

# Journal of Materials Chemistry A

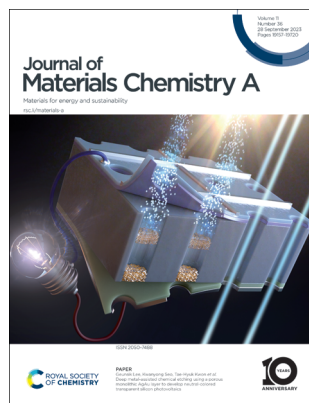
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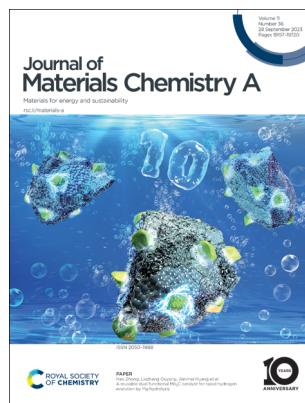
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ISSN 2050-7488 CODEN JMCAET 11(36) 19157–19720 (2023)



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See Geunsik Lee, Kwanyong Seo, Tae-Hyuk Kwon *et al.*, pp. 19321–19327. Image reproduced by permission of Tae-Hyuk Kwon from *J. Mater. Chem. A*, 2023, **11**, 19321.



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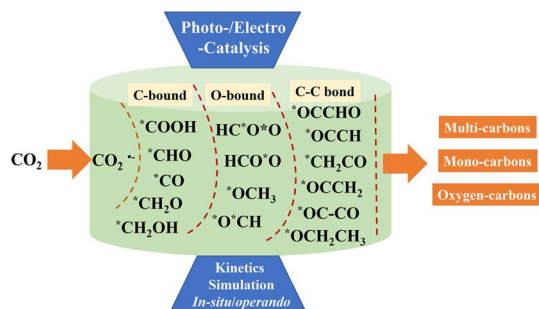
See Hao Zhong, Liuzhang Ouyang, Jianmei Huang *et al.*, pp. 19328–19337. Image reproduced by permission of Jianmei Huang from *J. Mater. Chem. A*, 2023, **11**, 19328.

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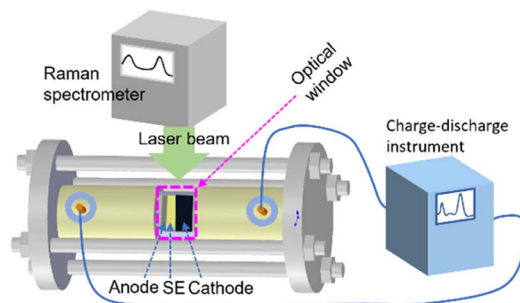
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Runze Zhang, Yinglei Wu,\* Zhenying Chen, Yu Wang, Jinhui Zhu\* and Xiaodong Zhuang\*



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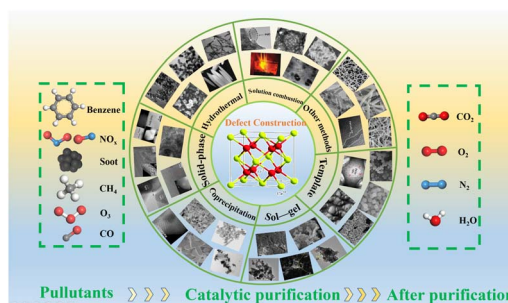


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### Construction of cerium-based oxide catalysts with abundant defects/vacancies and their application to catalytic elimination of air pollutants

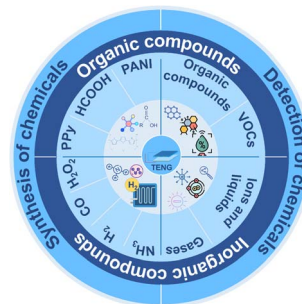
Siyu Gao, Di Yu, Shengran Zhou, Chunlei Zhang, Lanyi Wang, Xiaoqiang Fan, Xuehua Yu\* and Zhen Zhao\*



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### Triboelectric nanogenerator assisted synthesis and detection of chemical compounds

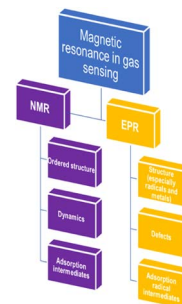
Shariful Islam Tushar, Abdullah Sayam, Md Mazbah Uddin, Tanvir Mahady Dip,\* Habibur Rahman Anik, Md. Reasat Aktar Arin and Suraj Sharma\*



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### Behind the gas sensors: revealing sensing mechanisms with advanced magnetic resonance technology

Wenyu Li, Zirui Qiao and Zhifang Liu\*

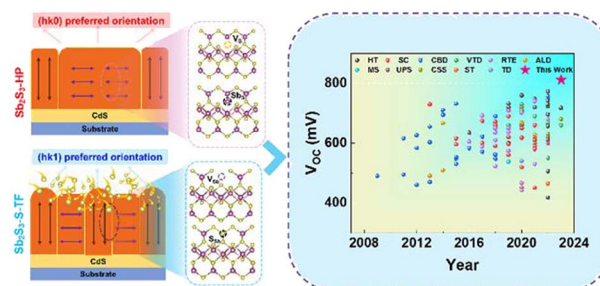


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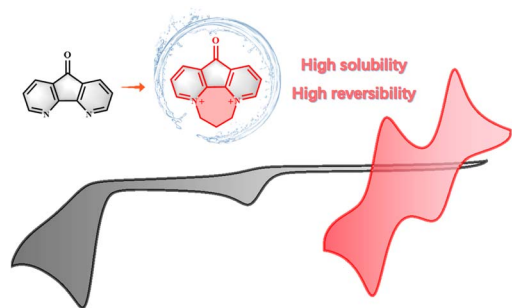
### Negative-pressure sulfurization of antimony sulfide thin films for generating a record open-circuit voltage of 805 mV in solar cell applications

Xiaoqi Peng, Junjie Yang, Qi Zhao, Huihui Gao, Yuqian Huang, Haolin Wang, Changfei Zhu, Rongfeng Tang\* and Tao Chen\*



## COMMUNICATIONS

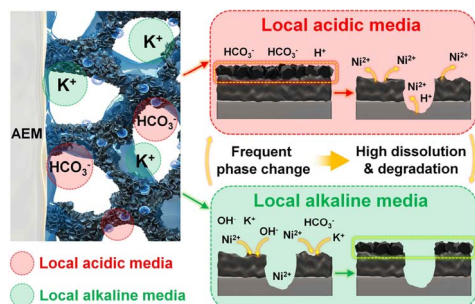
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### A novel pyridinium-functionalized fluorenone compound for neutral aqueous organic redox flow batteries

Wenjin Li, Jiayao Li, Xianzhi Yuan, Zhipeng Xiang,<sup>\*</sup>  
Zhenxing Liang and Zhiyong Fu<sup>\*</sup>

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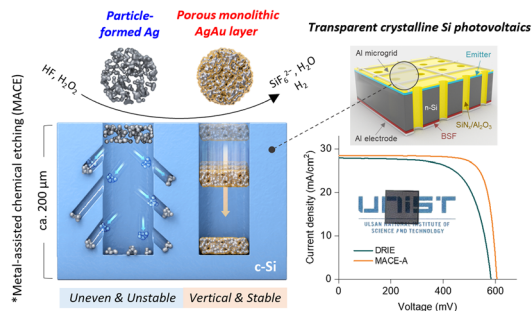


### Unveiling the anode reaction environment in a CO<sub>2</sub> electrolyzer to provide a guideline for anode development

Ji Hwan Song, Seohyeon Ka, Chulwan Lim, Man Ho Han,  
Dong Ki Lee, Hyung-Suk Oh<sup>\*</sup> and Woong Hee Lee<sup>\*</sup>

## PAPERS

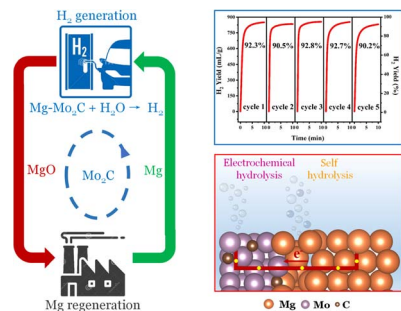
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### Deep metal-assisted chemical etching using a porous monolithic AgAu layer to develop neutral-colored transparent silicon photovoltaics

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Deok-Ho Roh, Eunhye Hwang, Jeonghwan Park,  
Geunsik Lee,<sup>\*</sup> Kwanyong Seo<sup>\*</sup> and Tae-Hyuk Kwon<sup>\*</sup>

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### A reusable dual functional Mo<sub>2</sub>C catalyst for rapid hydrogen evolution by Mg hydrolysis

Kashif Naseem, Hao Zhong,<sup>\*</sup> Wenbin Jiang, Mili Liu,  
Chengguang Lang, Kang Chen, Liuzhang Ouyang<sup>\*</sup>  
and Jianmei Huang<sup>\*</sup>



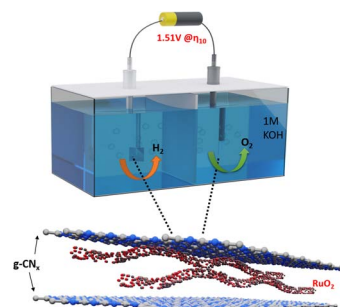


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### Covalent organic framework derived synthesis of Ru embedded in carbon nitride for hydrogen and oxygen evolution reactions

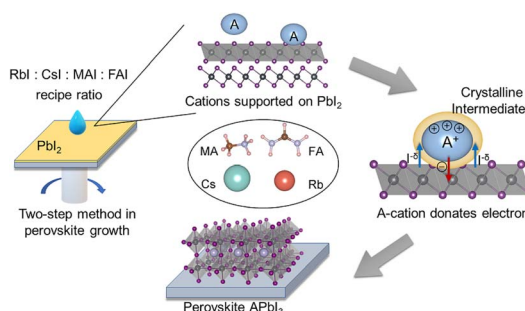
Tianyu Gao, Kilaparthi Sravan Kumar, Zhen Yan, Maya Marinova, Martine Trentesaux, Mohammed A. Amin, Sabine Szunerits, Yong Zhou, Vlad Martin-Diaconescu, Sébastien Paul,\* Rabah Boukherroub\* and Vitaly Ordonsky\*



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### Recipe for the design of mixed cation lead halide perovskites: adsorption and charge transfer from A-site cations to $\text{PbI}_2$

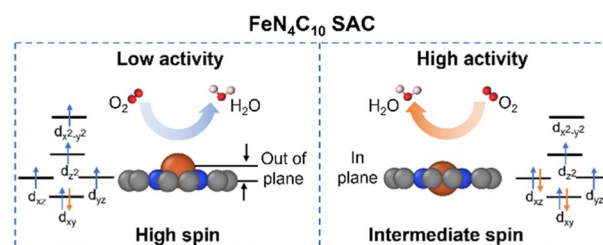
Hongfei Chen, Hejin Yan and Yongqing Cai\*



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### Spin-dependent active centers in Fe–N–C oxygen reduction catalysts revealed by constant-potential density functional theory

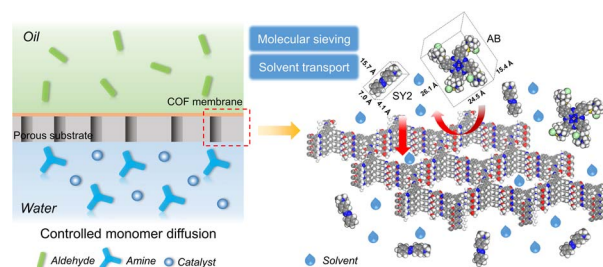
Tao Zheng, Jincheng Wang, Zhenhai Xia, Guofeng Wang\* and Zhiyao Duan\*



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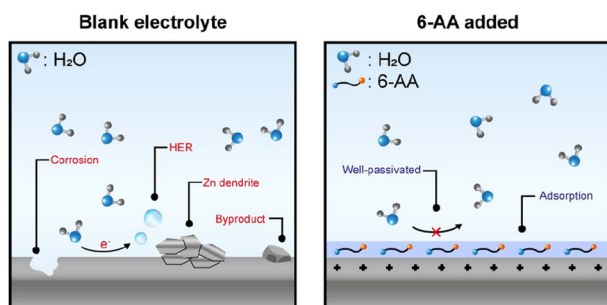
### Highly crystalline and robust covalent organic framework membranes for predictable solvent transport and molecular separation

Hukang Guo, Jianxiao Jiang, Chuanjie Fang\* and Liping Zhu\*



## PAPERS

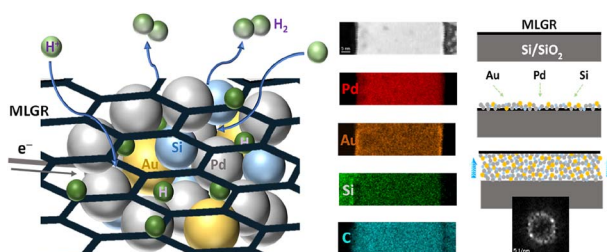
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### Enabling uniform zinc deposition by zwitterion additives in aqueous zinc metal anodes

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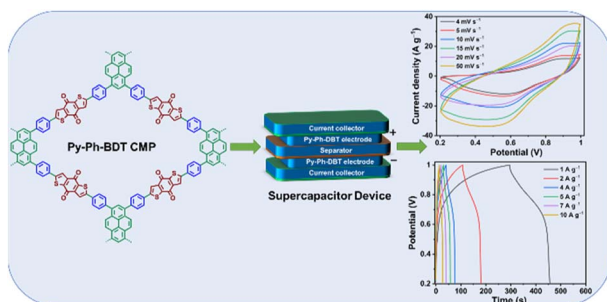
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### Synergistic enhancement of hydrogen interactions in palladium-silicon-gold metallic glass with multilayered graphene

Baran Sarac, Yurii P. Ivanov, Barbara Putz,\* Tolga Karazehir, Christian Mitterer, A. Lindsay Greer, A. Sezai Sarac and Jürgen Eckert

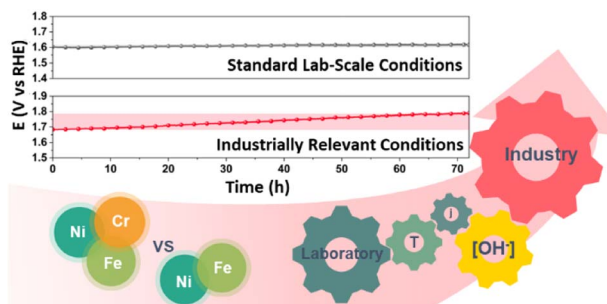
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### Efficient faradaic supercapacitor energy storage using redox-active pyrene- and benzodithiophene-4,8-dione-tethered conjugated microporous polymers

Taher A. Gaber, Lamiaa Reda Ahmed and Ahmed F. M. EL-Mahdy\*

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### Decoupling the contributions of industrially relevant conditions to the stability of binary and ternary FeNi-based catalysts for alkaline water oxidation

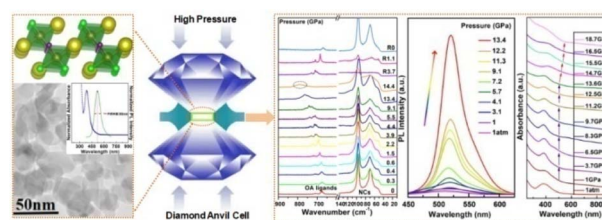
Yang Xiao, Kamran Dastafkan, Zhen Su, Chengli Rong and Chuan Zhao\*



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## Room temperature synthesis and pressure-induced optical properties of lead-free 2D $\text{Cs}_3\text{Bi}_2\text{I}_6\text{Cl}_3$ perovskite nanocrystals

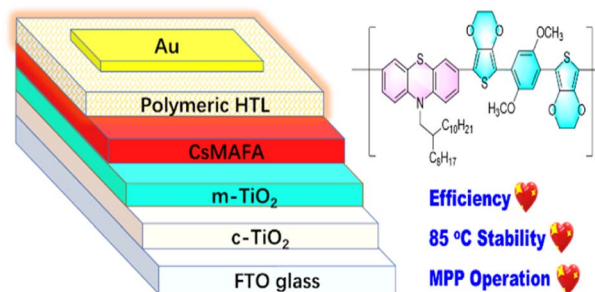
Jie Zhang,\* Mingxing Li, Dehua Wang, Binhua Chu, Shufang Zhang, Qinfeng Xu and Kai Wang\*



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## Main chain engineering of phenothiazine-based semiconducting copolymers for stable perovskite solar cells at 85 °C

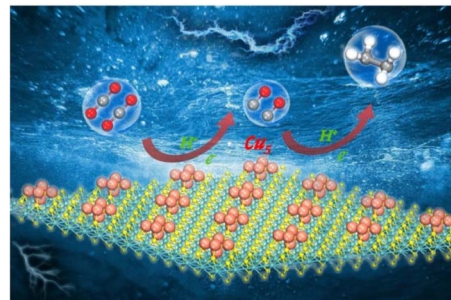
Bing Zhang, Yuyan Zhang, Yuefang Wei, Tianyu Li, Jing Zhang, Yi Yuan\* and Peng Wang\*



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## Constructing a square-like copper cluster to boost C–C coupling for $\text{CO}_2$ electroreduction to ethylene

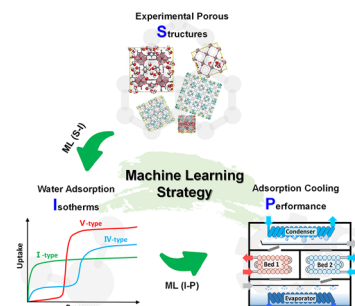
Tiantian Zhao, Tingyu Yan, Yuting Sun, Zhongxu Wang, Qinghai Cai, Jingxiang Zhao\* and Zhongfang Chen\*



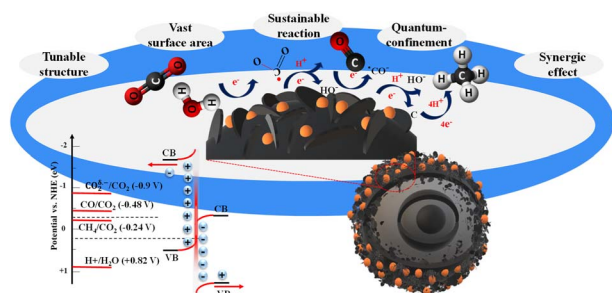
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## Machine learning-assisted prediction of water adsorption isotherms and cooling performance

Zhilu Liu, Dongchen Shen, Shanshan Cai, Zhengkai Tu and Song Li\*



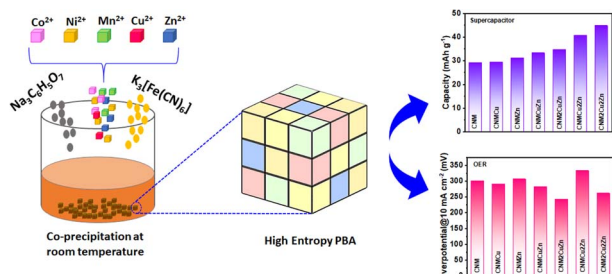
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### Engineering stable construction of $\text{MnCo}_2\text{O}_4$ yolk-in-double-shell amalgamated with bio-synthesized $\text{ZnMn}_2\text{O}_4$ nanoparticles for superior artificial $\text{CO}_2$ reduction

Ashkan Bahadoran, Jeffrey Roshan De Lile, Farzad Hasanvandian, Mohammadreza Sharghi, Babak Kakavandi,\* Yogendra Kumar Mishra,\* Stefanos Giannakis and Seeram Rama Krishna\*

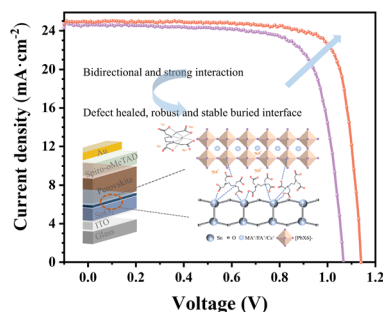
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### Structural and defect modulations of co-precipitation synthesized high-entropy Prussian blue analogue nanocubes *via* Cu/Zn co-doping for enhanced electrochemical performance

Van Thanh Nguyen, Fitri Nur Indah Sari, Brahmanu Wisnu Saputro and Jyh-Ming Ting\*

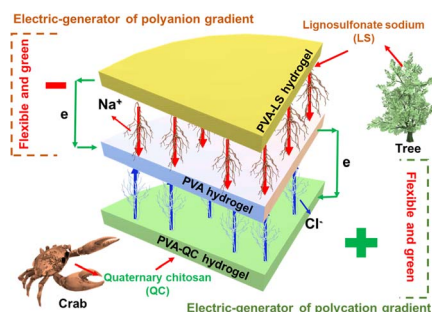
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### Tailoring buried interface of tin oxide-based n-i-p perovskite solar cells *via* bidirectional and multifunctional metal ion chelating agent modification

Meng Wang, Aoxi He, Lili Wu, Xia Hao, Gengpei Xia, Yu Jiang, Rong Su\* and Jingquan Zhang\*

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### Biomimetic polyelectrolyte-gradient hydrogel electricity generator: a green and portable energy source

Xiaofeng Pan, Qinhua Wang, Daniele Benetti,\* Lei Jin, Yonghao Ni\* and Federico Rosei\*



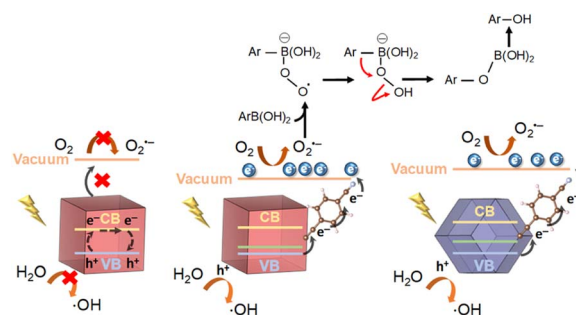


## PAPERS

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# Photocatalytic activity enhancement with 4-cyanophenylacetylene-modified Cu<sub>2</sub>O cubes and rhombic dodecahedra and use in arylboronic acid hydroxylation

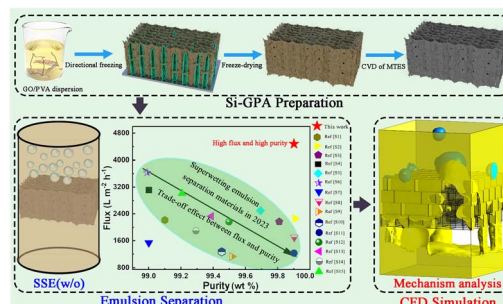
Po-Jung Chou, Wei-Yang Yu, Jui-Cheng Kao, Yu-Chieh Lo, Jyh-Pin Chou\* and Michael H. Huang\*



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# Anisotropic superhydrophobic graphene aerogel with radial superelasticity and axial superstiffness for efficient on-demand oil–water separation

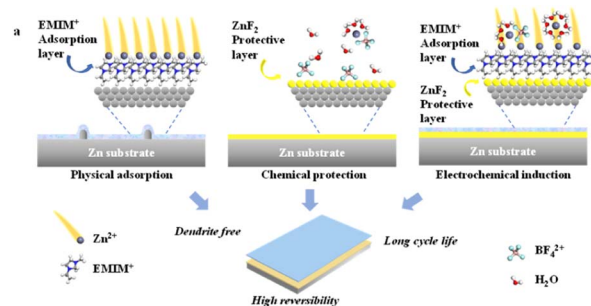
Yu Yang, Zhiying Ren,\* Chunhui Zhou, Youxi Lin, Linwei Shi and Linxi Hou\*



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# A physico-chemo-electrochemically coupled stable interface for high-capacity and durable aqueous zinc metal batteries

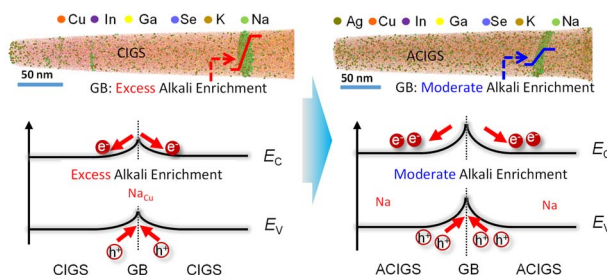
Gege Wang, Feifan Zhang, Caiyu Ma, Jianhua Yang, Xiaowei Chi\* and Yu Liu\*



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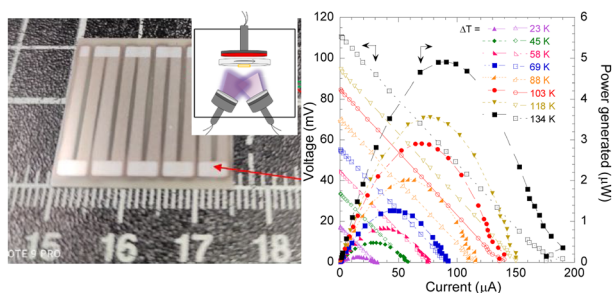
# Reforming material chemistry of CIGS solar cells via a precise Ag doping strategy

Jiseon Hwang, Ha Kyung Park, Donghyeop Shin, Inyoung Jung, Inchan Hwang, Young-Joo Eo, Ara Cho, Joo Hyung Park, Soomin Song, Yunae Cho, Jihye Gwak, Hyo Sik Jang,\* William Jo\* and Kihwan Kim\*



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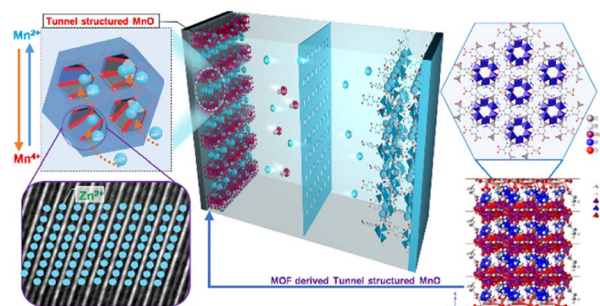
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### Unlocking microwatt power: enhanced performance of Fe–V–Al thin films in thermoelectric microgenerators

D. Bourgault,\* H. Hajjoun, R. Haettel and E. Alleno

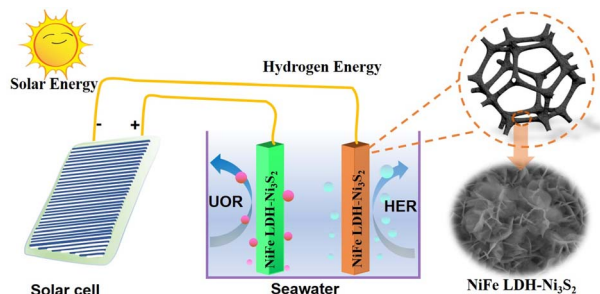
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### Metal–organic framework derived tunnel structured MnO as the cathode material for high performance aqueous zinc-ion batteries

Xianwei Li, Qi Liu, Xudong Ma, Pengfei Liu, Donghai Wang, Xiao Yu and Yong Liu\*

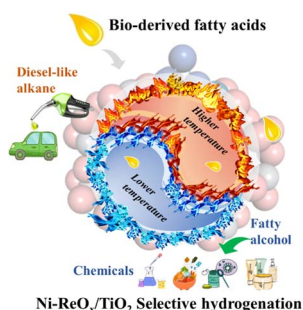
19578



### Construction of desert rose flower-shaped NiFe LDH–Ni<sub>3</sub>S<sub>2</sub> heterostructures via seawater corrosion engineering for efficient water-urea splitting and seawater utilization

Zhao-Hui Zhang, Zhi-Ran Yu, Yi Zhang, Alexandre Barras, Ahmed Addad, Pascal Roussel, Long-Cheng Tang, Mu. Naushad, Sabine Szunerits and Rabah Boukherroub\*

19591



### ReO<sub>x</sub> promotes Ni cluster interactions on TiO<sub>2</sub> to improve the activity and durability for green alkane and alcohol production at low temperature

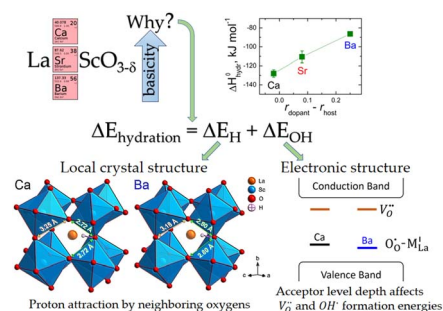
Feng Long, Yuwei Chen, Haitian Chen, Xincheng Cao, Shiyu Wu, Yanju Lu, Peng Liu, Jianchun Jiang, Xiaolei Zhang\* and Junming Xu\*



19605

## Dopant-induced changes of local structures for adjusting the hydration ability of proton-conducting lanthanum scandates

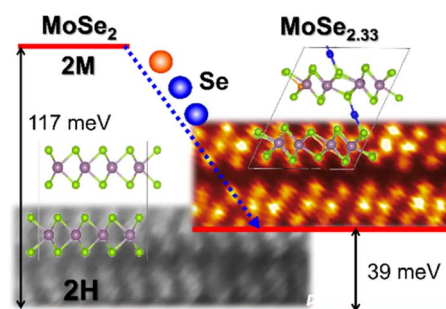
Semyon A. Belyakov,<sup>\*</sup> Alyona S. Lesnichyova, Maksim S. Plekhanov, Nils Prinz, Mirijam Zobel, Alexander S. Vokhmintsev and Ilya A. Weinstein



19619

## Stacking polytypes of 1T' phase Se-rich transition metal diselenide and their electrocatalytic activity in the hydrogen evolution reaction

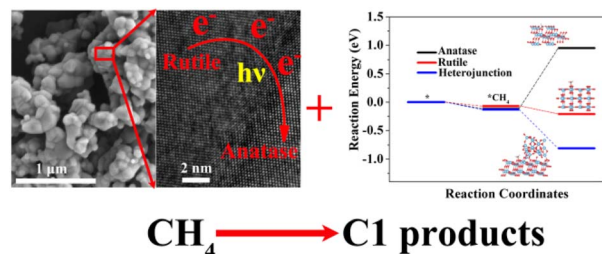
Ju Yeon Kim, In Hye Kwak, Ik Seon Kwon, Qadeer Akbar Sial, Junaid Ihsan, Getasew Muluallem Zewdie, Jeunghye Park<sup>\*</sup> and Hong Seok Kang<sup>\*</sup>



19629

## Elevated photooxidation of CH<sub>4</sub> to C1 liquid products over an anatase/rutile TiO<sub>2</sub> biphasic junction

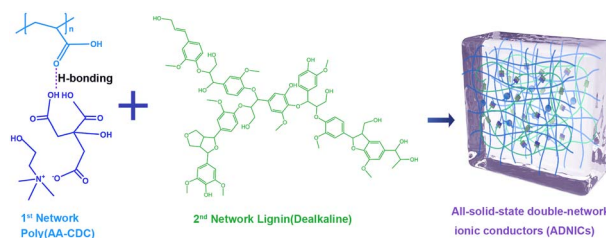
Hailong Tang, Yongqing Ma, Xiao Sun, Min Wang, Ganhong Zheng, Chuhong Zhu<sup>\*</sup> and Meiling Wang<sup>\*</sup>



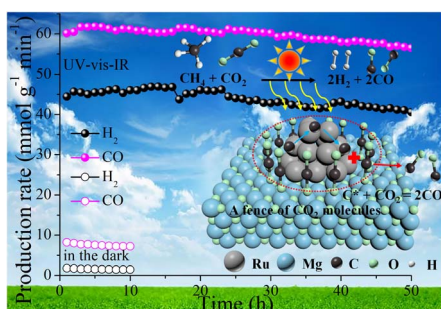
19637

## A mechanically strong and self-adhesive all-solid-state ionic conductor based on the double-network strategy

Yue Han, Kai Zhao, Guangxue Chen,<sup>\*</sup> Ren'ai Li, Chuhan Zhou, Ziyu Hua, Huawei Duan and Minghui He<sup>\*</sup>



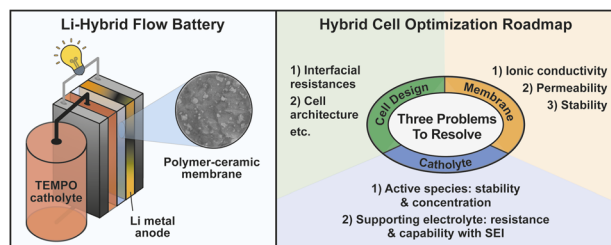
19645



### A novel strategy for dramatically improving catalytic performance for light-driven thermocatalytic CO<sub>2</sub> reduction with CH<sub>4</sub> on Ru/MgO: the CO<sub>2</sub> molecular fencing effect promoted by photoactivation

Huamin Cao, Yuanzhi Li,<sup>\*</sup> Qianqian Hu, Jichun Wu and Lei Ji

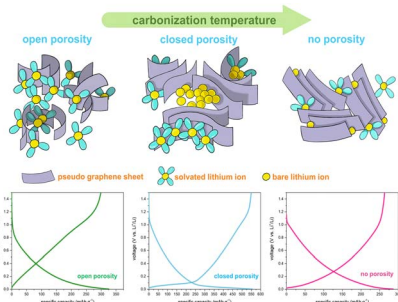
19656



### Towards durable Li-hybrid flow batteries: composite membrane development, cell performance, and perspective

Nikita Akhmetov,<sup>\*</sup> Zainab Waris, Sergey Ryazantsev, Svetlana Lipovskikh, Nataliya Gvozdk, Mariam Pogossova and Keith Stevenson

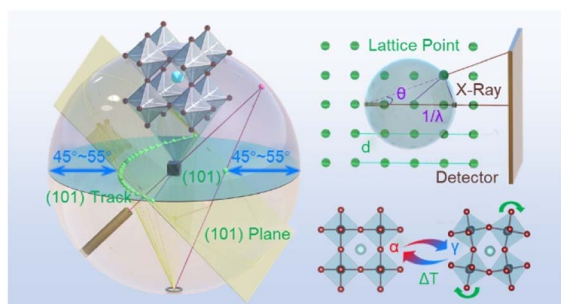
19669



### Lithium-ion storage mechanism in closed pore-rich hard carbon with ultrahigh extra plateau capacity

Chen-Wei Tai, Wen-Yang Jao, Liang-Chieh Tseng, Ping-Chieh Wang, An-Pang Tu and Chi-Chang Hu<sup>\*</sup>

19685



### In-depth understanding the temperature-dependent reversible phase transition in CsPbI<sub>3-x</sub>Br<sub>x</sub> perovskites and its associated photophysical properties

Songyang Yuan, Jiahuan Deng, Hui Xiong, Wenwen Wu, Zhipeng Ma, Mengqi Wang, Wenzhe Li<sup>\*</sup> and Jiandong Fan<sup>\*</sup>



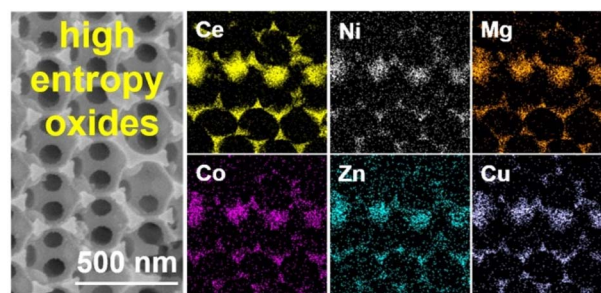


## PAPERS

19696

### Incorporating three-dimensional ordered macropores into high-entropy oxides for catalytic soot combustion

Xiaolan Duan, Xiaopeng Wang, Lan Xu, Tingting Ma, Yuan Shu, Shengtai Hou, Qiang Niu and Pengfei Zhang\*



19707

### Cyanobacteria-based double-mediated photo-microbial electrochemical cells are promising future energy sources for electricity generation and hydrogen production

Youngrok Lee, Jinhwan Lee and Sunghyun Kim\*

