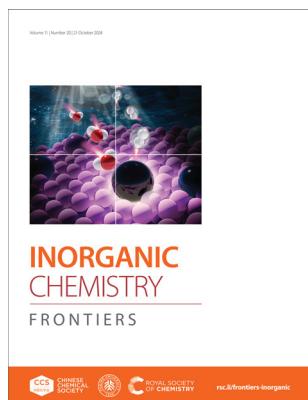


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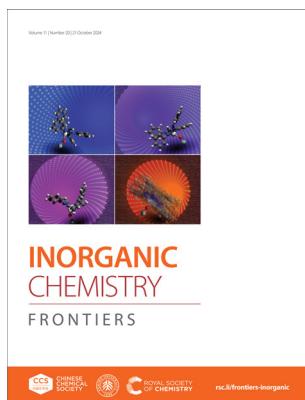
ISSN 2052-1553 CODEN ICFNAW 11(20) 6681–7190 (2024)



#### Cover

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

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#### Inside cover

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

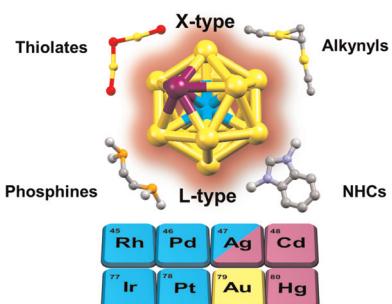
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#### Tuning photoluminescence properties of Au clusters by surface modification and doping: lessons from case studies of icosahedral Au<sub>13</sub>

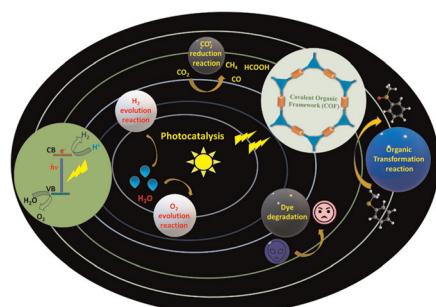
Dennis Alexander Buschmann, Haru Hirai and Tatsuya Tsukuda\*



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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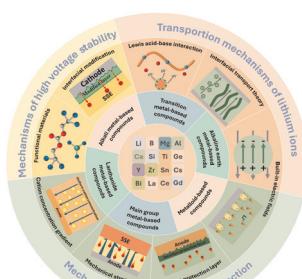
Fundamental questions  
Elemental answers

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

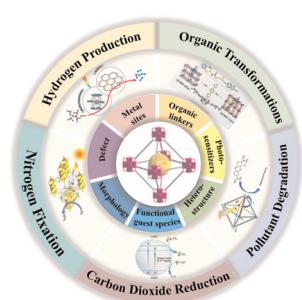
Nanping Deng,\* Wenwen Duan, Wen Yu, Yang Feng, Zichun Feng, Xiaofan Feng, Zhaozhao Peng, Hengying Xiang, Yong Liu\* and Weimin Kang\*



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**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\*

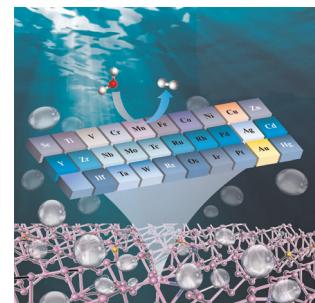


## RESEARCH ARTICLES

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

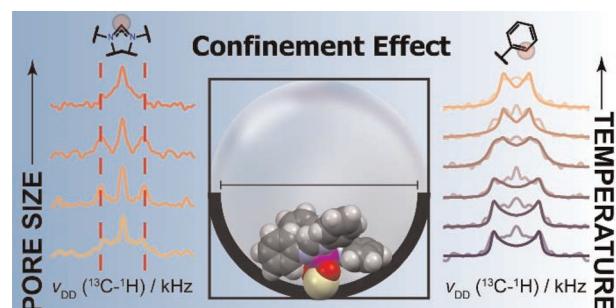
Lu Lu, Mingzi Sun, Tong Wu, Qiuyang Lu, Baian Chen, Cheuk Hei Chan, Hon Ho Wong and Bolong Huang\*



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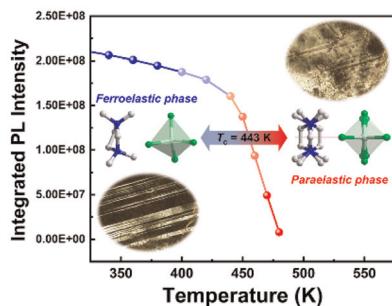
**Size matters: altering the metal-surface coordination in micropores via structural confinement effects**

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



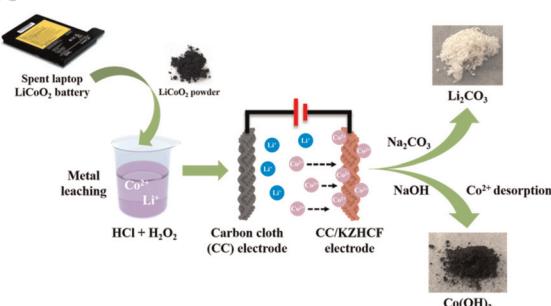
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**An organic–inorganic hybrid photoluminescent ferroelastic with high phase transition temperature**

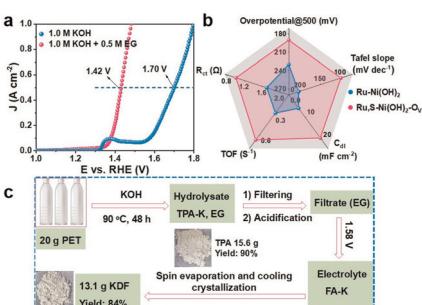
Wen-Li Yang, Xin Yan, Miao Wang, Hao Yuan, Yuan-Yuan Tang, Yan Qin\* and Xian-Jiang Song\*

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

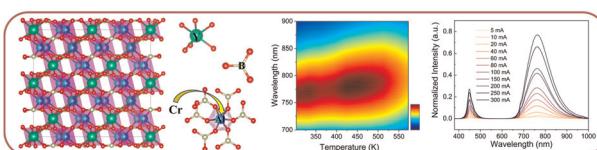
Mengxiang Ye, Huaimeng Li,\* Xi Wu, Guofeng Zhang and Yunxia Zhang\*

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**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\*

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**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\*

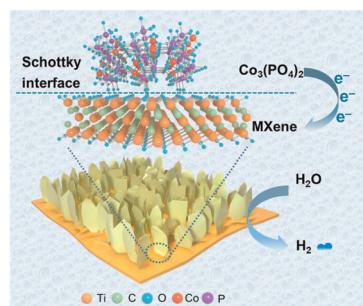


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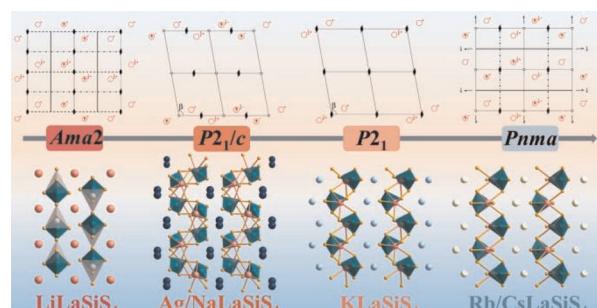
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**Chemical modulation of  $A^I\text{RE}^{\text{III}}\text{C}^{\text{IV}}\text{Q}_4^{\text{VI}}$  family compounds for band gap and optical anisotropy enhancement**

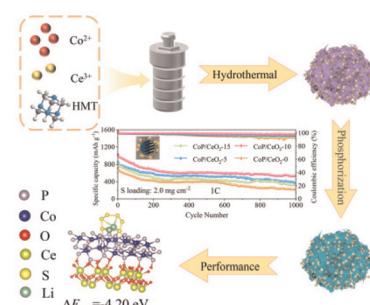
Hongshan Wang, Xuetong Pan, Shilie Pan\* and Junjie Li\*



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

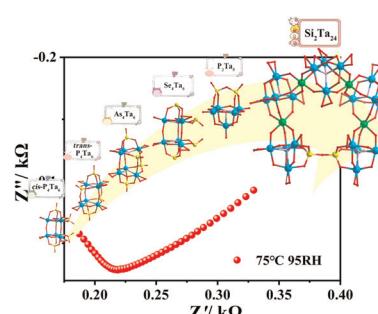
Xiaofei Wang,\* Ganfan Zhang, Yue Li, Yuanting Wu and Wei Luo\*



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**Assembly of Si-substituted heteropolyoxotantalate architecture**

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



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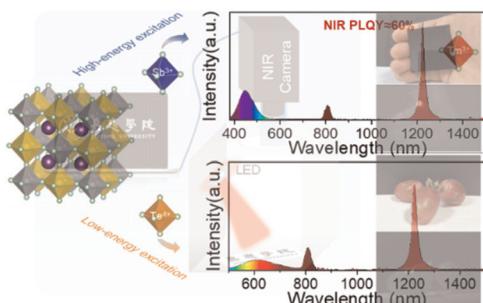
Al/pz<sup>tBu<sub>2</sub></sup> Y/pz<sup>Me<sub>2</sub></sup> Y/pz<sup>tBu<sub>2</sub></sup> Sc/pz<sup>tBu<sub>2</sub></sup>

Carboxophilicity

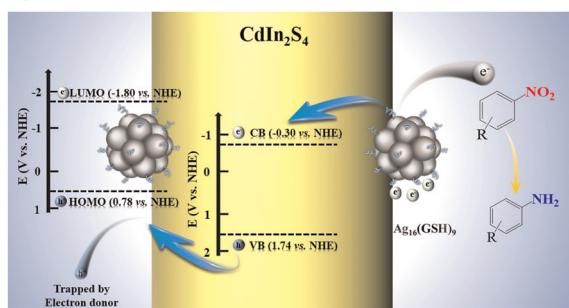
Catalytic Activity

pz = pyrazolate

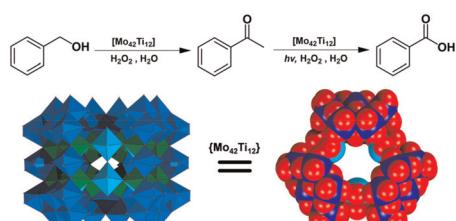
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6981



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

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

## 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\*

## Photoredox catalysis enabled by atomically precise metal nanoclusters

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

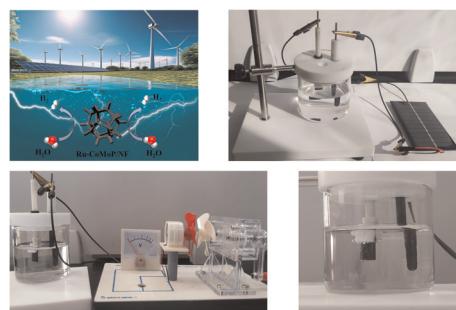


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**Ru nanoparticle-loaded amorphous CoMoP as an efficient electrocatalyst for alkaline water/seawater hydrogen evolution**

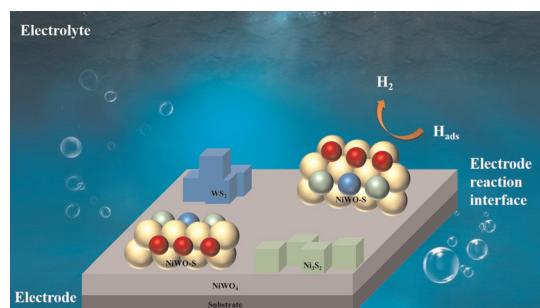
Wen-Jing Li, Xin-Jie Tian, Hai-Yi Sun, Xue-Ying Yang, Denghao Ouyang, Guodong Li, Bin Liu,\* Yong-Ming Chai and Bin Dong\*



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

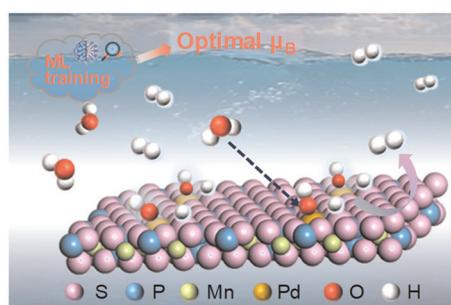
Zi-Zhang Liu, Ruo-Yao Fan, Ya-Nan Zhou, Ning Yu, Bin Dong\* and Zi-Feng Yan\*



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**

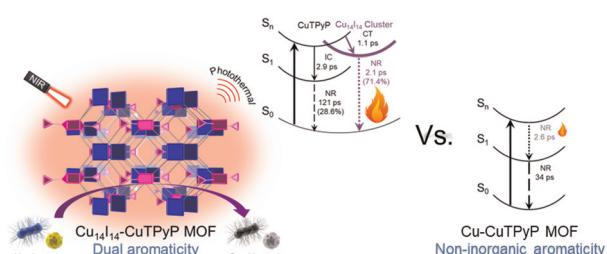
Xinyi Li, Dongxu Jiao, Jingxiang Zhao\* and Xiao Zhao\*



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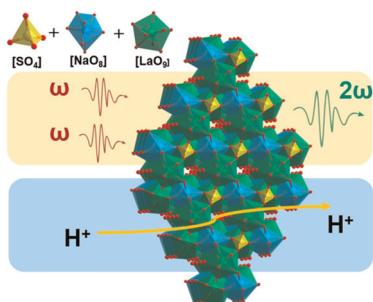
**A bis-aromatic MOF system constructed with a copper iodine cluster and porphyrinic ligand for enhancing near-infrared photothermal conversion**

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



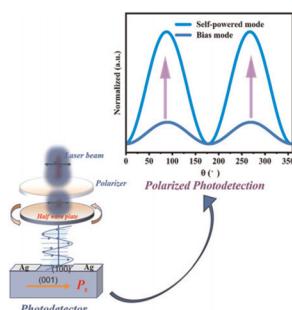
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**A chiral sodium lanthanum sulfate for second-order nonlinear optics and proton conduction**

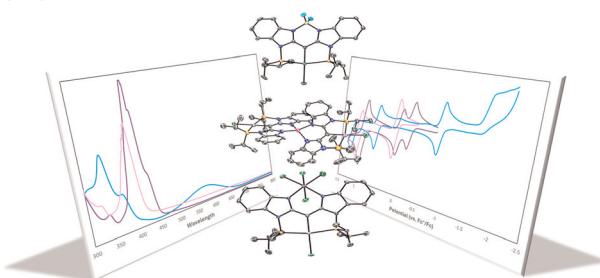
Hao Fu, Xiaohui Zhang, Peiyu Liu, Bo Li, Baolin Wu, Ye Tao, Qianshuang Lu, Yingjie Li, Jiaxi Huang, Fangfang Zhang, Tingchao He, Zhi Chen, Heng Wang, Chenliang Su, Hong-Ying Zang, Xiujun Yu\* and Xiaopeng Li

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

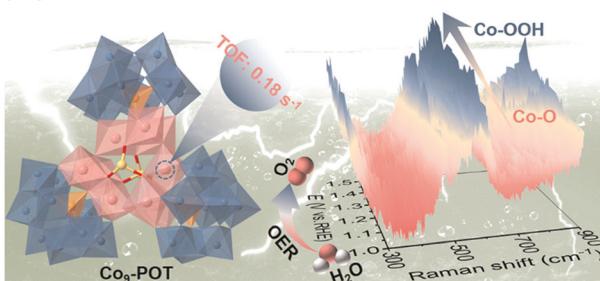
Hang Li, Tingting Zhu, Qianwen Guan, Huang Ye, Shihai You, Chengshu Zhang, Yifei Wang, Peng Wang, Chengmin Ji and Junhua Luo\*

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**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\*

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**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\*

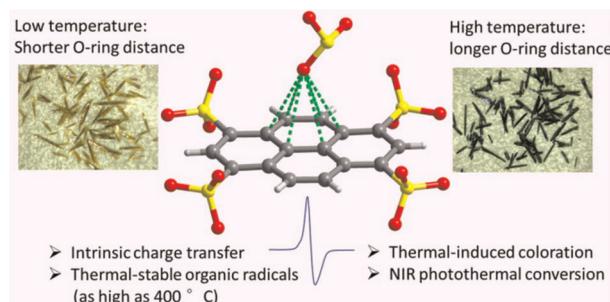


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**Thermal-induced coloration and photothermal conversion of an Ag-based coordination polymer with stable radicals**

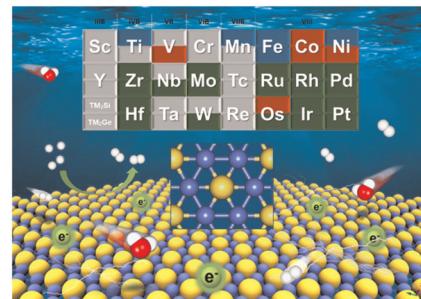
Hua Ke, Tong Xie and Jian-Zhen Liao\*



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**Hypercoordinated Si/Ge driving excellent HER catalytic performance in new TM<sub>2</sub>X (X = Si and Ge) monolayers: a high-throughput investigation by screening transition metal elements**

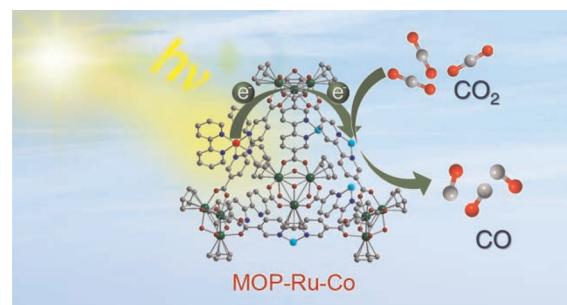
Tianya Li, Guangtao Yu,\* E. Yang and Wei Chen\*



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**Photosensitizing metal–organic polyhedra combined with Co catalytic sites for CO<sub>2</sub> photoreduction**

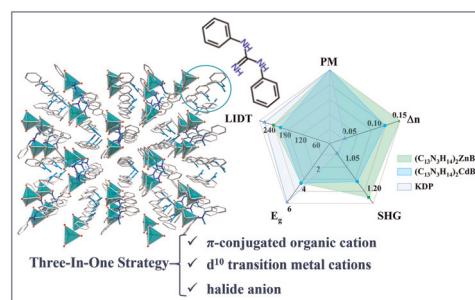
Jixin Li,\* Yaming Liu, Kaiyue Ma, Chunguang Li and Zhan Shi\*



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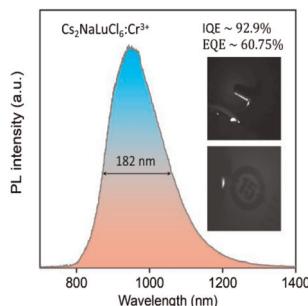
**(C<sub>13</sub>N<sub>3</sub>H<sub>14</sub>)<sub>2</sub>MBr<sub>4</sub> (M = Zn, Cd): two novel hybrid metal halides with balanced integrated nonlinear optical performance**

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



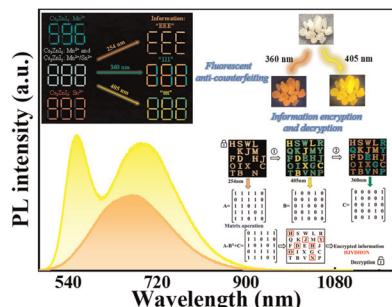
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**High performance NIR-I to NIR-II emission of a  $\text{Cr}^{3+}$ -doped  $\text{Cs}_2\text{NaLuCl}_6$  phosphor with an IQE and EQE of up to 92.9% and 60.75%**

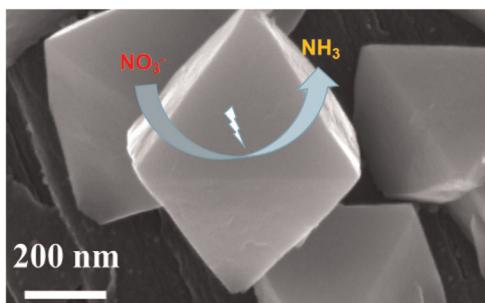
Fengmei Zhu, Yuan Gao\* and Jianbei Qiu\*

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**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**

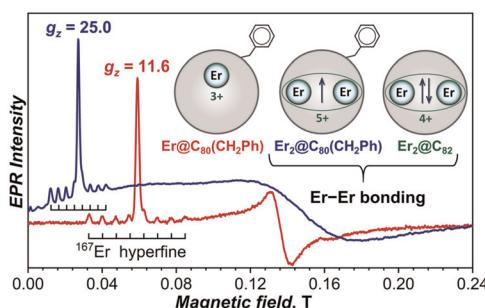
Xiunan Li, Shuang Zhao, Hailong Yu, Jing Liu, Bing Hu, Qiuju Han and Wenzhi Wu\*

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**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

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**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. Kand rashkin, Vladislav Kataev, Stanislav M. Avdoshenko and Alexey A. Popov\*

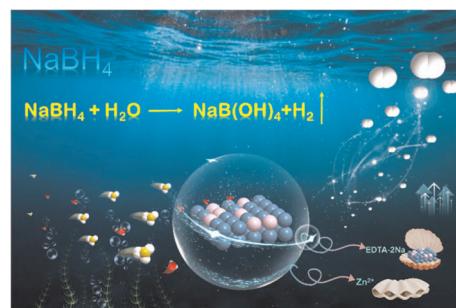


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**Interface engineering of  $\text{Co}_2\text{B}-\text{MoO}_3/\text{MOF}$  heterojunctions with rich cobalt defects for highly enhanced  $\text{NaBH}_4$  hydrolysis**

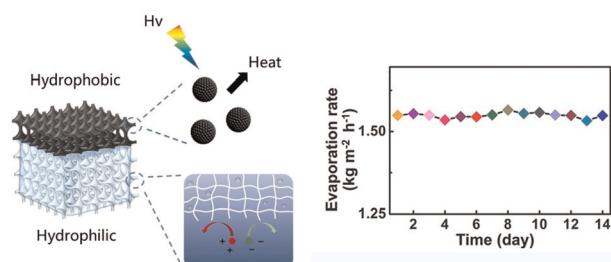
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Sheraz Muhammad, Tayirjan Taylor Isimjan,\*  
Huancheng Hu\* and Xiulin Yang\*



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

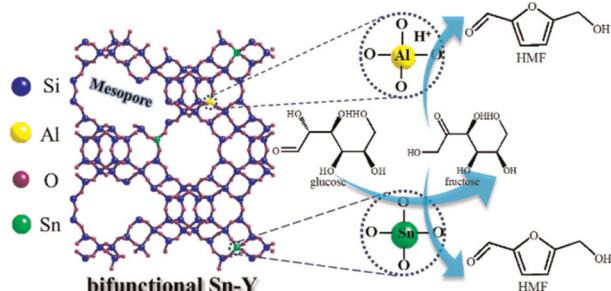
Yun Han, Yunchen Du,\* Li Zhu, Yonglei Liu, Bo Hu,  
Bojing Sun\* and Fei Han\*



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

Zhiguo Zhu,\* Xiaolong Liu, Xue Liu,\* Songcheng Bo,  
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**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\*

