchical conductive networks for robust lithium–sulfur batteries

Ran Liu, Shengjun Zhai, Zimujun Ye, Mengzhu Liu, Yang Xu, Changwen Li, Xianbao Wang and Tao Mei<sup>\*</sup>

24338



### Hydrogen bond-dominated polybenzimidazole semi-interpenetrating network membranes for alkaline water electrolysis

Zhi Qiu, Lihua Wang,<sup>\*</sup> Min He, Pingxia Zhang, Hao Li, Yanbin Yun<sup>\*</sup> and Tong Zhao



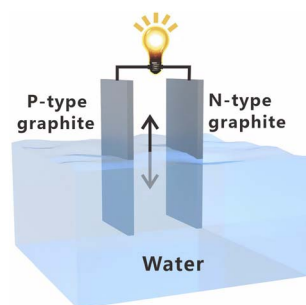


## PAPERS

24351

### An integrated-milliampere-level hydroelectric generator utilizing chemical-doped P-type and N-type graphites

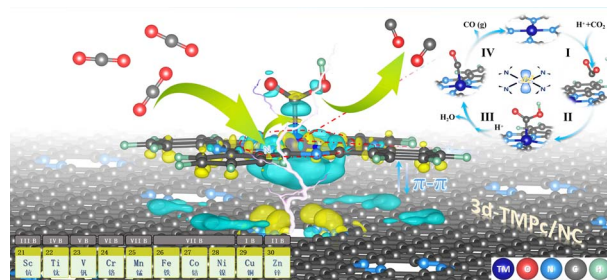
Dunren He, Wanyi Nie and Huihui Huang\*



24359

### Mechanistic understanding of 3d-metal phthalocyanine catalysts: heterostructure regulation of $d_{z^2}$ orbitals for efficient $\text{CO}_2$ reduction

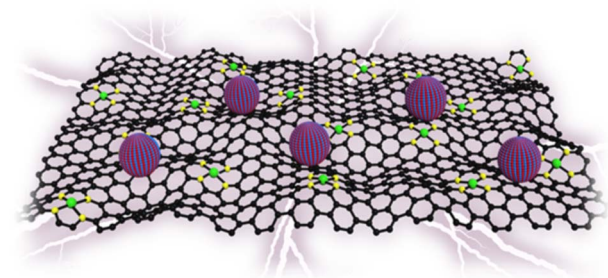
Jiayong Xiao, Jofrey J. Masana, Hao Dong, Hui Zhang, Haolan Yang, Ming Qiu\* and Ying Yu\*



24371

### Coupling PtZn intermetallic and atomically dispersed cobalt towards efficient and stable oxygen reduction reaction catalysts

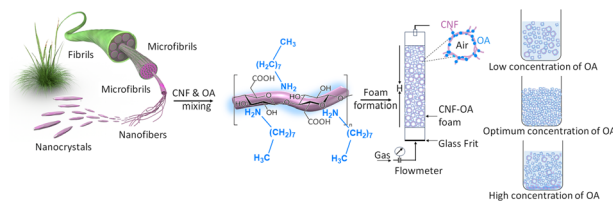
Lei Zhao, Xueqiang Qi,\* Tingting Yang, Pei Xiong, Xiaobin Niu, Jinxia Jiang, Qian Xue, Le Yu, Jun Song Chen, Andreu Cabot\* and Rui Wu\*



24379

### Eco-efficient pickering foams: leveraging sugarcane waste-derived cellulose nanofibres

Pouria Amani, Nasim Amiralian,\* Sandya S. A. Athukoralalage and Mahshid Firouzi\*



## PAPERS

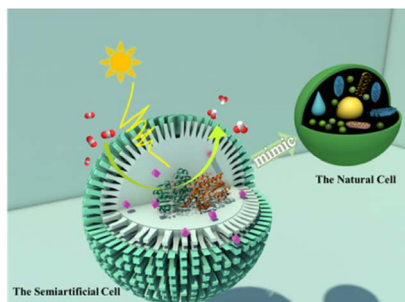
24390



### Enhancing Li<sup>+</sup> transport efficiency in solid-state Li-ion batteries with a ceramic-array-based composite electrolyte

Shu-Ming Yeh and Chia-Chen Li\*

24403



### Enhancing photocatalytic CO<sub>2</sub> reduction to formate through one-pot self-assembly of a semiartificial cell

Yixin Hong, Jianyu Han,\* Zhi Wang, Xiaofei Gu, Tianyi Huang, Yafeng Wu and Songqin Liu

## CORRECTION

24410

### Correction: Nickel carbonate (Ni<sub>2</sub>(CO<sub>3</sub>)<sub>3</sub>) as an electrocatalyst and photo-electrocatalyst for methanol electro-oxidation

Iranna Udachyan, Jayesh T. Bhanushali, Shanti G. Patra, Tomer Zidki, Amir Mizrahi and Dan Meyerstein\*

