

# Journal of Materials Chemistry A

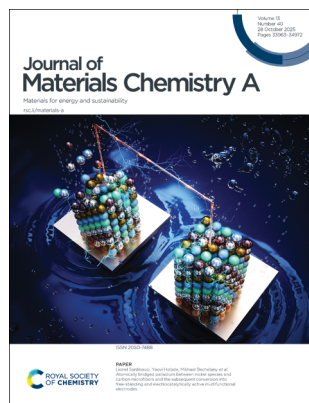
Materials for energy and sustainability

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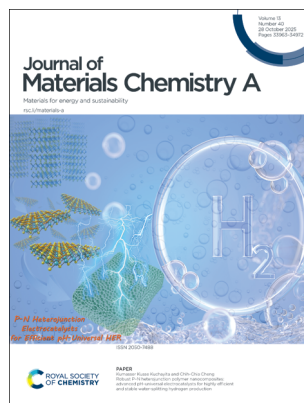
## IN THIS ISSUE

ISSN 2050-7488 CODEN JMCAET 13(40) 33963–34972 (2025)



### Cover

See Lionel Santinacci, Yaovi Holade, Mikhael Bechelany *et al.*, pp. 34231–34248. Image reproduced by permission of CNRS/European Institute of membranes from *J. Mater. Chem. A*, 2025, 13, 34231.



### Inside cover

See Kumasser Kusse Kuchayita and Chih-Chia Cheng, pp. 34249–34259. Image reproduced by permission of Chih-Chia Cheng from *J. Mater. Chem. A*, 2025, 13, 34249.

## EDITORIAL

33985

### Nanogenerators as a fundamental of a sustainable and intelligent energy future

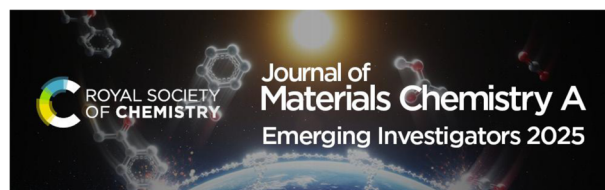
Zhong Lin Wang,\* Pooi See Lee\* and Ya Yang\*



## PROFILE

33988

### Contributors to the *Journal of Materials Chemistry A* Emerging Investigators 2025 collection



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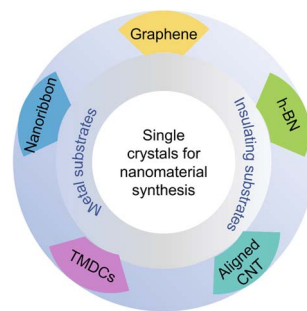
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## REVIEWS

34014

## The role of single-crystal substrates in synthesis of low-dimensional materials by CVD and their applications in electrocatalysis

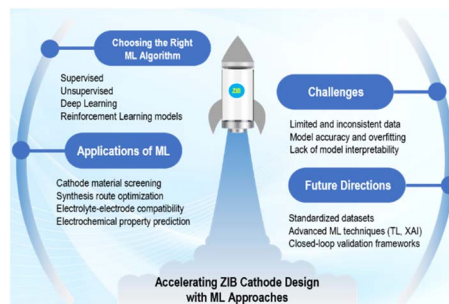
Li Li, Jiaqi Chen\* and Tao Sun\*



34033

## From atoms to algorithms: a review of machine learning approaches to cathode material innovation in zinc-ion batteries

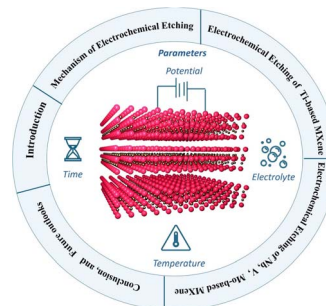
Jenitha Moses and Ajay Rakkesh Rajendran\*



34055

## Electrochemical etching of MXenes: mechanism, challenges and future outlooks

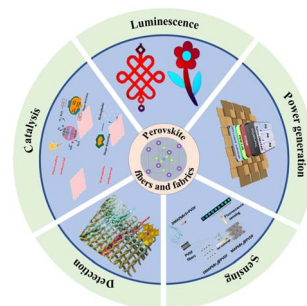
Shaista Nouseen and Martin Pumera\*



34085

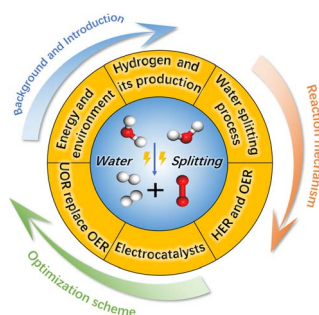
## Advances in perovskite-based functional fibers and fabrics: toward smart, sustainable, and wearable technologies

Long Zhang, Zijun Yi\* and Xuehong Ren\*



## REVIEWS

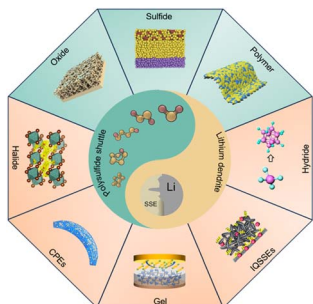
34122



### Advancements in water electrolysis: enhancing hydrogen and oxygen production efficiency through electrocatalyst design and urea oxidation

Xuze Tang, Yuemin Xin, Renhong Chen, Xuefeng Ren,<sup>\*</sup> Liguo Gao, Hao Xu,<sup>\*</sup> Peixia Yang and Anmin Liu<sup>\*</sup>

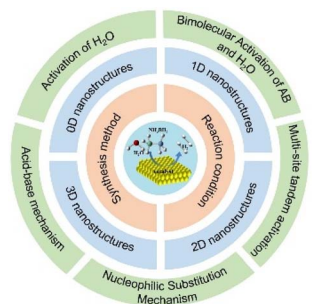
34149



### Taming polysulfide shuttle and lithium dendrites in lithium-sulfur batteries via all-/quasi-solid-state electrolytes: recent progress and future prospects

Chuju Wang, Hao Tan, Xiaozhen Li, Zishun Lin, Jing Xu, Tao Mei, Xianbao Wang,<sup>\*</sup> Guoxiu Wang<sup>\*</sup> and Yi Chen<sup>\*</sup>

34185

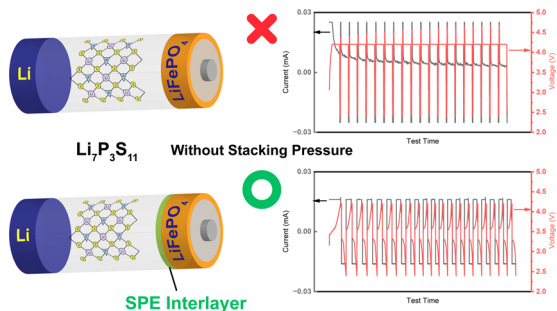


### Research progress of heterogeneous catalysts with different dimensional supports for catalytic hydrolysis of ammonia borane

Chengming Wang, Hao Ma, Shuling Liu, Ning Duan, Huanhuan Zhang, Zhuoyao Wang, Wei Lv, Xingyuan Fu, Yanyan Liu and Baojun Li<sup>\*</sup>

## COMMUNICATION

34220



### Synergy of metal halide doping and a polymeric interface enables improved electrochemical performance of all solid-state Li batteries

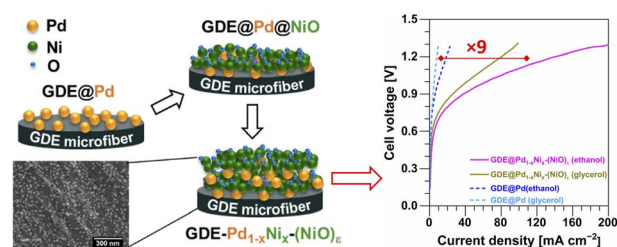
Madan Bahadur Saud, M. Bilal Faheem, Hansheng Li, Haining Zhang, Bilawal Khan, Samprash Risal, Abiral Baniya, Xinlu Wang, Yuchen Zhang, Ruosi Qiao, Poojan Kaswekar, Ian Dean Hosein, Yeqing Wang, Jr-Hau He, Zheng Fan and Quinn Qiao<sup>\*</sup>



34231

### Atomically bridged palladium between nickel species and carbon microfibers and the subsequent conversion into free-standing and electrocatalytically active multifunctional electrodes

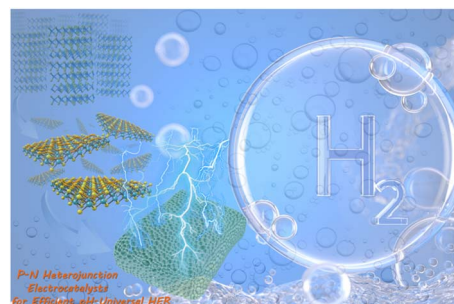
Zahra Hagheh Kavousi, Clémence Badie, Vyshnav Kannampalli, Massomeh Ghorbanloo, Qing Wang, Hazar Guesmi, Lionel Santinacci,\* Yaovi Holade\* and Mikhael Bechelany\*



34249

### Robust P–N heterojunction polymer nanocomposites: advanced pH-universal electrocatalysts for highly efficient and stable water-splitting hydrogen production

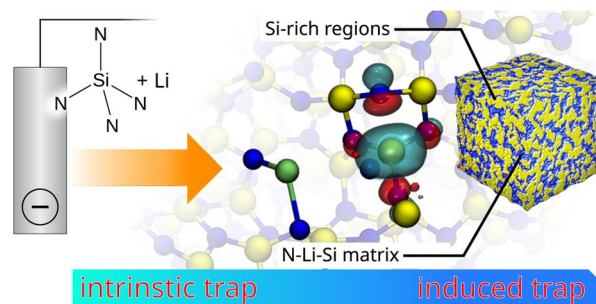
Kumasser Kusse Kuchayita and Chih-Chia Cheng\*



34260

### Forged by charge: polaron-induced matrix formation in silicon nitride conversion-type anodes for lithium-ion batteries

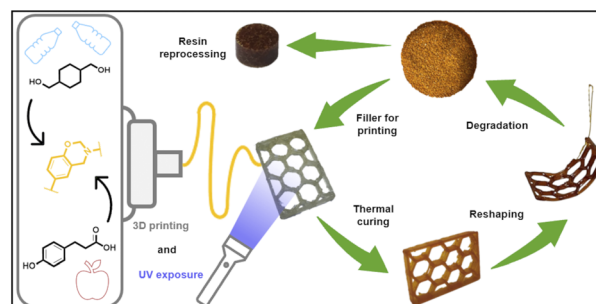
Jonathon Cottom, Lukas Hückmann, Jörg Meyer and Emilia Olsson\*



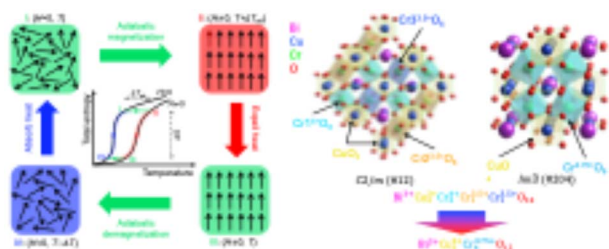
34273

### A recyclable, reshapable and UV-curable polybenzoxazine vitrimer enabling closed-loop 3D printing applications

Charles Jehl, Antoine Adjaoud, Ambre Meyer, Vincent Boulic, Channya Hesse, Laura Puchot, Joamin Gonzalez-Gutierrez, Alexander S. Shaplov, Daniel F. Schmidt and Pierre Verge\*



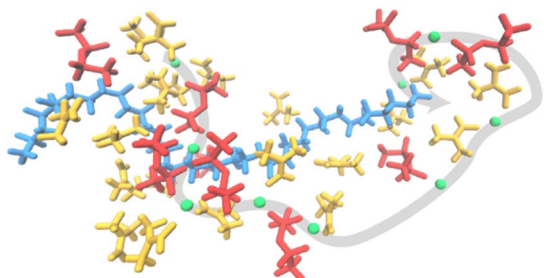
34286



### Insights into the giant magnetocaloric effect in $\text{BiCu}_3\text{Cr}_4\text{O}_{12}$ with charge–spin–lattice coupling

Hung Ba Tran,\* Hao Li,\* Masato Goto, Kazunori Sato and Yuichi Shimakawa

34297

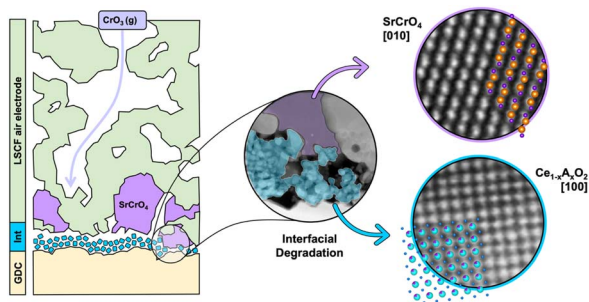


Percolation-enabled  $\text{Li}^+$  transport pathway

### Percolation-enabled long-range ion transport to achieve conductivity leap in PVDF-based electrolytes

Lingjie Luo, Han Lin, Rui Wu, Zengyao Zhang, Qiyun Li, Yuxuan Liu,\* Jun Liu, Renzong Hu\* and Min Zhu

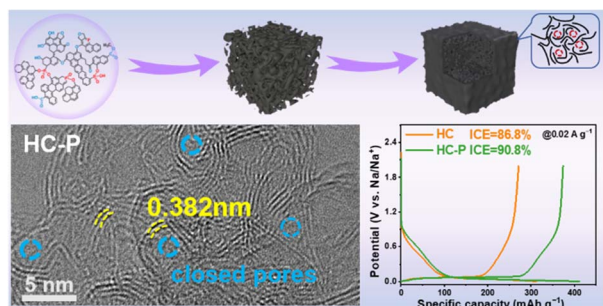
34306



### Atomic-scale insights into air electrode degradation after 10 years of fuel cell stack operation

Moritz Kindelmann,\* Olivier Guillon, Joachim Mayer and Norbert H. Menzler

34316



### Stepwise crosslinking–activation to create a closed pore structure of hard carbon for boosted sodium energy

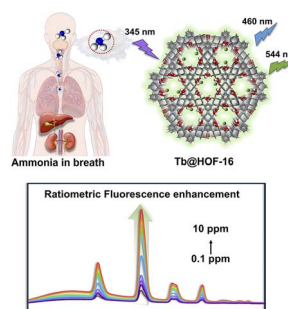
Jianfang Wang, Yaxin Huang, Weijia He, Yongli Li, Ting Ma, Chunguang Wei,\* Jian-Gan Wang\* and Ding Nan\*



34326

### Lanthanide ion-sensitized hydrogen-bonded organic framework as a fluorescent sensing platform for ultra-low concentration breath ammonia detection

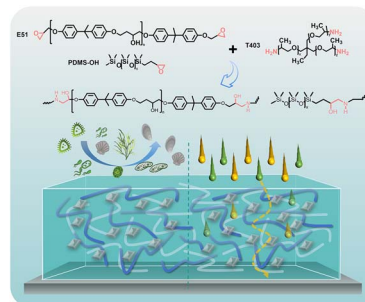
Yuxin Wang, Jing Wang, Chao Zhi, Xueqiang Guo, Lifei Yin, Changxiao Li, Jinping Li, Libo Li,\* Lixia Ling\* and Jia Yao\*



34335

### Construction of a photothermal self-healing epoxy coating with anti-fouling and anti-corrosion functions inspired by the hierarchical surface morphology of starfish

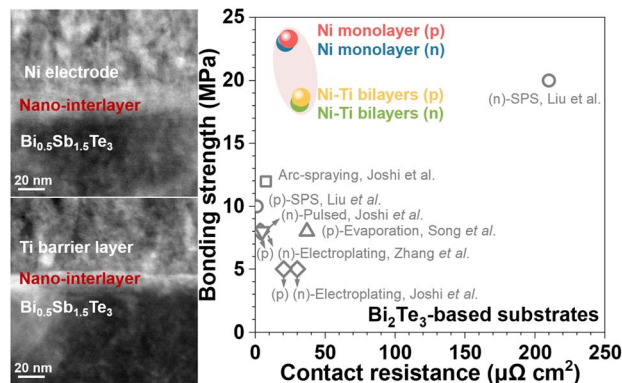
Ming-Yang Zhang, Yong-Yin Cui, Hong-Wei Cheng, Jia-Yuan Chen, Ke-Yu Wang, Ting-Yu Zhang, Hui-Jing Li and Yan-Chao Wu\*



34346

### In situ formed nano-interlayer enables robust interface bonding in efficient Bi<sub>2</sub>Te<sub>3</sub>-based thermoelectric modules

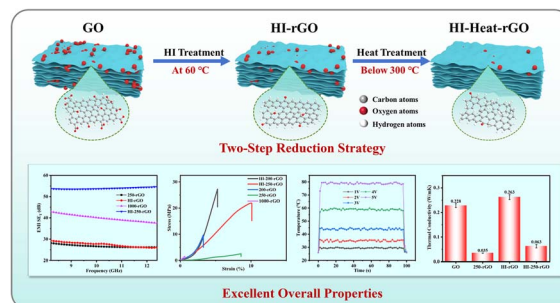
Rui Zhou, Ziyang Li, Shujing Yang, Xuemei Wang, Xinyi Shen, Long Yang, Zhiwei Chen, Juan Chen\* and Wen Li\*



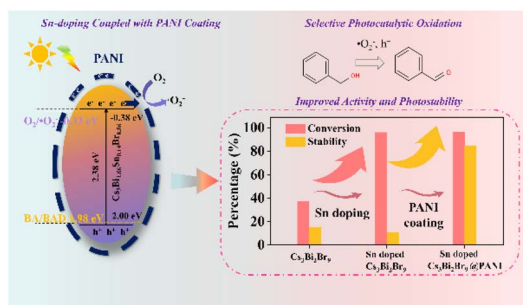
34353

### Fabrication of reduced graphene oxide electromagnetic shielding films with excellent comprehensive performance using a two-step reduction strategy

Yufan Wu, Wenhao Liang, Juntao Wu,\* Shan Zhang, Yun-Tian Chen, Jiahui Yan, Chengyuan Shang, Xiaobiao Zuo\* and Guang-Sheng Wang\*



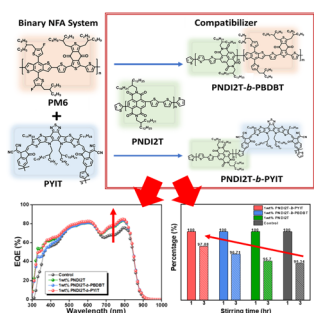
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### Dual-functional engineering of Sn-doping and polyaniline coating for $\text{Cs}_3\text{Bi}_2\text{Br}_9$ perovskite: boosting its photocatalytic activity and photostability in selective oxidation of benzyl alcohol

Hao Li, Hongxia Yang, Baozhu Tian\* and Jinlong Zhang\*

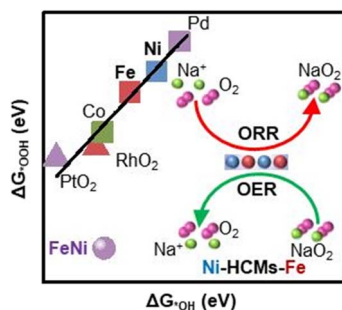
34375



### Tailoring block copolymer-type compatibilizers to enhance the performance and processability of inverted all-polymer solar cells

Hsu-Tzu Cheng, Aoto Kato, Yu-Cheng Tseng, Cheng-Yu Yeh, Hao-Wei Yu, Tomoya Higashihara\* and Chu-Chen Chueh\*

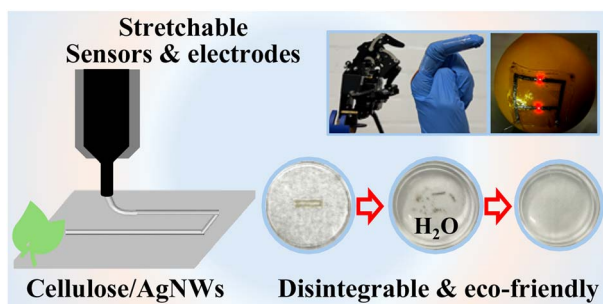
34384



### Breaking scaling relations *via* Fe/Ni diatomic catalysts towards highly efficient electrocatalysts for rechargeable Na-air batteries

Wenwen Yin, Jiawei Ma, Yanyan Li, Qing Cheng, Bernt Johannessen,\* Fangxi Xie\* and Mingmei Wu\*

34393



### Eco-friendly, flexible and stretchable printed electronics based on a sustainable elastic substrate and ink

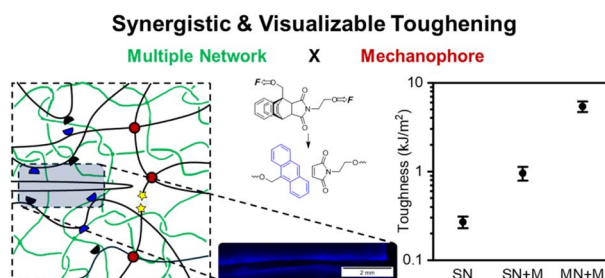
Danish Tahir, Xuan Li, Milad Razbin, Krish Singh, Anil R. Ravindran, Shuhua Peng and Shuying Wu\*



34409

## Synergistic and visualized toughening of elastomers through mechanophore crosslinks and multiple networks

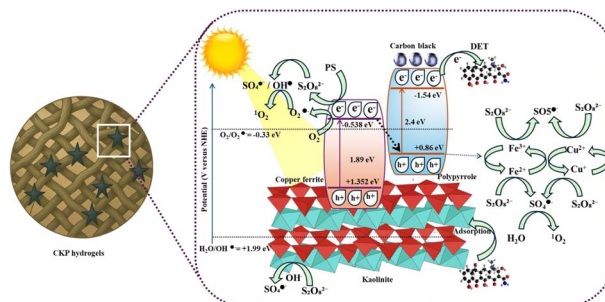
Zeyu Wang, Yongming Wang, Ming-Chi Wang, Zehao Fan and Junpeng Wang\*



34417

## Engineered 3D copper ferrite/kaolinite/polypyrrole carbon black hydrogels for efficient persulfate activation in tetracycline degradation: kinetics, mechanistic insights, toxicity, and green metrics

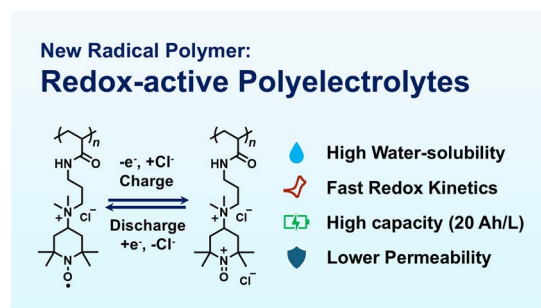
Akash Balakrishnan,\* Tushar Kumar Khora, Khwairakpam Bidya Devi, Mahendra Chinthala, Arvind Kumar and Natarajan Rajamohan\*



34440

## Combining low viscosity and high volumetric redox density of organic polymers for energy-efficient catholytes in redox flow batteries: a redox-active polyelectrolyte approach

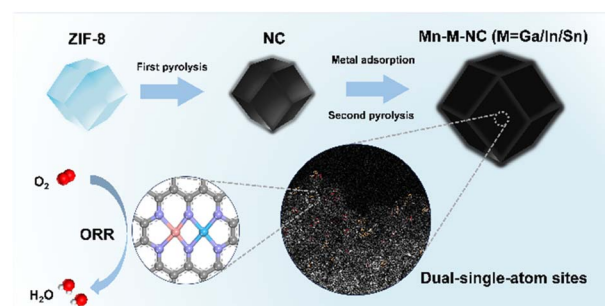
Kohei Ishigami and Kenichi Oyaizu\*



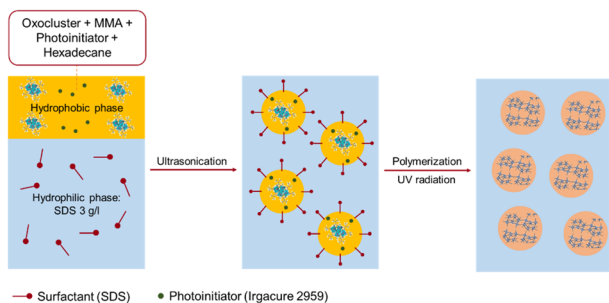
34447

## Synthesis of MnM–NC (M = Ga, In, Sn) dual-single-atom catalysts for efficient electrocatalytic oxygen reduction

Yujie Cui, Yihong Liu, Jiayi Li, Haibin Ma, Tingting Pan, Hainan Wei, Xinyue Shi, Xiaoyan Zhou, Ping Zhang, Weixing Niu, Shengnan Sun, Menghao Yang, Wei-Hsiang Huang,\* Jiwei Ma and Hongfei Cheng\*



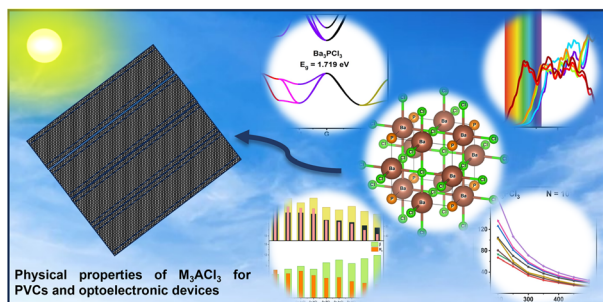
34456



### Confined-space synthesis of Zr-, Ti-, and Ti-Zr-oxocluster-based hybrid nanoparticles as catalysts for H<sub>2</sub>O<sub>2</sub>-mediated oxidations

Davide Vendrame, Giulia Bragaglia, Alessandro Dolmella, Giacomo Saielli, Mauro Carraro\* and Silvia Gross\*

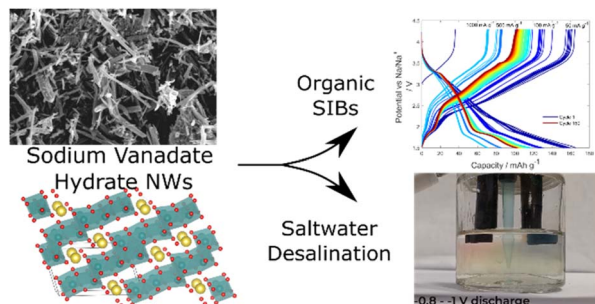
34469



### Inorganic M<sub>3</sub>ACl<sub>3</sub> (M = Ca, Sr, Ba, A = N, P, As) perovskite-derivatives for next-generation solar cells and optoelectronics: in-depth analysis of stability, optoelectronic features, and temperature-dependent carrier mobilities

Zia Ur Rehman\* and Zijing Lin\*

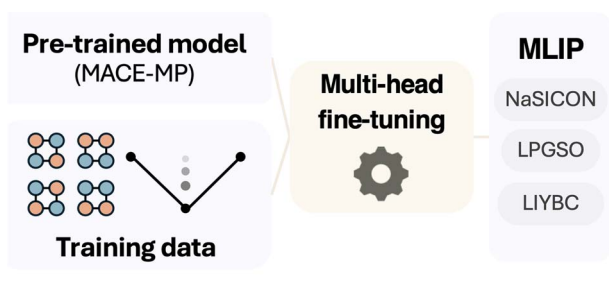
34493



### Nanostructured sodium vanadate hydrate as a versatile sodium ion cathode material for use in organic media and for aqueous desalination

Daniel Commandeur,\* Vlad Stolojan, Monica Felipe-Sotelo, James Wright, David Watson and Robert C. T. Slade

34507



### Accelerating the discovery of disordered multi-component solid-state electrolytes using machine learning interatomic potentials

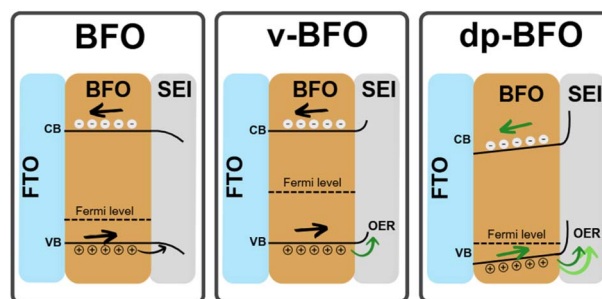
Yanhao Deng, Yan Li, Gopalakrishnan Sai Gautam, Bonan Zhu\* and Zeyu Deng\*



34519

### Inducing n-type photoanodic behavior in p-type bismuth ferrite *via* ferroelectric polarization

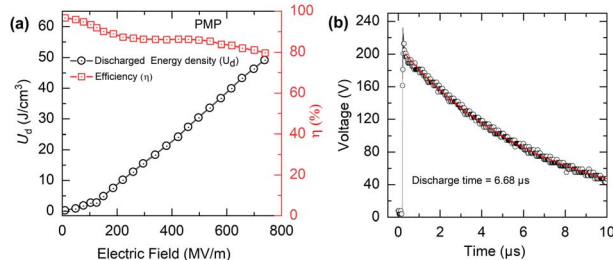
Michael Gunawan, Yimeng Jin, Teng Chi Leung, Owen Bowdler, Shujie Zhou, Denny Gunawan, Ming Zhang, Xueqing Fang, Qi Zhang, Nagarajan Valanoor, Rose Amal, Judy N. Hart,<sup>\*</sup> Jason Scott<sup>\*</sup> and Cui Ying Toe<sup>\*</sup>



34530

### High-density electrostatic energy storage in a multi-layer P(VDF-TrFE-CFE)/2D mica nanocomposite heterostructure capacitor

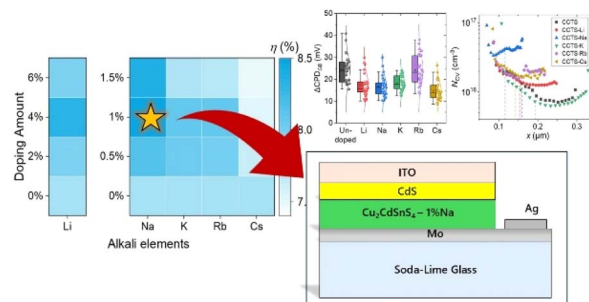
Rohit R. Srivastava, Roshan Padhan, Sumit Bera, Pallavi B. Jagdale, Novuhulu Rhakho, Rahul Rao, Anirudha V. Sumant and Nihar R. Pradhan<sup>\*</sup>



34540

### The role of alkali doping in enhancing bulk and interface properties of $\text{Cu}_2\text{CdSnS}_4$ solar cells

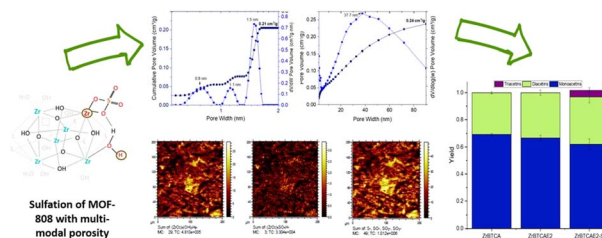
Edwin Julianto, Ha Kyung Park, Ahmad Ibrahim, Stener Lie, You Jung Choi, Geumha Lim, Mufti Ali Ar-Royan, Anupam Sadhu, Akhmad Herman Yuwono, William Jo and Lydia Helena Wong<sup>\*</sup>



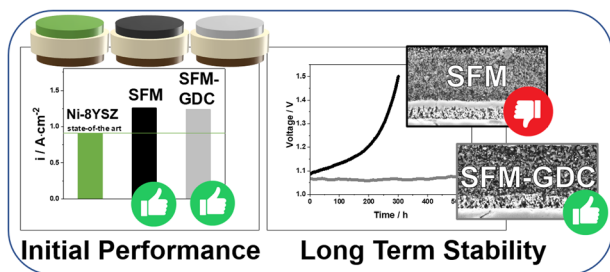
34550

### Ordered multi-modal sulfated MOF-808 and its improved catalytic performance in glycerol esterification

Carolina Ardila-Suárez,<sup>\*</sup> Iván M. Mora-Vergara, Cesar A. Bravo-Sanabria, Gustavo E. Ramírez-Caballero and Víctor G. Baldovino-Medrano<sup>\*</sup>



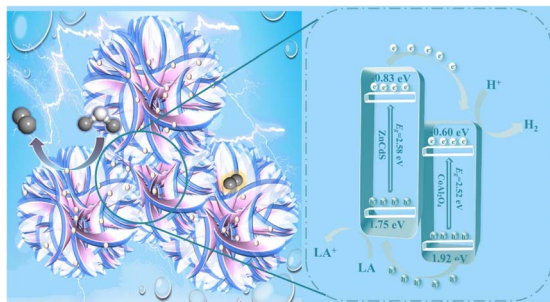
34565



### Electrochemical performance and durability of high-temperature solid oxide electrolysis cells with SFM and SFM-GDC fuel electrodes for hydrogen and syngas production

Stephanie E. Wolf, Vaibhav Vibhu,<sup>\*</sup> Pritam K. Chakraborty, Carla L. Coll, Sandro Schöner, Shibabrata Basak, Izaak C. Vinke, L. G. J. (Bert) de Haart and Rüdiger-A. Eichel

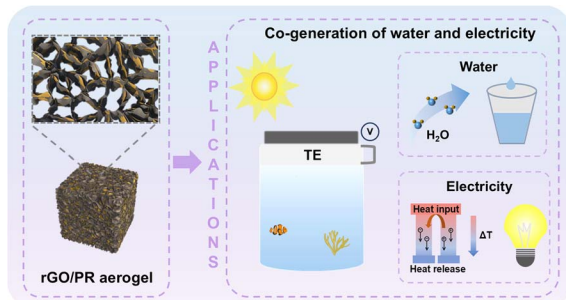
34585



### Charge separation engineering via $\text{CoAl}_2\text{O}_4/\text{ZnCdS}$ heterojunction and d-band center modulation for synergistically enhanced photocatalytic hydrogen evolution

Shuai Wang, Yihu Ke,<sup>\*</sup> Fei Jin and Zhiliang Jin<sup>\*</sup>

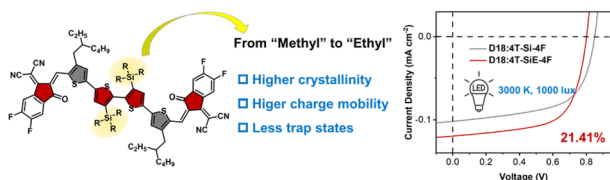
34599



### A robust and stable phenolic resin-crosslinked graphene aerogel for efficient solar-driven steam-power co-generation

Chuchu Zhang, Jiapeng Song, Yanjun Li, Jiaqi Chen, Zhuoli Yang, Yuanjin Wang, Tao Liu, Long Chen, Zhenggang Rao<sup>\*</sup> and Linfeng Fei<sup>\*</sup>

34609



### Fully non-fused acceptors with alkylsilyl side-chains for efficient indoor organic photovoltaics

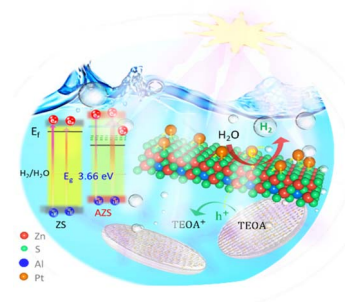
Yao Wu, Fang Wang, Junhong Liang, Ruize Zhou, Xiang Gao,<sup>\*</sup> Jinsheng Song,<sup>\*</sup> Jianhong Gao, Hui Chen and Zhitian Liu<sup>\*</sup>



34615

## Development of single crystalline Al-doped ZnS nanodiscs as efficient photocatalysts for H<sub>2</sub> evolution reaction

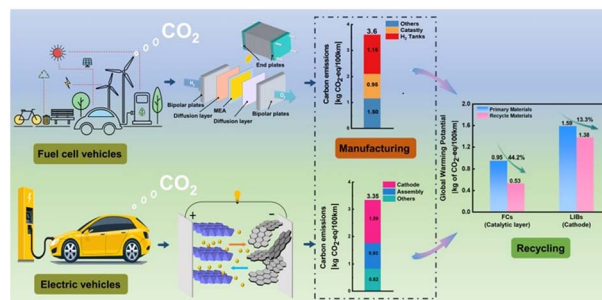
Rohit R. Koli, I.-Hua Tsai, Yu-Bin Huang, Chia-Hsin Wang, Bo-Hong Liu, Raghunath Putikam, M. C. Lin and Eric Wei-Guang Diau\*



34626

## Comparison of life cycle assessment in the fuel cell industry chain and the lithium battery industry

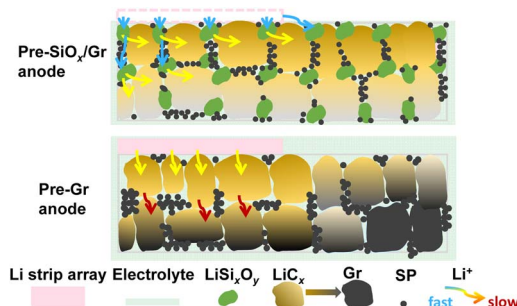
Wenjie Zhang, Jiawei Wen, Xin Wang, Xiaoming Zhang, Bin Wu, Wenhao Yu, Fengshan Yu, Rong Yi, Xiao Lin\* and Guoyong Huang\*



34640

## SiO<sub>x</sub> enhances prelithiation kinetics and homogeneity in graphite-based anodes

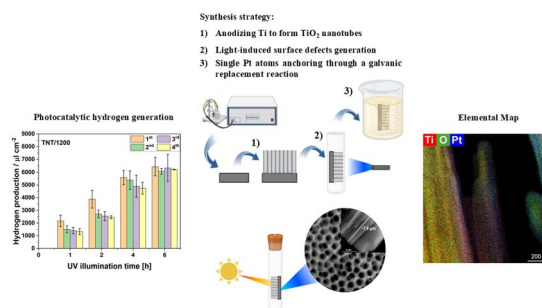
Wenting Luo, Qitao Shi, Can Zhang, Ruwei Yi, Wenlong Zhao, Yingdan Cui, Yanbin Shen, Jun Ge,\* Chao Wang\* and Yunhui Huang\*



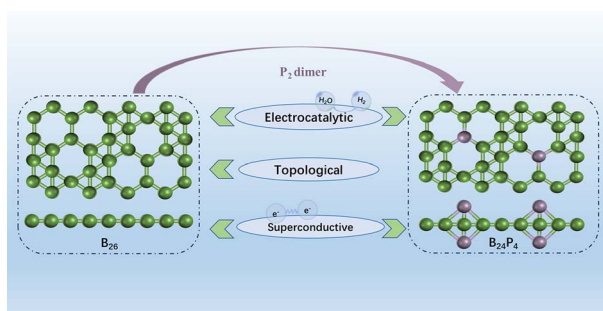
34648

## Light-induced surface defects in anodic TiO<sub>2</sub> nanotubes as trapping centers for single Pt atoms, a co-catalyst for enhanced photocatalytic hydrogen evolution

Ewelina Szaniawska-Biatas,\* Thorsten Schultz, Amanda Opis-Basilio, Dariusz Zasada, Norbert Koch, Kallol Ray, Nicola Pinna and Ewa Wierzbicka\*



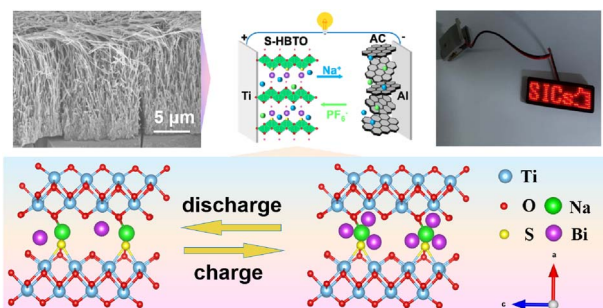
34659



**A cluster-assembled  $B_{26}$  monolayer and its inverse-sandwiched derivative  $B_{24}P_4$ : stable 2D boron-based materials with topological properties, superconductivity, and electrocatalytic activity**

Rong Liu, Bing Han, Fengyu Li\* and Zhongfang Chen\*

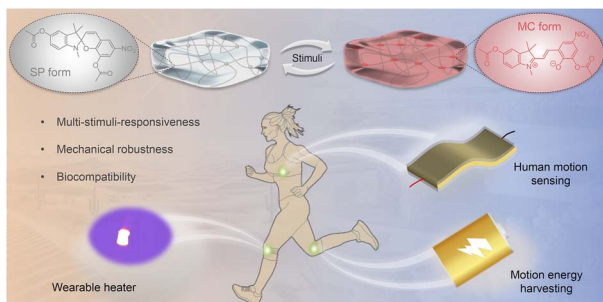
34671



**Fast sodium storage kinetics of titanate-based anode materials via  $\text{Bi}^{3+}/\text{S}$  co-doping engineering for advanced sodium-ion capacitors**

Jinghao Huo,\* Yingjie Xiao, Long Fan, Dan Zhao, Yi Liu, Gentian Yue and Shouwu Guo

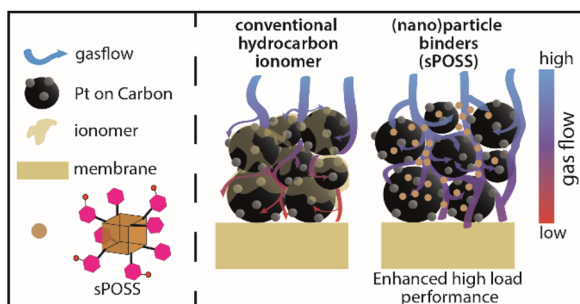
34682



**Multifunctional ionogels toughened with spirocyanine mechanophores for soft iontronics**

Li Chang, Jianmin Yang, Haitao Deng, Zhi Chen, Yan Yang and Ziquan Cao\*

34696



**Fluorine-free sulfonated polyhedral oligomeric silsesquioxanes: replacing polymeric binder in fuel cell catalyst layers**

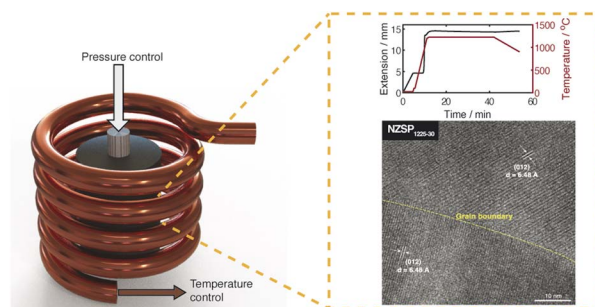
Julian Stiegeler, Sophia K. Kilian, Marco Viviani, Hannes Liepold, Carolin Klose, Andreas Münchinger\* and Tym de Wild\*



34706

### Reactive hot-pressed $\text{Na}_{3.4}\text{Zr}_2\text{Si}_{2.4}\text{P}_{0.6}\text{O}_{12}$ : nanoscale grains, glass-free microstructure, high total conductivity, enhanced chemical stability

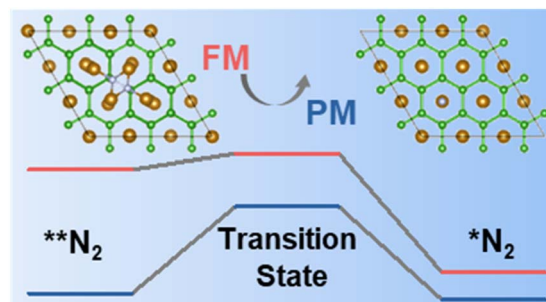
Kang-Ting Tseng, Zhengwu Fang, Bin Wang, Thomas P. Vaid, Amelia Reach, David Kwabi, Miaofang Chi, Jeffrey B. Wolfenstine and Jeff Sakamoto\*



34721

### Demagnetization-driven enhancement of electrochemical nitrogen reduction on two-dimensional magnetic transition metal borides

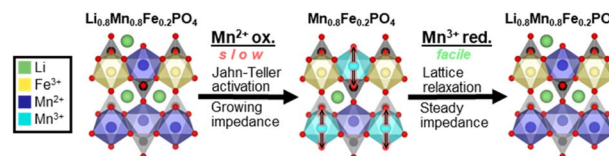
Shiyao Wang, Chunmei Ma, Yurong An and Junjie Wang\*



34730

### Delineating the kinetic limitations of $\text{Mn}^{2+/3+}$ redox in $\text{LiMn}_x\text{Fe}_{1-x}\text{PO}_4$ cathodes for lithium-ion batteries

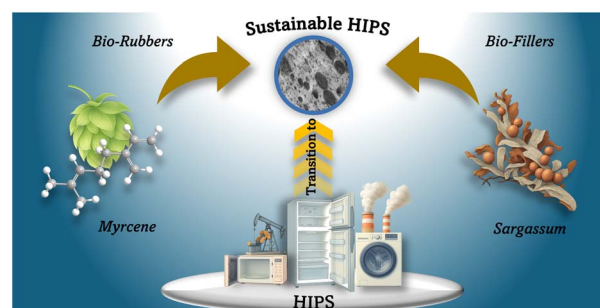
Seth Reed and Arumugam Manthiram\*



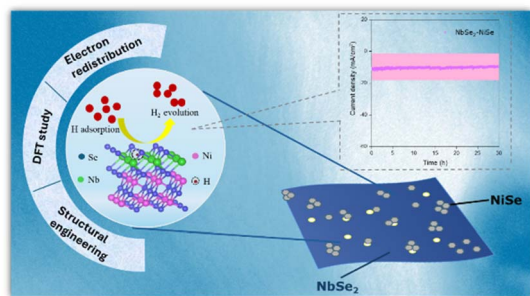
34741

### A dual pathway to make high-impact polystyrene more sustainable: integration of terpene-based rubbers and marine *Sargassum* fillers

Ilse Magaña, Francisco Vilaplana, He Li, Luis Valencia\* and Ramón Díaz de León\*



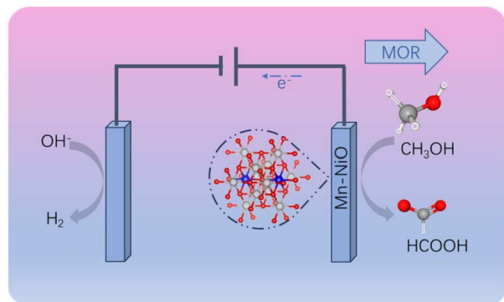
34761



### Electron redistribution assisted enhanced hydrogen evolution activity of NbSe<sub>2</sub>-NiSe nanoheterostructures

Varsha Jha, Ankita Kumari, Md. Samim Hassan, Shubham Kumar, Reetika Tamang, Jyoti Yadav, Dibyajyoti Ghosh and Sameer Sapra\*

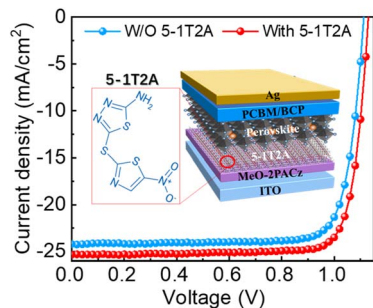
34772



### Mn-modified nickel oxide for selective methanol oxidation: a route toward integrated formate electrosynthesis and hydrogen generation

Ning Jian, Yi Ma, Huan Ge, Yong Zhang, Jiwei Hu, Yun Ke, Chaochao Li, Jing Yu, Jordi Arbiol, Junfeng Liu, Andreu Cabot and Junshan Li\*

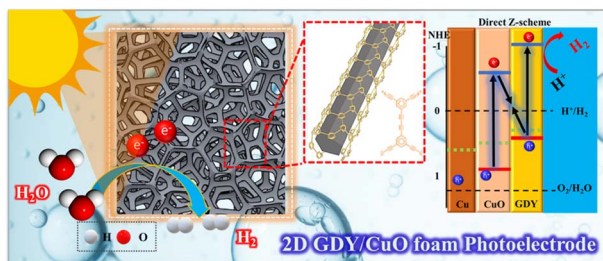
34782



### Enhancing inverted perovskite solar cell performance via buried modification for improved interface and stability

Xinying Chen, Yingqi Zuo, Henglin Mo, Jiateng Chen, Qiaofei Hu, Zhen He, Xiaoying Huang, Jiang Wang, Jian Xiong\* and Jian Zhang\*

34793



### A direct Z-scheme-based 2D graphdiyne/cupric oxide heterojunction for enhancing solar-to-hydrogen conversion efficiency

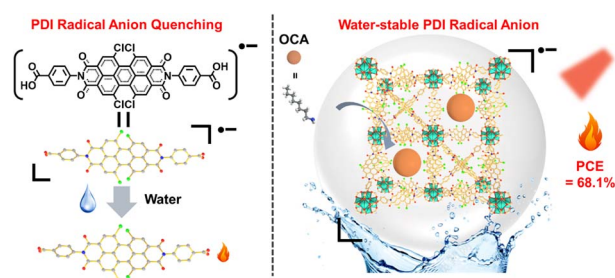
Hoki Son, Seongho Kang, Eungbeom Yeon, Seungwan Woo, Hyegyeng Hwang, Eunbee Jung and Jinsung Kwak\*



34804

## Water-stable perylene diimide radical anions in a metal–organic framework for efficient solar-thermal conversion and steam generation

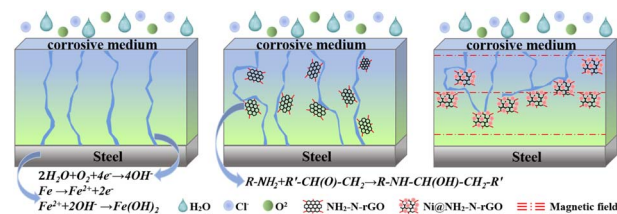
Junxiao Wang, Klaus Müllen, Jun Guan\* and Meizhen Yin\*



34813

## Corrosion resistance of hydrangea-like nano-Ni/ amino N-doped rGO epoxy composite coatings constructed *via* magnetic field-oriented alignment

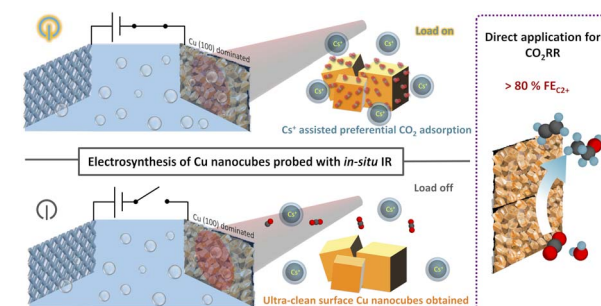
Peng Wang, Jian Wei,\* Yanbin Zhang, Enhao Lv, Yi Yao, Jing Liu, Bowen Xin and Xueting Li



34827

## Cation- and CO<sub>2</sub>-assisted electrochemical synthesis of clean, shape-controlled Cu nanocrystals for selective CO<sub>2</sub> reduction to C<sub>2</sub><sup>+</sup> products

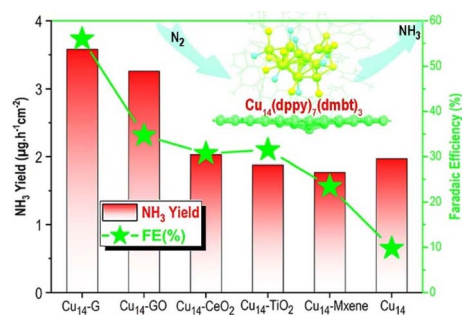
Wei-Ting Tu, Tsung-Han Tsai, Ding-Huei Tsai, Yi-Ting Xie, Hsuan-Yu Liu, Ming-Kang Tsai,\* Tsu-Chin Chou\* and Yung-Tin (Frank) Pan\*



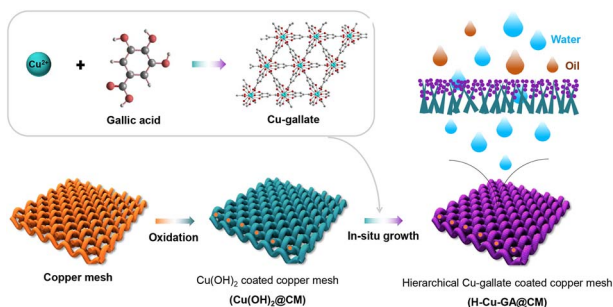
34836

## A Cu<sub>14</sub>(dppy)<sub>7</sub>(dmbt)<sub>3</sub> cluster of chelating structure for enhanced electrocatalytic nitrogen reduction to ammonia

Aamir Shehzad, Ran Cheng, Fang Zhang and Zhixun Luo\*



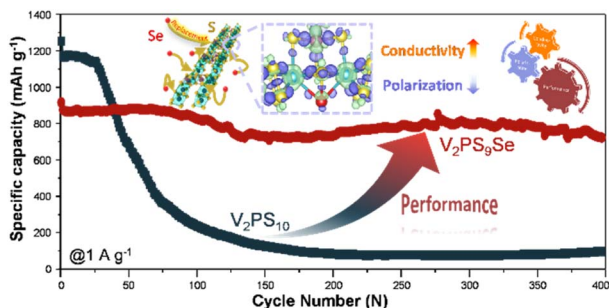
34843



### A hierarchical Cu-gallate-based mesh membrane for oil/water separation

Yinlu Fan, Yuxin Li, Jiu Shi and Yanwei Sun\*

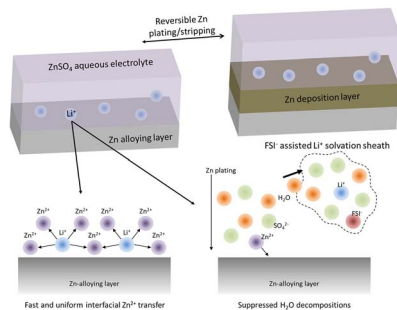
34851



### A novel 1D van der Waals $\text{V}_2\text{PS}_x\text{Se}_{10-x}$ ( $x = 7-10$ ) anode for enhanced electrochemical kinetics and high-rate performance via Se alloying in lithium-ion batteries

Xiaojie Zhang, Xue Dong, Chaeheon Woo, Yeongjin Kim, Jinsu Kang, Kyung In Kim, Yeong Hyeop Kim, Donghyeon Lee, Minjae Kim, Junyoung Mun,\* Hak Ki Yu\* and Jae-Young Choi\*

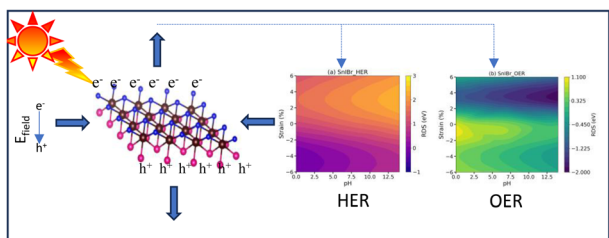
34861



### Lithium ion mediated interfacial transfer and solvation structure enable stable zinc-alloying interface for aqueous zinc battery

Xin Zhou, Zheng Qian, Zhendong Li, Deyu Wang, Zhenlian Chen,\* Xiayin Yao\* and Zhe Peng\*

34873



### Design of novel $\text{SnX}$ ( $X = \text{Br/Cl}$ ) Janus layers: electronic, optical, and photocatalytic properties, as well as defect and strain engineering

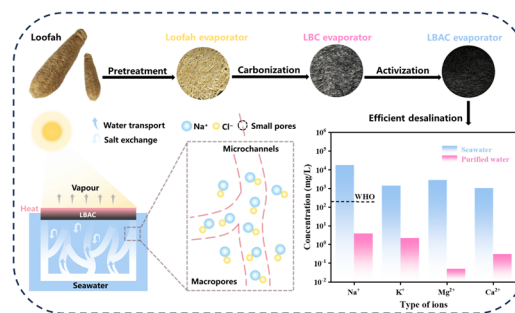
Anjana E. Sudheer, Golla Tejaswini, Matthias Posselt and D. Murali\*



34896

## A loofah-derived biological activated carbon enhanced solar interfacial evaporator for efficient and stable seawater desalination and wastewater purification

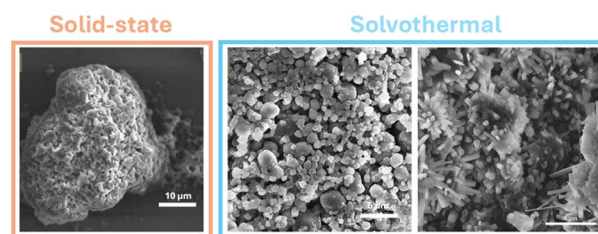
Lianghao Deng, YueJun Liu, Tong Liu,\* Xuelei Hu\* and Yao Wang\*



34907

## A solvothermal approach to nano-designing M-N-H systems: unveiling new pathways to dimensional control in the lithium nitride hydride ammonia synthesis catalyst

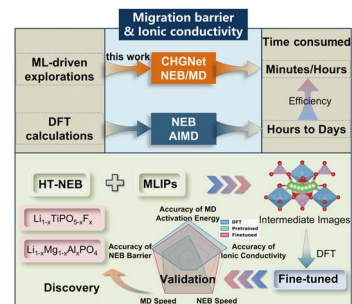
Fatima M. Abi-Ghaida\* and Joshua W. Makepeace



34918

## High-throughput NEB for Li-ion conductor discovery via fine-tuned CHGNet potential

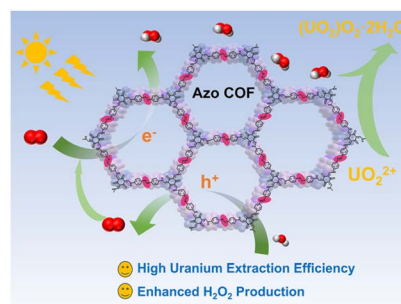
Jingchen Lian, Xiao Fu, Xuhe Gong, Ruijuan Xiao\* and Hong Li



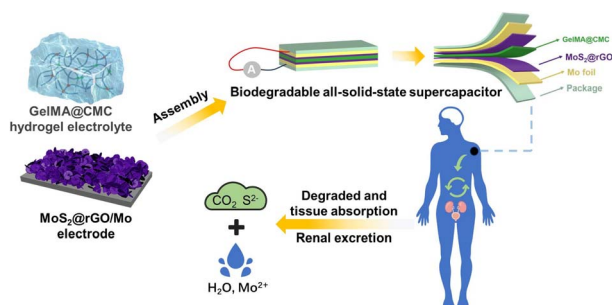
34927

## An unsaturated bond strategy in covalent organic frameworks for enhanced simultaneous photocatalytic uranium recovery and hydrogen peroxide production

Bing Han,\* Zhuo Wang, Yue Wen, Yijia Xu, Qi Wang and Zhuoyu Ji\*



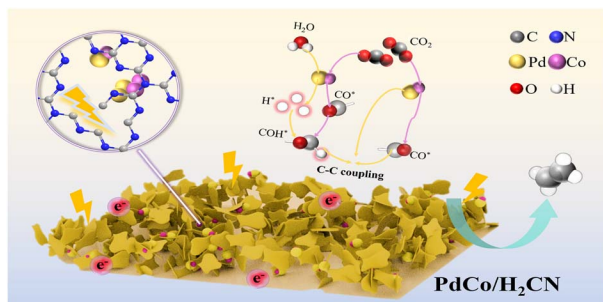
34938



### A biodegradable and flexible solid-state supercapacitor based on a natural polymer dual network hydrogel electrolyte

Xu Zeng, Yankun Guo, Xin Wei, Peiyu Cui, Junlong Yao, Yani Guo\* and Yimin Sun\*

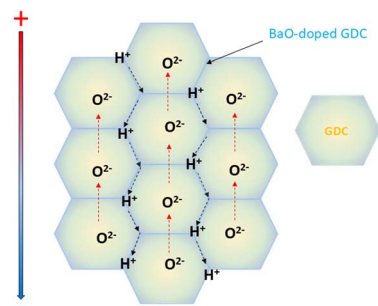
34948



### Nitrogen vacancies rich $C_3N_4$ supported PdCo catalyst for selective photocatalytic $CO_2$ reduction to $C_2H_4$

Chao Huang, Xuelian Yu,\* Guocheng Lv, Yingmo Hu and Libing Liao

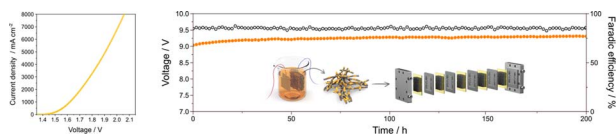
34955



### Super-high dual-ion conductivity of BaO-doped GDC electrolytes for solid oxide fuel cells

Xiangcheng Liu, Qiuning Li, Lingping Zeng, Tengteng Wang, Dehua Dong\* and Huanting Wang\*

34962



### Unified anodes with different nickel–iron-based phases for durable AEM electrolyzers achieving high performance of $8000 \text{ mA cm}^{-2}$ at 2.05 V

SungBin Park, Hosung Choi, Geumbi Na, Hee Ji Choi, Dae Hyun Lee, Min Seok Gi, Ji Eun Park,\* Yong-Hun Cho\* and Yung-Eun Sung\*

