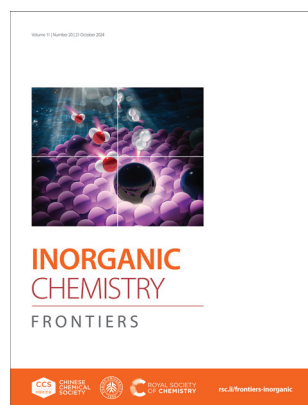


### IN THIS ISSUE

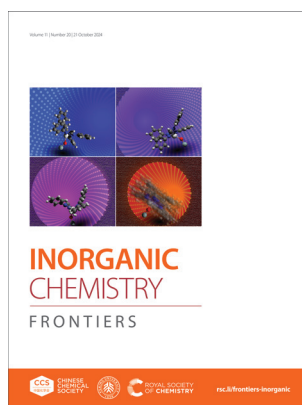
ISSN 2052-1553 CODEN ICFNAW 11(20) 6681-7190 (2024)



#### Cover

See Bolong Huang *et al.*, pp. 6853–6861.

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#### Inside cover

See Frédéric A. Perras *et al.*, pp. 6862–6873.

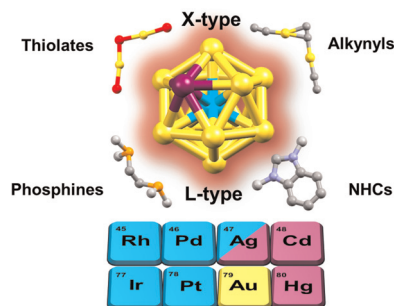
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### REVIEWS

6694

#### Tuning photoluminescence properties of Au clusters by surface modification and doping: lessons from case studies of icosahedral Au<sub>13</sub>

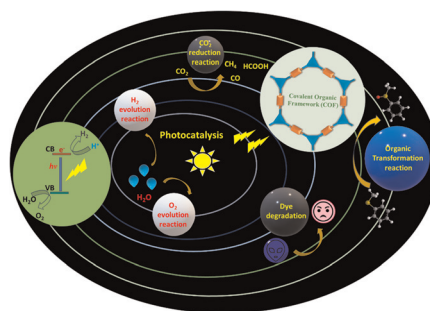
Dennis Alexander Buschmann, Haru Hirai and Tatsuya Tsukuda\*



6711

#### A review on covalent organic frameworks: exploration of their growing potential as porous materials in photocatalytic applications

Kamal Prakash, Rakesh Deka and Shaikh M. Mobin\*



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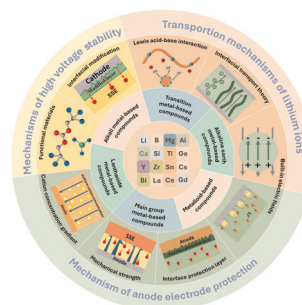
Fundamental questions  
Elemental answers

## REVIEWS

6753

### Progress and perspectives on the development of inorganic nanofibres/nanowires for functional electrolytes of solid-state lithium metal batteries

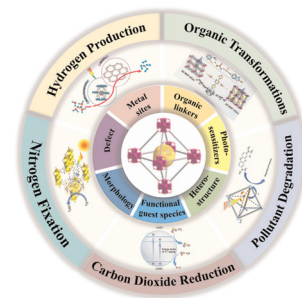
Nanping Deng,\* Wenwen Duan, Wen Yu, Yang Feng, Zichun Feng, Xiaofan Feng, Zhaozhao Peng, Hengying Xiang, Yong Liu\* and Weimin Kang\*



6794

### Recent advances in rational design, synthesis and application of metal–organic frameworks as visible-light-driven photocatalysts

Xu-Sheng Li, Yu-Jie He, Jiao Chen, Quan-Quan Li, Ping Liu\* and Jian-Li Li\*

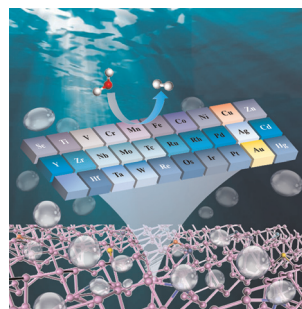


## RESEARCH ARTICLES

6853

### Screening of red phosphorus supported transition metal single-atom catalysts for efficient photocatalytic water splitting H<sub>2</sub> generation

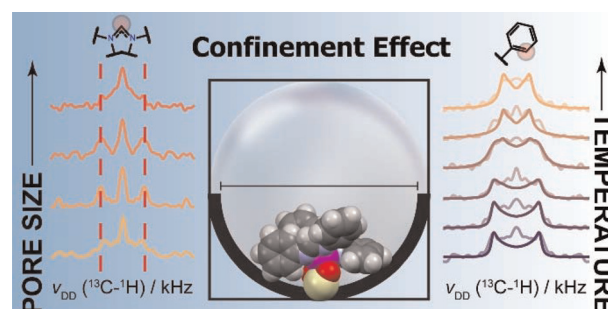
Lu Lu, Mingzi Sun, Tong Wu, Qiuyang Lu, Baian Chen, Cheuk Hei Chan, Hon Ho Wong and Bolong Huang\*



6862

### Size matters: altering the metal-surface coordination in micropores via structural confinement effects

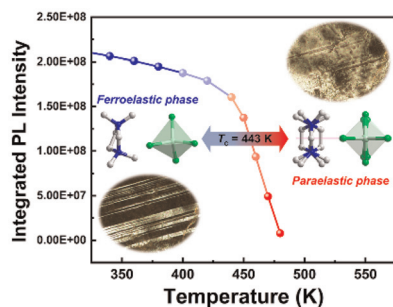
Scott A. Southern, Austin Thompson, Aaron D. Sadow and Frédéric A. Perras\*





## RESEARCH ARTICLES

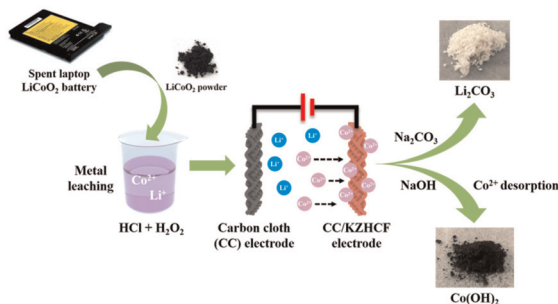
6874



### An organic–inorganic hybrid photoluminescent ferroelastic with high phase transition temperature

Wen-Li Yang, Xin Yan, Miao Wang, Hao Yuan, Yuan-Yuan Tang, Yan Qin\* and Xian-Jiang Song\*

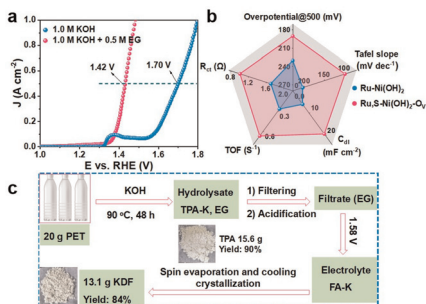
6880



### Cobalt and lithium recovery from spent LiCoO<sub>2</sub> using a free-standing potassium zinc hexacyanoferrate/carbon cloth composite electrode

Mengxiang Ye, Huaimeng Li,\* Xi Wu, Guofeng Zhang and Yunxia Zhang\*

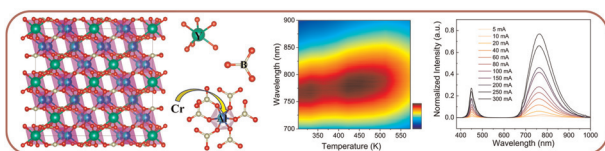
6889



### Oxygen vacancy assisted Ru–Ni(OH)<sub>2</sub> for efficient ethylene glycol electrooxidation reaction

Yanyan Li, Xiaobin Liu,\* Ketao Wang, Jingqi Chi, Haifeng Lin and Lei Wang\*

6898



### Thermally stable NIR broad emission of Cr<sup>3+</sup> doping phosphor with a high output power

Zhishan Chen, Shaoan Zhang,\* Zhenzhang Li, Huacong Ye, Haoran Yan, Jialong Xu, Ling Gao, Yang Li\* and Shizhen Zhang\*

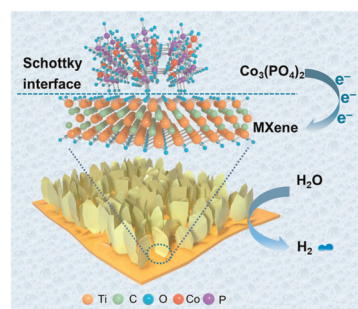


## RESEARCH ARTICLES

6909

### Constructing built-in electric fields in 2D/2D Schottky heterojunctions for efficient alkaline seawater electrolysis

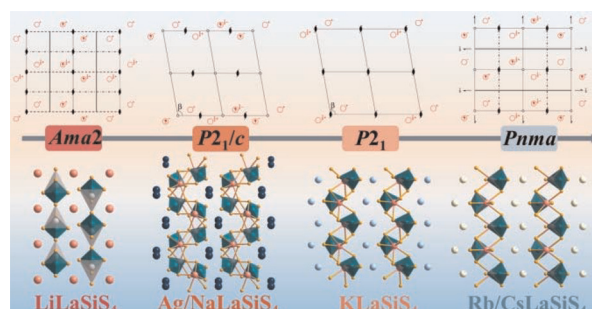
Hongjun Chen, Liming Deng, Sheng Zhao, Shuyi Liu, Feng Hu,\* Linlin Li,\* Jianwei Ren and Shengjie Peng\*



6919

### Chemical modulation of A<sup>I</sup>RE<sup>III</sup>C<sup>IV</sup>Q<sub>4</sub><sup>VI</sup> family compounds for band gap and optical anisotropy enhancement

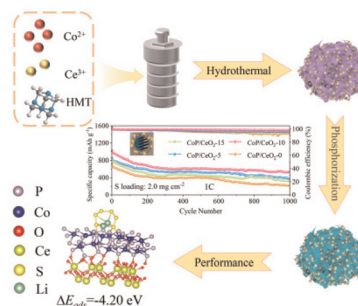
Hongshan Wang, Xueting Pan, Shilie Pan\* and Junjie Li\*



6928

### Insights into the application of cerium dioxide nanoparticle-modified cobalt phosphide as an efficient electrocatalyst for high-performance lithium–sulfur batteries

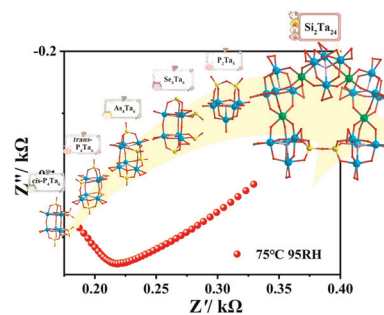
Xiaofei Wang,\* Ganfan Zhang, Yue Li, Yuanting Wu and Wei Luo\*



6940

### Assembly of Si-substituted heteropolyoxotantalate architecture

Hanhan Chen, Haojie Xu, Xinyi Ma, Pengtao Ma, Jingping Wang\* and Jingyang Niu\*



## RESEARCH ARTICLES

6948



Carboxophilicity

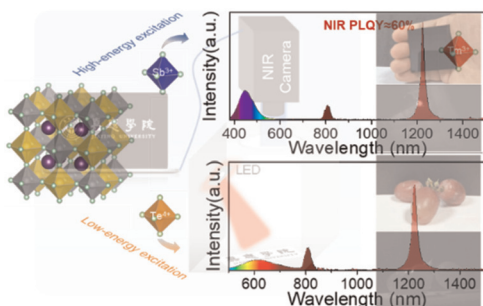
Catalytic Activity

pz = pyrazolate

## Carbon dioxide affinity ("carboxophilicity") of trivalent light metal pyrazolates

Felix Kracht, Philipp Rolser, Klaus Eichele, Cäcilia Maichle-Mössmer and Reiner Anwander\*

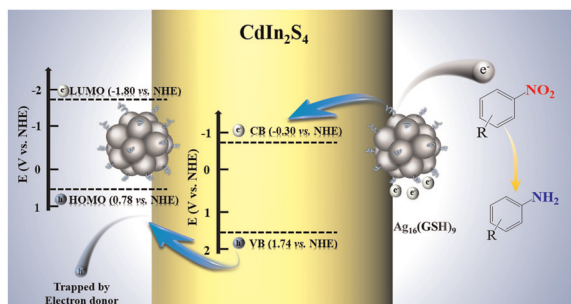
6960



## Modulation of the near-infrared-I and -II luminescence of thulium-incorporated lead-free double perovskites

Jingheng Nie, Weitao Ying,\* Renping Cao, Sijie Liu, Shaobin Qiu, Chaohong Liao, Xiangyan Yun, Bang Lan\* and Jing Wang\*

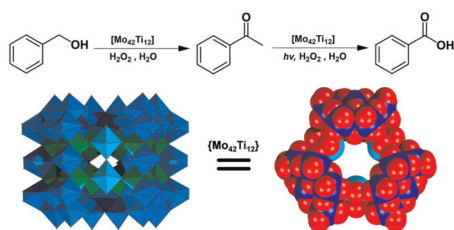
6970



## Photoredox catalysis enabled by atomically precise metal nanoclusters

Junyi Zhang, Linjian Zhan, Boyuan Ning, Yunhui He, Guangcan Xiao,\* Zhixin Chen and Fang-Xing Xiao\*

6981

Self-assembly of a giant molybdenum titanium-oxo cluster  $[\text{Mo}_{42}\text{Ti}_{12}(\text{O}_2)_{24}]$  for bifunctional oxidation catalysis

Ming Xu, Ting Wang,\* Wenjing Zhang, Keke Guo, Ping Wang, Chao Qin, Lin Xu, Zhongmin Su and Xinlong Wang\*

- ✓ The largest molybdenum titanium-oxo clusters
- ✓ Unprecedented triangular prism polyoxometalate framework
- ✓ Water-soluble and pure inorganic



## RESEARCH ARTICLES

6988

**Ru nanoparticle-loaded amorphous CoMoP as an efficient electrocatalyst for alkaline water/seawater hydrogen evolution**

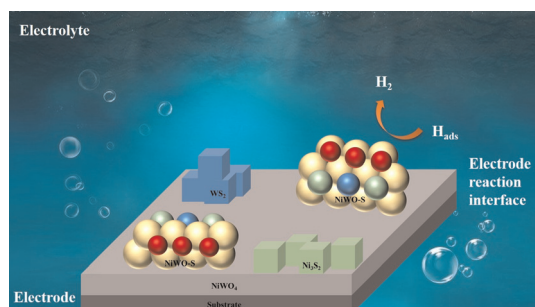
Wen-Jing Li, Xin-Jie Tian, Hai-Yi Sun, Xue-Ying Yang, Denghao Ouyang, Guodong Li, Bin Liu,\* Yong-Ming Chai and Bin Dong\*



6998

**Binary Ni–W metal sulfides with polyhedral nanostructures towards efficient hydrogen evolution**

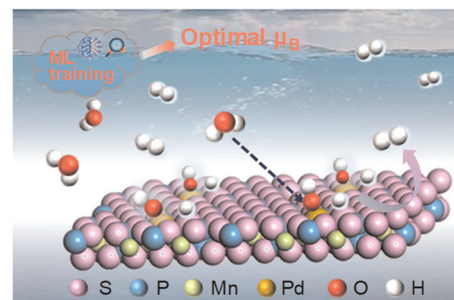
Zi-Zhang Liu, Ruo-Yao Fan, Ya-Nan Zhou, Ning Yu, Bin Dong\* and Zi-Feng Yan\*



7008

**Synergism between metal single-atom sites and S-vacant two-dimensional nanosheets for efficient hydrogen evolution uncovered by density functional theory and machine learning**

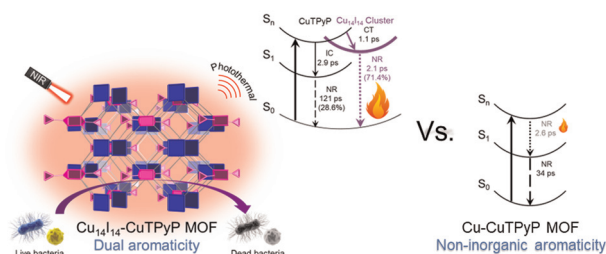
Xinyi Li, Dongxu Jiao, Jingxiang Zhao\* and Xiao Zhao\*



7018

**A bis-aromatic MOF system constructed with a copper iodine cluster and porphyrinic ligand for enhancing near-infrared photothermal conversion**

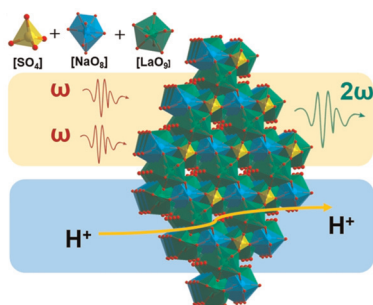
Man Cao, Qian-You Wang, Run-Meng Li, Fangfang Dai, Shan Wang, Peng Luo, Jia-Hua Hu,\* Xi-Yan Dong and Ren-Wu Huang\*





## RESEARCH ARTICLES

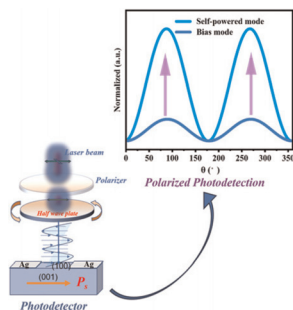
7026



### A chiral sodium lanthanum sulfate for second-order nonlinear optics and proton conduction

Hao Fu, Xiaohui Zhang, Peiyu Liu, Bo Li, Baolin Wu, Ye Tao, Qianshuang Lu, Yingjie Li, Jiaxi Huang, Fangfang Zhang, Tingchao He, Zhi Chen, Heng Wang, Chenliang Su, Hong-Ying Zang, Xiujun Yu\* and Xiaopeng Li

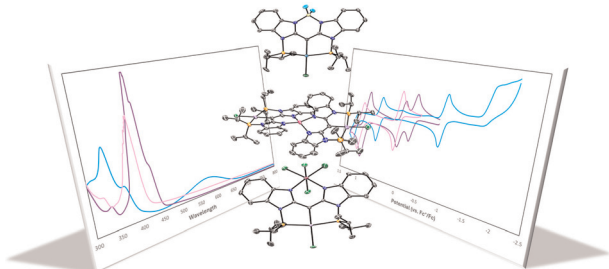
7034



### Chirality-driven amplification of sensitive polarized light detection in alternating cation-intercalated perovskites

Hang Li, Tingting Zhu, Qianwen Guan, Huang Ye, Shihai You, Chengshu Zhang, Yifei Wang, Peng Wang, Chengmin Ji and Junhua Luo\*

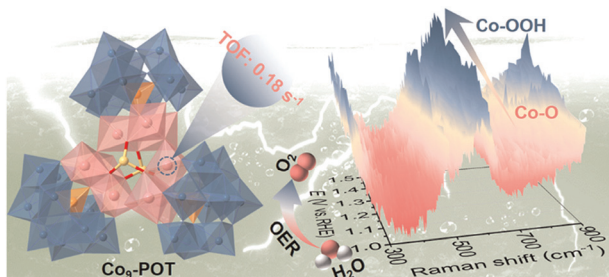
7040



### A redox-active ligand combines a PCP pincer site with a bidentate N–N donor in opposition

Derek W. Leong, Yanwu Shao, Nattamai Bhuvanesh and Oleg V. Ozerov\*

7049



### A Co-containing polyoxogermanotungstate for alkaline electrocatalytic water oxidation

Da-Huan Li, Lei Jia, Yi-Xin Liu, Cai Sun, Xin-Xiong Li, Ping-Wei Cai, Yan-Qiong Sun\* and Shou-Tian Zheng\*



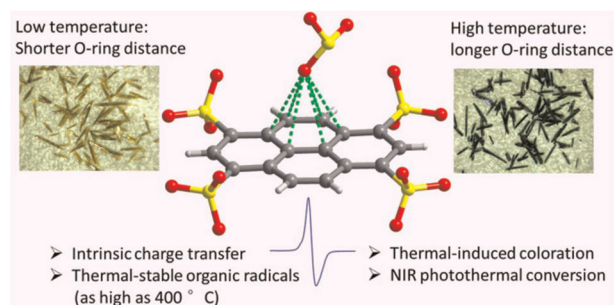


## RESEARCH ARTICLES

7058

**Thermal-induced coloration and photothermal conversion of an Ag-based coordination polymer with stable radicals**

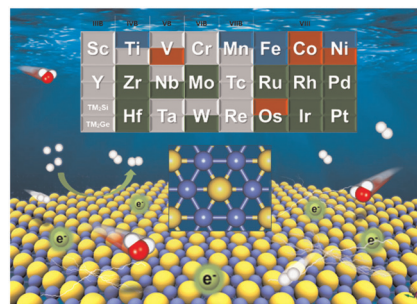
Hua Ke, Tong Xie and Jian-Zhen Liao\*



7067

**Hypercoordinated Si/Ge driving excellent HER catalytic performance in new  $TM_2X$  ( $X = Si$  and  $Ge$ ) monolayers: a high-throughput investigation by screening transition metal elements**

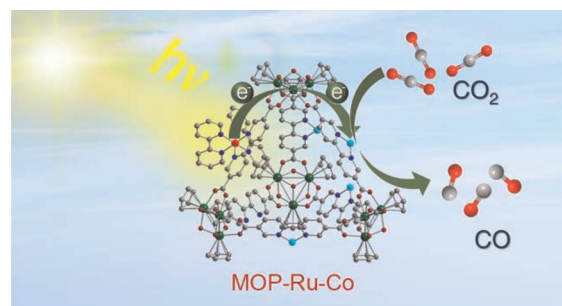
Tianya Li, Guangtao Yu,\* E. Yang and Wei Chen\*



7081

**Photosensitizing metal–organic polyhedra combined with Co catalytic sites for  $CO_2$  photoreduction**

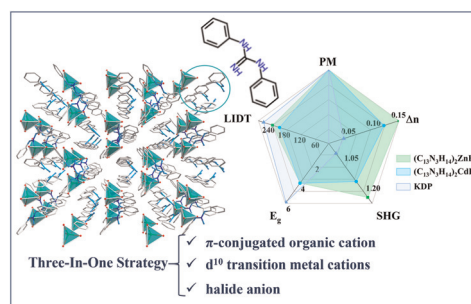
Jixin Li,\* Yaming Liu, Kaiyue Ma, Chunguang Li and Zhan Shi\*



7090

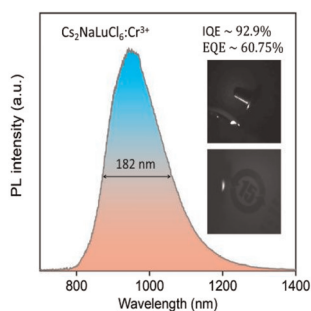
 **$(C_{13}N_3H_{14})_2MBr_4$  ( $M = Zn, Cd$ ): two novel hybrid metal halides with balanced integrated nonlinear optical performance**

Jiajing Wu,\* Yi-Fan Fu, Wenlong Liu and Sheng-Ping Guo\*



## RESEARCH ARTICLES

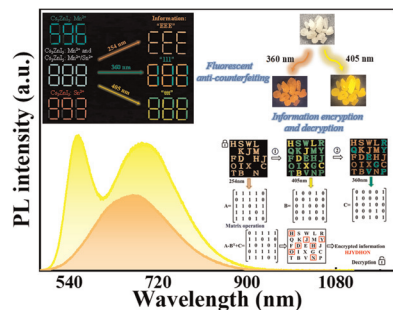
7098



### High performance NIR-I to NIR-II emission of a $\text{Cr}^{3+}$ -doped $\text{Cs}_2\text{NaLuCl}_6$ phosphor with an IQE and EQE of up to 92.9% and 60.75%

Fengmei Zhu, Yuan Gao\* and Jianbei Qiu\*

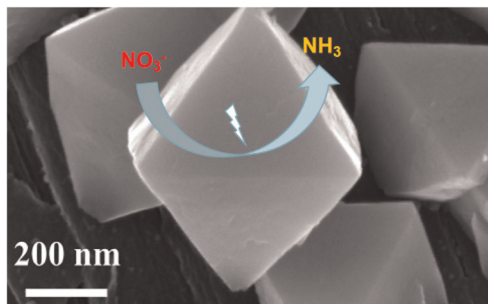
7110



### Excitation wavelength-dependent emission of $\text{Mn}^{2+}/\text{Sn}^{2+}$ co-doped $\text{Cs}_3\text{ZnI}_5$ for optical fluorescence anti-counterfeiting applications

Xiunan Li, Shuang Zhao, Hailong Yu, Jing Liu, Bing Hu, Qiujun Han and Wenzhi Wu\*

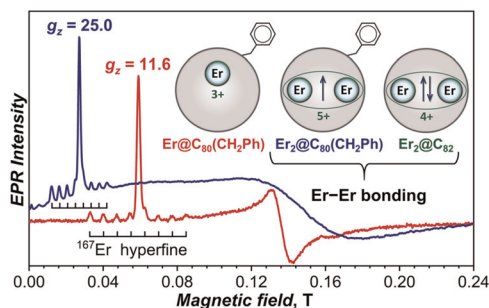
7118



### Octahedral $\text{CoS}_2$ electrocatalysts for efficient nitrate reduction to ammonia

Weili Li, Pai Wang, Peng Wang, Hongxian Liu,\*  
Chunyang Wu, Yuqing Liu, Jianwen Huang,  
Zhenxing Fang, Huanmei Guo, Yanning Zhang, Fei Li,\*  
Tongwei Wu\* and Xuping Sun

7126



### An interplay between metal–fullerene and metal–metal bonding in molecular magnetism of erbium metallofullerenes

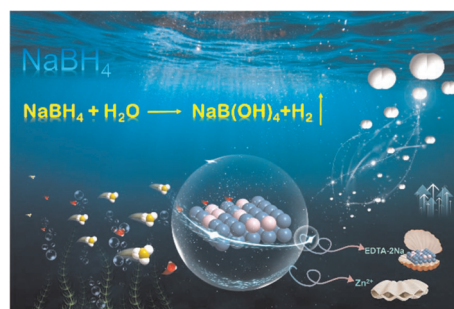
Ruslan B. Zaripov,\* Fupin Liu, Marco Rosenkranz,  
Matheus Felipe de Souza Barbosa, Yuri E. Kandrashkin,  
Vladislav Kataev, Stanislav M. Avdoshenko and  
Alexey A. Popov\*

## RESEARCH ARTICLES

7142

### Interface engineering of $\text{Co}_2\text{B}-\text{MoO}_3/\text{MOF}$ heterojunctions with rich cobalt defects for highly enhanced $\text{NaBH}_4$ hydrolysis

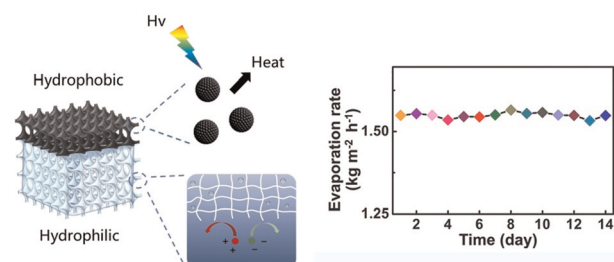
Chenxi Shang, Luyan Shi, Shuqing Zhou, Sheraz Muhammad, Tayirjan Taylor Isimjan,\* Huancheng Hu\* and Xiulin Yang\*



7152

### Design of a bifunctional Janus structure for high efficiency solar distillation in hypersaline brine

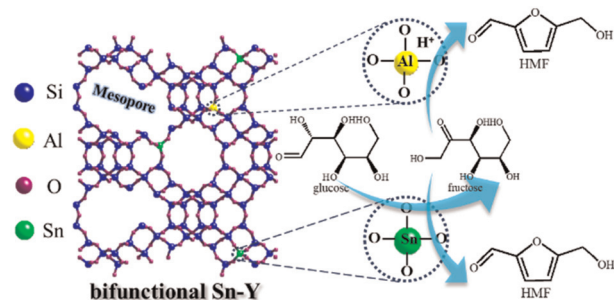
Yun Han, Yunchen Du,\* Li Zhu, Yonglei Liu, Bo Hu, Bojing Sun\* and Fei Han\*



7160

### Bifunctional Sn-Y zeolite triggers tandem catalytic conversion of glucose into 5-hydroxymethylfurfural

Zhiguo Zhu,\* Xiaolong Liu, Xue Liu,\* Songcheng Bo, Kaixuan Yang, Ting Su, Yuchao Zhao and Hongying Lü



7176

### Sulfur, phosphorus and iron codoped nickel oxide as an efficient catalyst for the oxygen evolution reaction

Zhanqiang Hu, Songsong Zhi, Chen Chen,\* Jiuli Chang, Dapeng Wu, Kai Jiang\* and Zhiyong Gao\*

