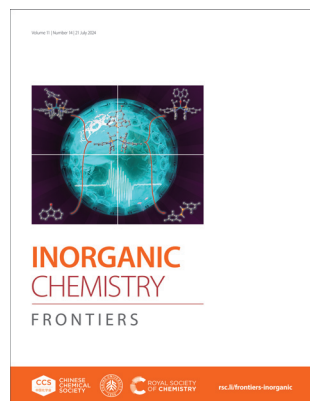


### IN THIS ISSUE

ISSN 2052-1553 CODEN ICFNAW 11(14) 4037–4470 (2024)



#### Cover

See Laurent Maron,  
Stephan Hohloch *et al.*,  
pp. 4158–4166.

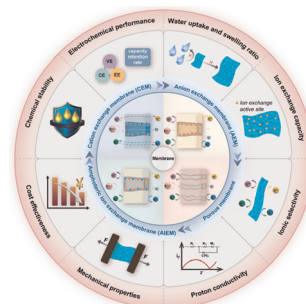
Image reproduced  
by permission of  
Stephan Hohloch from  
*Inorg. Chem. Front.*,  
2024, **11**, 4158.

### REVIEWS

4049

#### Research progress on optimized membranes for vanadium redox flow batteries

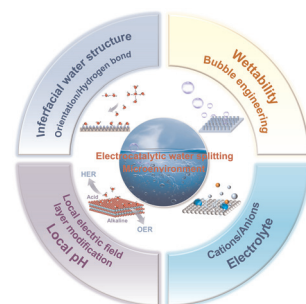
Yang Yang, Quge Wang, Shizhao Xiong\* and  
Zhongxiao Song\*



4080

#### Rational design of local microenvironment for electrocatalytic water splitting

Xiang Li, Wangchuan Zhu, Yanqun Zhang, Yueyue Zhao,  
Danjun Wang, Yanzhong Zhen, Feng Fu and  
Chunming Yang\*



# RSC Applied Interfaces

GOLD  
OPEN  
ACCESS

**Interfacial and surface research  
with an applied focus**

**Interdisciplinary and open access**

**[rsc.li/RSCApplInter](https://rsc.li/RSCApplInter)**

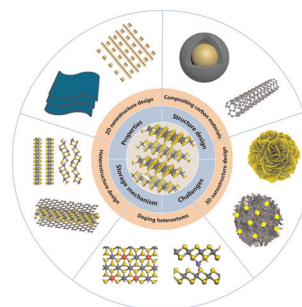
**Fundamental questions  
Elemental answers**

## REVIEWS

4107

**Recent advances in  $\text{SnS}_2$ -based nanomaterials as high-performance anodes for sodium ion batteries**

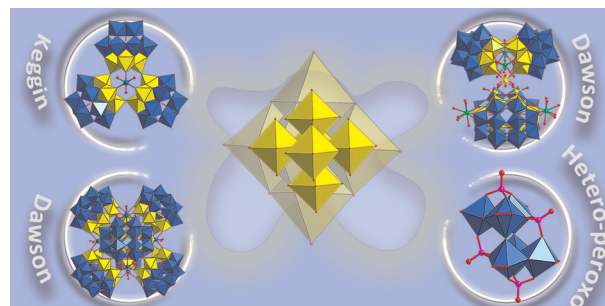
Mingjun Xiao,\* Dongming Qi, Huizhen Sun, Yanshuang Meng and Fuliang Zhu



4141

**Recent studies on the reaction of  $[\text{X}_6\text{O}_{19}]^{8-}$  ( $\text{X} = \text{Nb}, \text{Ta}$ ) polyanions under acidic conditions**

Haiying Wang, Zhijie Liang, Dongdi Zhang\* and Jingyang Niu\*

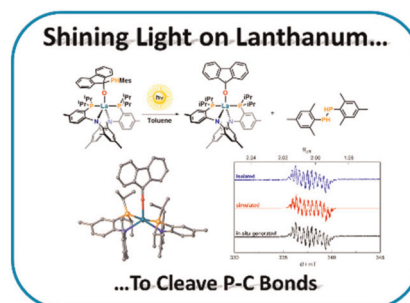


## RESEARCH ARTICLES

4158

**Light-induced splitting of P–C bonds in a lanthanum(III) hemiphosphinal complex**

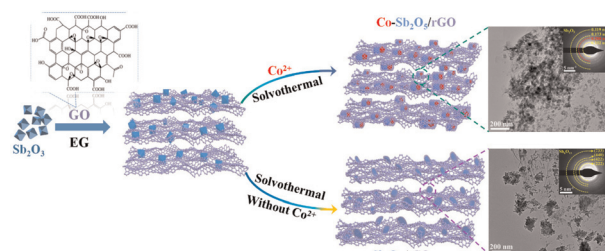
Benjamin Wittwer, Karl N. McCabe, Daniel Leitner, Michael Seidl, Laurent Maron\* and Stephan Hohloch\*



4167

**Uniformly anchoring  $\text{Sb}_2\text{O}_5$  nanoparticles on graphene sheets via  $\text{Co}^{2+}$ -induced deposition for enhanced lithium/sodium-ion storage**

Xiaozhong Zhou,\* Aixia Wang, Xiaoyan Zheng, Dongfei Sun and Yaoxia Yang





**Ultrathin nanosheet**

**Porous nanosheet**

**Oriented strategy**

**Mn<sup>+</sup>/g-C<sub>3</sub>N<sub>4</sub> precursor**

**High-entropy oxides**

**O<sub>2</sub>**

**H<sub>2</sub>O**

Ting Huang, Cui Gao, Yun Tong\* and Xiuli Lu\*

Jiawen Hu, Zhongbin Pan,\* Ling Lv, Zhixin Zhou,  
Xiqi Chen, Hongzhen Xie,\* Jinjun Liu, Peng Li and  
Jiwei Zhai\*

The figure is divided into two main sections: synthesis and electrochemical performance.

**Synthesis:** The top section shows the synthesis of MgTiFe alloy from  $C_{10}H_8$  and VTiFe alloy. This is followed by ball milling with  $MgH_2$  and CNTs to form MgTiFe/CNTs. The bottom section shows the electrochemical performance of MgTiFe/CNTs in a 0.1 M NaOH solution, with a comparison of the discharge rate and  $H_2$  capacity of the milled MgTiFe, milled MgTiFe/CNTs, and milled MgTiFe/CNTs with a 97.3% increase in  $H_2$  capacity.

**Electrochemical Performance:** The bottom section shows the electrochemical performance of MgTiFe/CNTs in a 0.1 M NaOH solution. The discharge rate (wt%/min) is compared for milled MgTiFe, milled MgTiFe/CNTs, and milled MgTiFe/CNTs. The  $H_2$  capacity (wt%) is also compared for the same samples. The number of cycles is shown for the milled MgTiFe/CNTs sample.

| Sample             | Dis. rate (wt%/min) | $H_2$ capacity (wt%) | Number of cycles |
|--------------------|---------------------|----------------------|------------------|
| milled MgTiFe      | 0.97                | -5.36                | 1                |
| milled MgTiFe/CNTs | 40.6                | -6.19                | 28               |
| milled MgTiFe/CNTs | 33                  | -6.19                | 28               |

The increase in  $H_2$  capacity is 97.3%.

Haiyi Wan, Junqi Qiu, Haotian Guan, Zhao Ding,\*  
Yangfan Lu, Yu'an Chen,\* Jingfeng Wang and  
Fusheng Pan

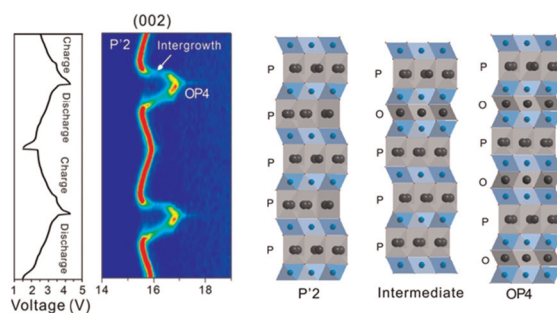
Li Wang, Chao Lv, Kekan Dou, Deqiong Xie, Yanghe Fu,  
Fumin Zhang,\* De-Li Chen\* and Weidong Zhu\*

## RESEARCH ARTICLES

4219

### Using a dual-site substitution strategy to inhibit staircase-like electrochemical profiles for high-performance Na-ion battery cathodes

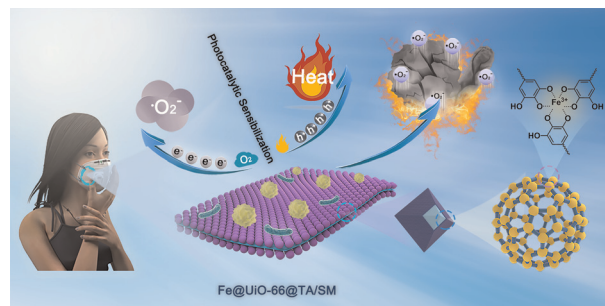
Kun Luo,\* Wenhui Li, Yang Jiang and Houze Song



4229

### A sunlight sensitive metal–organic framework film for the environment-friendly self-sterilization application

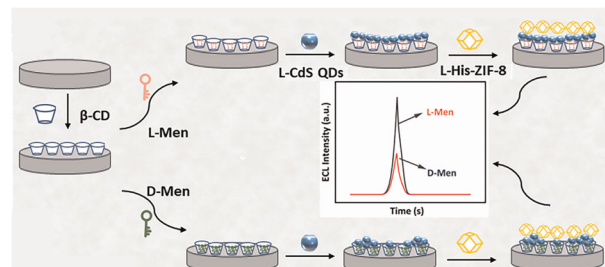
Lingwan Hao, Jie Gao, Xiaoli Han, Zexiang Li, Yanhong Dong,\* Liwei Sun, Lu Zhou, Zhaocai Ning, Jie Zhao and Rujian Jiang\*



4241

### The potential of an MOF accelerator in an electrochemiluminescence system for sensitive detection of menthol enantiomers

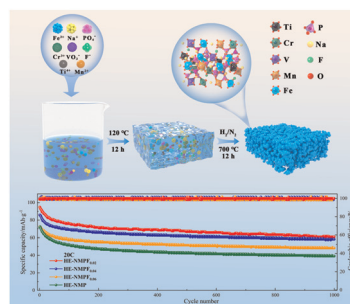
Xuan Kuang,\* Yeqian Ruan, Jianping Xin and Lin Lan\*



4249

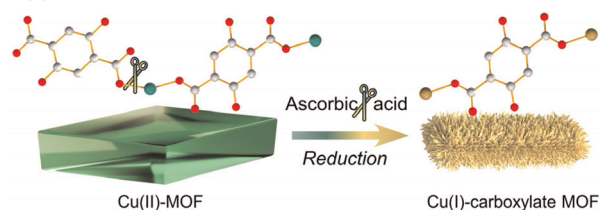
### Design of fluorine-substituted high-entropy phosphates as cathode materials towards high-performance Na-ion batteries

Qi Wang, Man Zhao, Hai-tao Yu, Ying Xie\* and Ting-Feng Yi\*



## RESEARCH ARTICLES

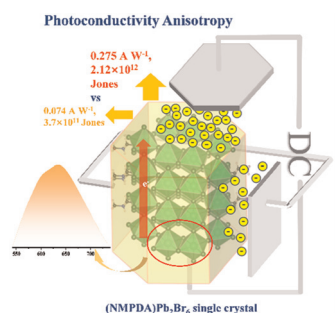
4263



### Fabrication of a Cu(I)-carboxylate metal–organic framework by reduction of metal nodes for an azide–alkyne “click” reaction

Xiaojiao Hou, Wenxiu He, Xu Zhai, Bingbing Chen, Yuanlin Fu, Liying Zhang, Junyi Chen\* and Yu Fu\*

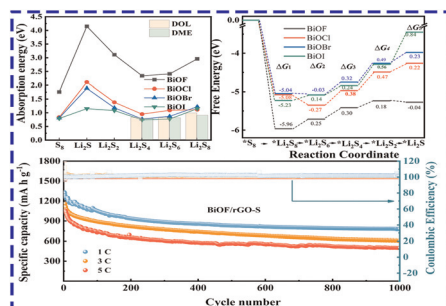
4270



### Methylated diammonium spacer modulated three-dimensional lead bromide perovskitoid hybrids with distinct photoconductivity anisotropy

Sheng Cao, Kuan Kuang, Biqi He, Junjie Tang, Zixian Yu, Mingkai Li,\* Yunbin He\* and Junnian Chen\*

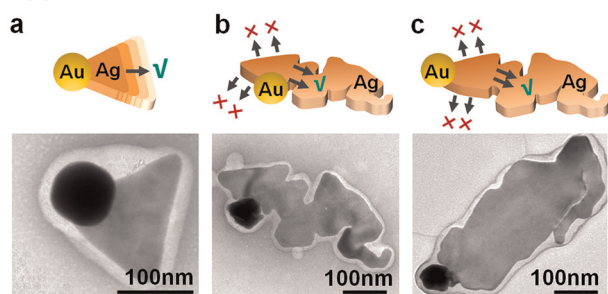
4277



### Boosting the electrocatalytic activity of 2D ultrathin BiOX/rGO (X = F, Cl, Br, and I) nanosheets as sulfur hosts: insight into the electronegativity effect of halogenated elements on the electrochemical performances of lithium–sulfur batteries

Meili Wang, Yumiao Han, Huaiqi Peng, Ziqian Jin, Hui Guan, Shiyu Ma,\* Xin Li, Yunlai Ren, Lixia Xie, Xianfu Zheng, Jianmin Zhang\* and Yutao Dong\*

4288



### Two-dimensional active surface growth of Ag nanoplates

Jin Ji, Zijie Chen, Tingting Jiang, Yuhua Feng\* and Hongyu Chen\*

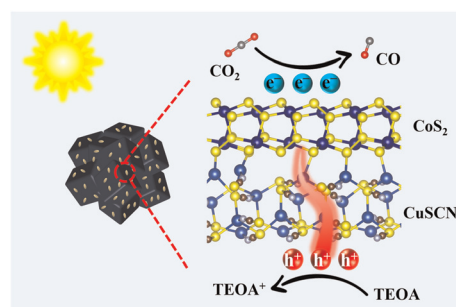


## RESEARCH ARTICLES

4297

### One-pot molten-salt construction of channels for hole transport and mass transfer over CoS<sub>2</sub> nanocubes for visible-light-driven CO<sub>2</sub> reduction

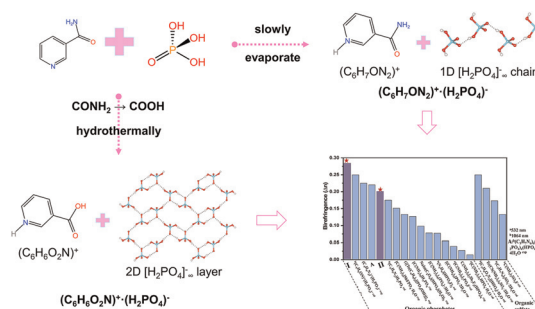
Fulin Wang, Man Zhou, Weiya Huang, Kangqiang Lu, Shaobo Ouyang, Wentao Xiang, Chensheng Zhou, Changlin Yu\* and Kai Yang\*



4307

### Designing promising ultraviolet (UV) birefringent crystals with different hydrogen-bonded phosphate frameworks

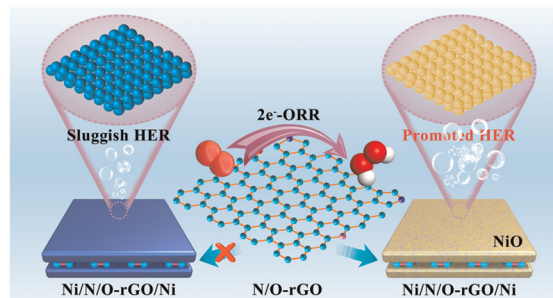
Miao-Bin Xu, Jin Chen,\* Huai-Yu Wu, Jia-Jia Li, Ning Yu, Mo-Fan Zhuo, Fei-Fei Mao\* and Ke-Zhao Du



4318

### Enhancing acidic hydrogen evolution through pyrrolic nitrogen-doped reduced graphene oxide triggering two-electron oxygen reduction

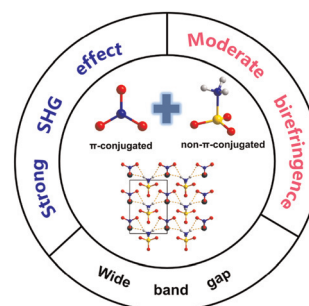
Zhiqiang Hou, Hui Jiang, Yanru Guo, Kejing Huang,\* Fei Zhao, Yongyan Xu, Peng Peng, Shiyu Zou,\* Jianjun Yan and Junjun Zhang\*



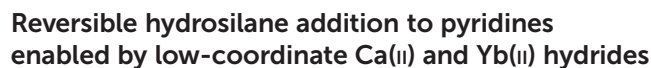
4329

### Synergistic combination of different types of functional motif in Rb(NO<sub>3</sub>)(SO<sub>3</sub>NH<sub>3</sub>) for realizing excellent ultraviolet optical nonlinearity

Yunxia Song, Chensheng Lin, Xin Zhao, Tao Yan, Ning Ye, Haotian Tian\* and Min Luo\*

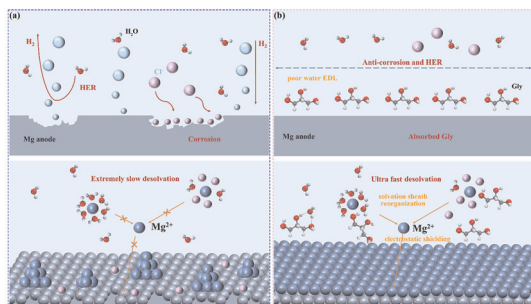






Alexander N. Selikhov, Mikhail A. Bogachev,  
Yulia V. Nelyubina, Grigory Yu. Zhigulin,  
Sergey Yu. Ketkov and Alexander A. Trifonov\*

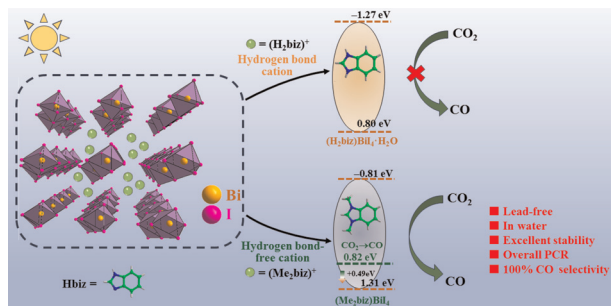
## 4347



# Utilizing an electrolyte additive to modulate interfaces and enhance anode discharge performance in aqueous magnesium–air batteries

Sha Jianchun, Li Xue, Liu Zhoulin, Bao Jiaxin, Li Lianhui,  
Tian Jie, Yang Yiqiang, Chen Weilong, Liu Wenhong and  
Zhang Zhiqiang\*

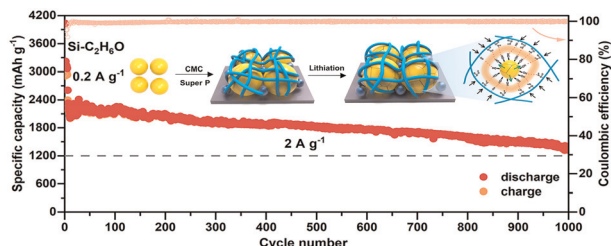
## 4364



# Band edge modulation *via* a hydrogen-bond-free cation in hybrid bismuth iodine for overall photocatalytic CO<sub>2</sub> reduction

Guang-Ning Liu,\* Cheng-Cheng Gao, Fangzheng Qi,  
Wen-Tong Chen, Ning-Ning Zhang, Yiqiang Sun,\*  
Huaqing Zhao, Guozhu Chen and Cuncheng Li\*

## 4374



# Dynamic mechanical equilibrium of silicon anodes for lithium-ion batteries enabled by surface hydroxyl-rich bonding

Fangfang Zhao, Bowen Tao, Liming Yu, Cong Pan,\*  
Lei Ma, Liangming Wei,\* Gen Tang, Yue Wang and  
Xiang Guo\*



## Yiwen Hu, Xiao Ma, Guoli Fan,\* Lan Yang and Feng Li\*

4401

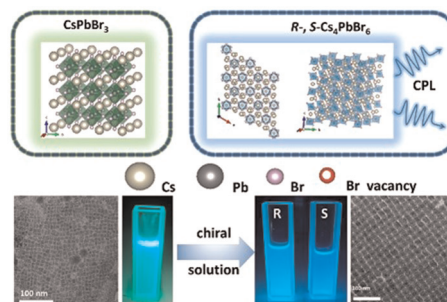
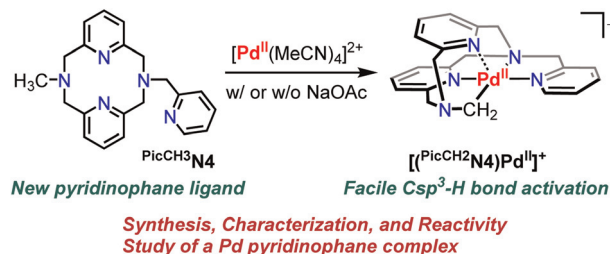
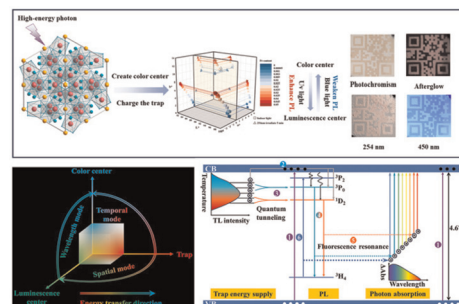
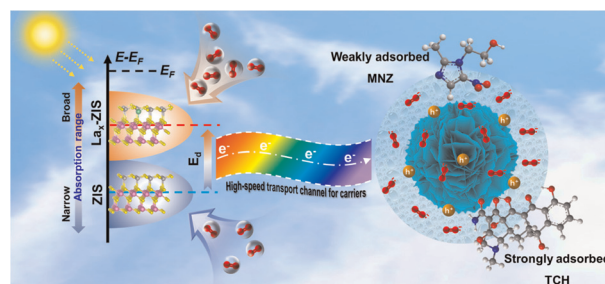
Zhihao Zhang, Huimin Li,\* Ran Pang, Da Li,  
Lihong Jiang, Su Zhang\* and Hongjie Zhang

4415

Hanah Na, Andrew J. Wessel, Seoung-Tae Kim,  
Mu-Hyun Baik\* and Liviu M. Mirica\*

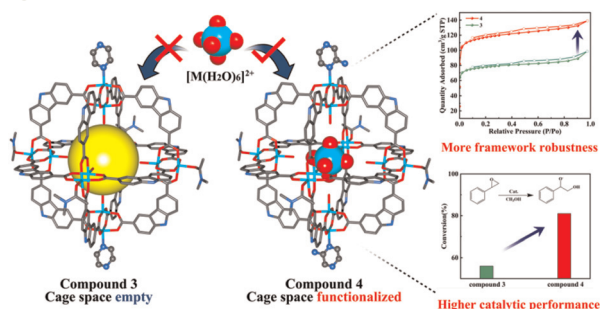
4424

## Jiaqi Zhao, Yuan Wang, Tinglei Wang and Yu Wang\*



## RESEARCH ARTICLES

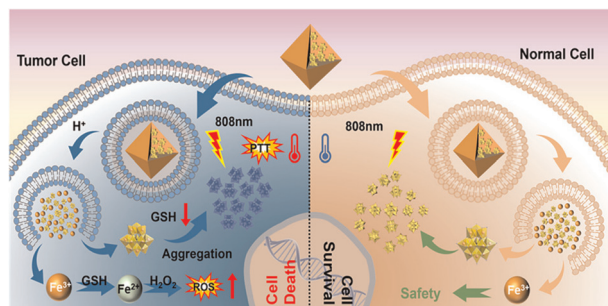
4432



### Metal ion attachment in cavities of metal organic polyhedra to enhance framework robustness and catalytic performance

Mengyu Zhu, Hang Chen, Hairong Li, Hao Zhang, Lizhen Liu, Qichen Hong, Zizhu Yao,\* Lihua Wang\* and Zhangjing Zhang\*

4439

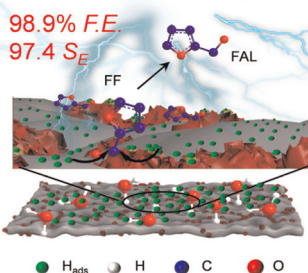


### GSH/pH dual-activated POM@MOF for tumor cell-specific synergistic photothermal and chemodynamic therapy

Bole Li, Zhujun Wu, Xiaotong Xu, Yanfei Lv, Yunfei Guo, Siyu Liang, Zhimin Wang,\* Lei He\* and Yu-Fei Song\*

4449

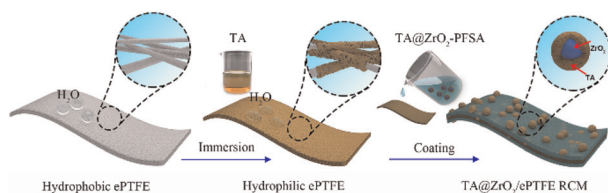
### Electrocatalytic Hydrogenation



### Electrochemical hydrogenation of furfural under alkaline conditions with enhanced furfuryl alcohol selectivity by self-grown Cu on a Ag electrode

Huiming Wen, Ziyi Fan, Shuo Dou, Jason Chun-Ho Lam, Wenjun Zhang\* and Zupeng Chen\*

4459



### A composite proton exchange membrane with a three-dimensionally-reinforced hydrogen bonding network for durable hydrogen fuel cells

Yunfa Dong, Chao Feng, Haodong Xie, Yuhui He, Carlos M. Costa, Senentxu Lanceros-Méndez, Jiecai Han and Weidong He\*

