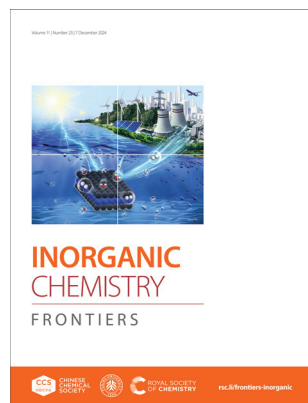


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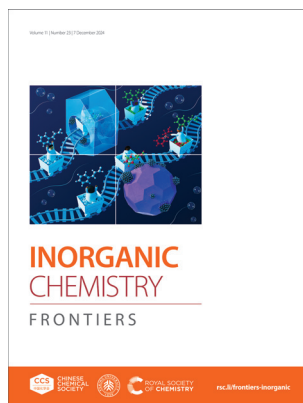
ISSN 2052-1553 CODEN ICFNAW 11(23) 8151-8576 (2024)



#### Cover

See Zhengjun Chen *et al.*, pp. 8212–8222.

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#### Inside cover

See Javier Ruiz-Martinez *et al.*, pp. 8223–8234.

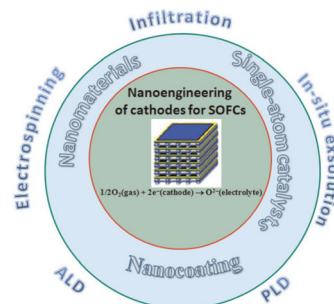
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### REVIEWS

8164

#### Advances in nanoengineering of cathodes for next-generation solid oxide fuel cells

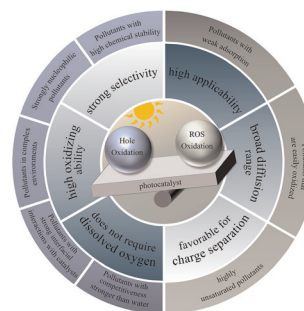
Chunwen Sun



8183

#### Strategic pathway selection for photocatalytic degradation: roles of holes and radicals

Yixuan Li, Xu Gao and Yuxin Li\*



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## RESEARCH ARTICLES

8212

### Amorphous heterojunction and fluoride-induced effects enable a F-Ni(OH)<sub>2</sub>/Ni-B electrocatalyst for efficient and stable alkaline freshwater/seawater hydrogen evolution at a high current density

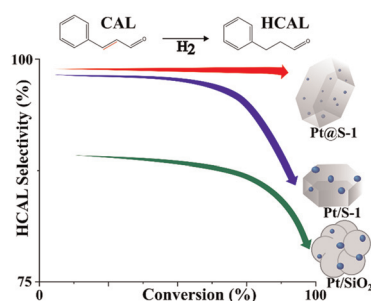
Shenyi Chen, Haoming Chu, Ziyin Xie, Lihui Dong, Bin Li, Minguang Fan, Huibing He and Zhengjun Chen\*



8223

### Atypical hydrogenation selectivity of platinum by reactive environment modulation

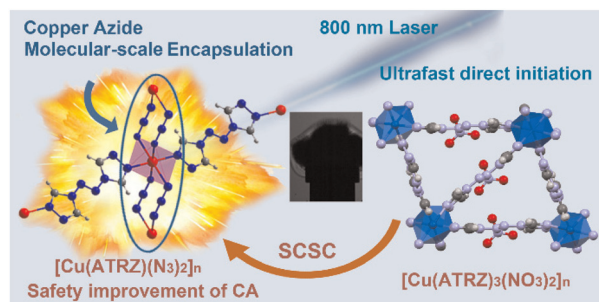
Jurjen Cazemier, Moussa Zaarour, Sarah Komaty, Polina Lavrik, Antonio Aguilar Tapia, Sudheesh Kumar Veeranmaril, Jean-Louis Hazemann and Javier Ruiz-Martinez\*



8235

### Single-crystal-to-single-crystal MOF encapsulation of copper azide to prepare laser-sensitive primary explosives

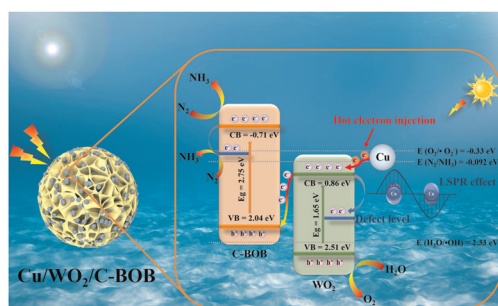
Ruibing Lv, Pengyang Pan, Zhenghang Luo, Ying Wang, Quancheng Liu, Hu Deng\* and Qi Zhang\*



8246

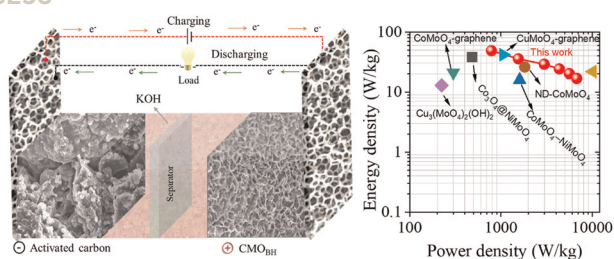
### LSPR-enhanced photocatalytic N<sub>2</sub> fixation over Z-scheme POMOF-derived Cu/WO<sub>2</sub> modified C-BiOBr with multiple active sites

Xue Yang, Donghui Cui, Tingting Zhang, Yu Liu and Fengyan Li\*



## RESEARCH ARTICLES

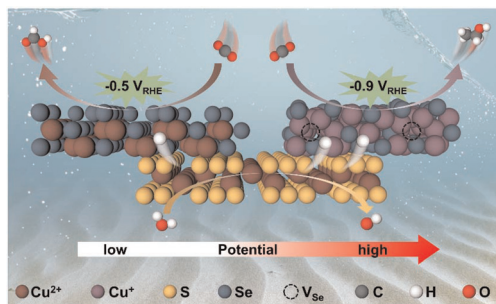
8258



### Diffusion-dominated redox performance of hydrated copper molybdate for high-performance energy storage

Mohammed Kuku,\* Sultan Althabban and Mohammad Arishi

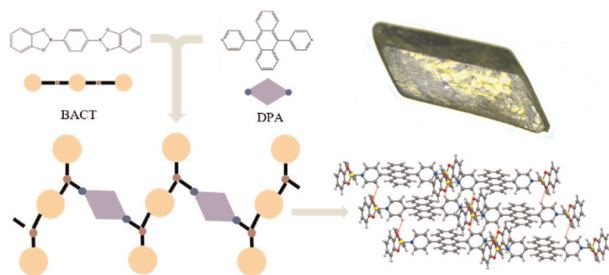
8272



### Potential-driven *in situ* formation of Se-vacancy-rich CuS@Cu<sub>2</sub>Se to steer the CO<sub>2</sub> electroreduction path from HCOOH to C<sub>2</sub>H<sub>5</sub>OH

Shuxian Xie, Chao Lv, Lichun Kong, Cui Li, Chang Wang, Xuyu Lv, Qianmin Wu, Jiuju Feng, Ai-Jun Wang,\* De-Li Chen\* and Fa Yang\*

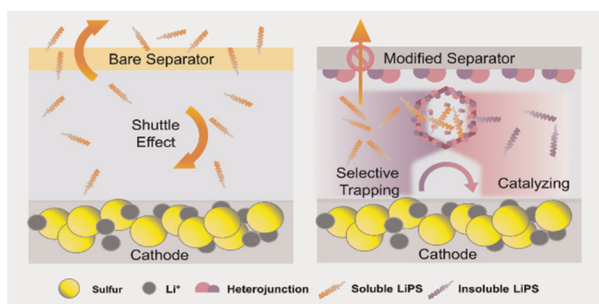
8285



### A covalent organic polymer containing dative B ← N bonds: synthesis, single crystal structure, and physical properties

Jinghang Wu, Jiahe Liu, Limei Rao, Yunchen Long, Qianfeng Gu, Xin Wang, Lei Zhang, Fangyuan Kang, Lang Jiang,\* Danyuan Lei\* and Qichun Zhang\*

8290



### MOF-derived Co–Mo bimetallic heterostructures for the selective trapping and conversion of polysulfides in lithium–sulfur batteries

Rongmei Zhu,\* Yuxuan Jiang, Bingxin Sun, Wang Zhang and Huan Pang\*

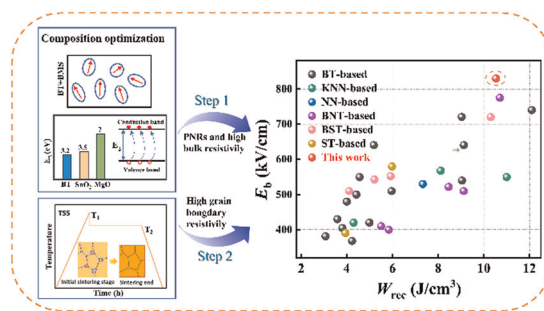


## RESEARCH ARTICLES

8300

### Superior energy storage performance with a record high breakdown strength in bulk $\text{Ba}_{0.85}\text{Ca}_{0.15}\text{Zr}_{0.1}\text{Ti}_{0.9}\text{O}_3$ -based lead-free ceramics via multiple synergistic strategies

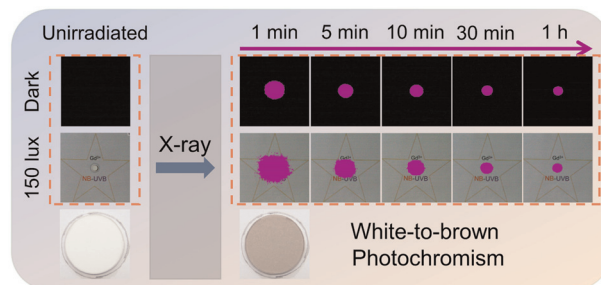
Changhao Wang, Jiaxi Hao, Longxiao Duan, Jianfan Zhang, Wenfeng Yue, Zhenhao Fan, Dandan Han,\* Raz Muhammad, Fanxu Meng and Dawei Wang\*



8314

### A narrowband ultraviolet-B-emitting $\text{LiCaPO}_4:\text{Gd}^{3+}$ phosphor with super-long persistent luminescence for over 100 h

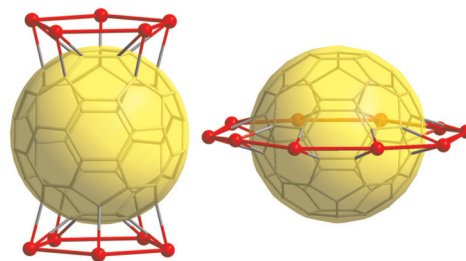
Xihui Shan, Xulong Lv, Dongxun Chen, Yi Zhang, Lixin Ning\* and Yanjie Liang\*



8324

### Polar and tropical regioisomeric decanuclear cuprofullerenes

Jing-Xuan Sun, Ting-Ting Zou, Yi-Chun Zhang, Yu-Li Liu, Li Dang, Shun-Ze Zhan,\* Hong Cai\* and Dan Li\*

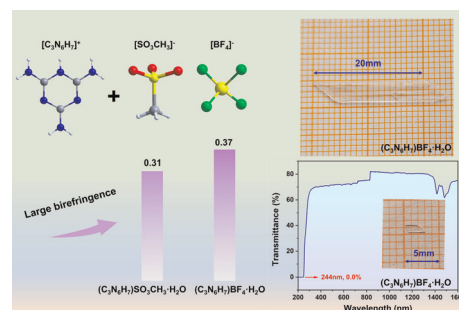


polar and tropical regioisomeric cuprofullerenes

8331

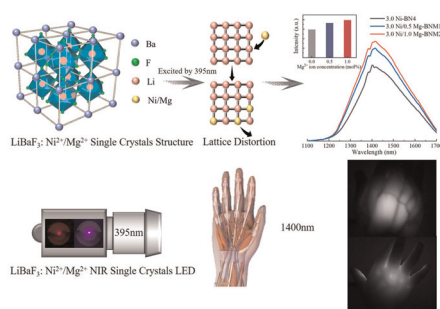
### $(\text{C}_3\text{N}_6\text{H}_7)\text{BF}_4 \cdot \text{H}_2\text{O}$ and $(\text{C}_3\text{N}_6\text{H}_7)\text{SO}_3\text{CH}_3 \cdot \text{H}_2\text{O}$ with large birefringence induced by coplanar $\pi$ -conjugated $[\text{C}_3\text{N}_6\text{H}_7]^+$ groups

Hangwei Jia, Die Xu, Zijian Li, Muhammad Arif, Yansheng Jiang and Xueling Hou\*



## RESEARCH ARTICLES

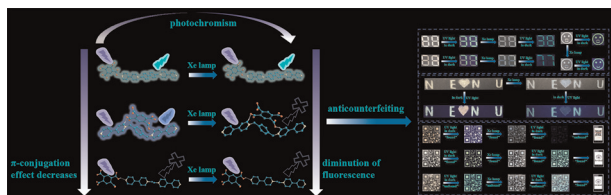
8339



### Mg<sup>2+</sup>-modified LiBaF<sub>3</sub>:Ni<sup>2+</sup> perovskite single crystals with broadband long wavelength near-infrared emission for imaging human vascular structures

Di Wei, Haiping Xia,\* Lizhi Fang,\* Liangbi Su, Xu Chen and Hongwei Song

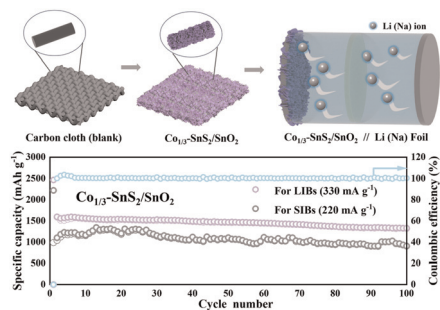
8350



### Photofluorochromic organic supramolecular compounds for multiple dynamic anticounterfeiting

Yang Hua, Li Huang, Yuan Shen, Kun Huang, Wen-Bo Cui, Zi-Yi Li and Hong Zhang\*

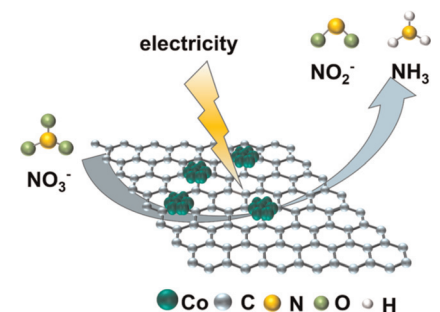
8359



### Co-nucleated Co doped SnO<sub>2</sub>/SnS<sub>2</sub> heterostructures to facilitate diffusion towards high-performance Li and Na ion storage

Kunyu Hao, Ruixiao Zhang, Mingyue Chen, Yu Lu, Pengcheng Qi, Yanxin Wang, Hao Wu and Yiwen Tang\*

8371



### High-performance electrocatalytic nitrate reduction into ammonia using a chitosan regulated Co nanocatalyst

Yaqian Xin, Shengbo Zhang,\* Jiafang Liu, Yong Jiang, Yunxia Zhang, Guozhong Wang and Haimin Zhang\*

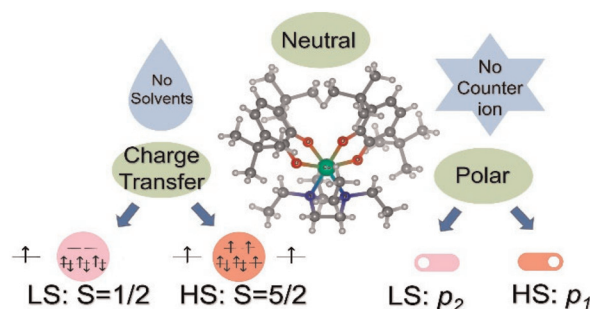


## RESEARCH ARTICLES

8377

### A solvent-free neutral cobalt complex exhibiting macroscopic polarization switching induced by directional charge transfer

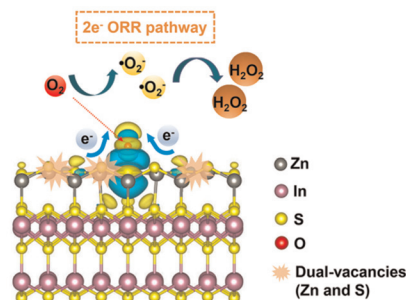
Zi-Qi Zhou, Shu-Qi Wu, Qi-Rui Shui, Wen-Wei Zheng, Akari Maeda, Xiao-Peng Zhang, Jing Chu, Shinji Kanegawa, Sheng-Qun Su and Osamu Sato\*



8383

### ZnIn<sub>2</sub>S<sub>4</sub> nanosheets with tunable dual vacancies for efficient sacrificial-agent-free H<sub>2</sub>O<sub>2</sub> photosynthesis

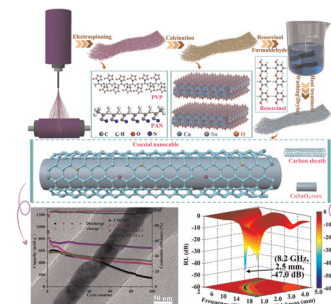
Chen Zhang, Gao Xu, Qifeng Liang, Li Liang, Zebo Fang, Rong Wu, Shunhang Wei,\* Lei Wang\* and Xiaoxiang Xu\*



8392

### Multifunctional core-shell CaSnO<sub>3</sub>@N-doped carbon coaxial nanocables with excellent lithium storage performance and efficient microwave absorption

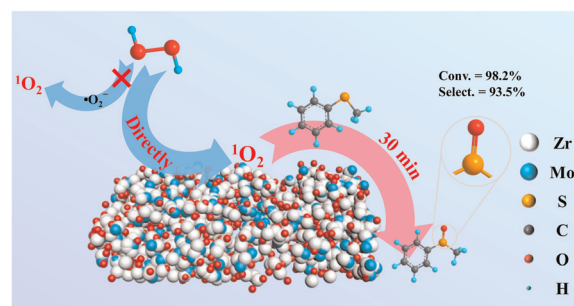
Xiaoqiang Li,\* Guangguang Guan, Siyi Tong, Xin Chen, Kaiyin Zhang and Jun Xiang\*



8411

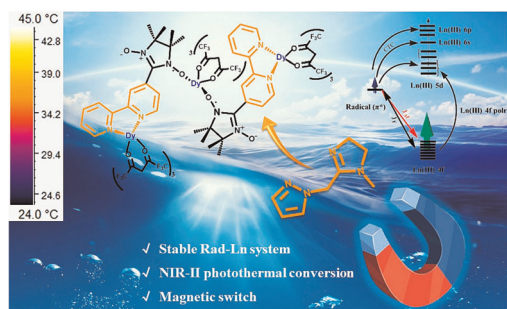
### Amorphous Mo<sub>a</sub>Zr<sub>0.8</sub>O<sub>x</sub>-500 catalyzed selective oxidation of sulfides to sulfoxides mediated by <sup>1</sup>O<sub>2</sub> from direct heterolytic cleavage of H<sub>2</sub>O<sub>2</sub>

Tong Li, Jiaheng Qin, Xueyao Zhang, Xiaoqi Tang, Mingzhe Lv, Weiwen Mao, Linkun Dong, Tongtong Fan, Yu Long\* and Jiantai Ma\*



## RESEARCH ARTICLES

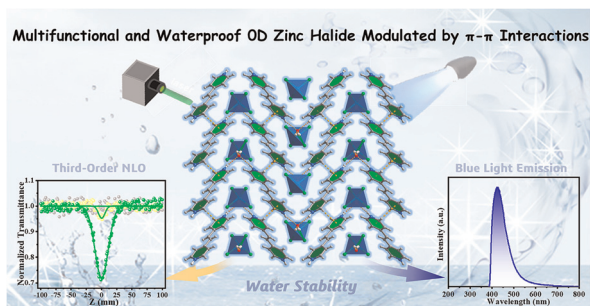
8421



### Near-infrared-II photothermal conversion and magnetic dynamic regulation in $[\text{Ln}_3\text{Rad}_2]$ aggregation by rigidity modification of nitronyl nitroxide

Hongdao Li,\* Chaoyi Jin, Jing Han, Jianke Tang, Xiaofeng Han\* and Zhenjun Song\*

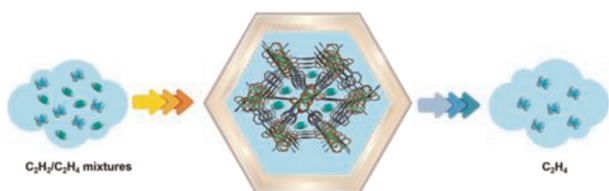
8431



### Water-stable zero-dimensional hybrid zinc halide modulated by $\pi$ - $\pi$ interactions: efficient blue light emission and third-order nonlinear optical response

Jia-Wei Li,\* Wenke Dong, Yanjie Liu, Yuhan Li, Lu-Yuan Qiao, Guang-Lu Liu, Hui Zhang, Chunjie Wang, Hui-Li Zheng\* and Jian-Qiang Zhao\*

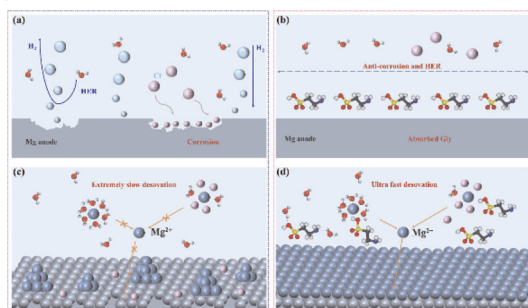
8439



### Significant adsorption enhancements driven by pore microenvironment tuning for efficient $\text{C}_2\text{H}_2/\text{C}_2\text{H}_4$ separation in a chemically stable $\text{Ni}_7$ -cluster-based framework

Yunli Wang, Rizhao Zhang, Jin-Peng Xue, Yuqiao Chai,\* Bao Li\* and Jia Li\*

8445



### Achieving high power density and stability in aqueous Mg-air batteries using taurine electrolyte additives

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

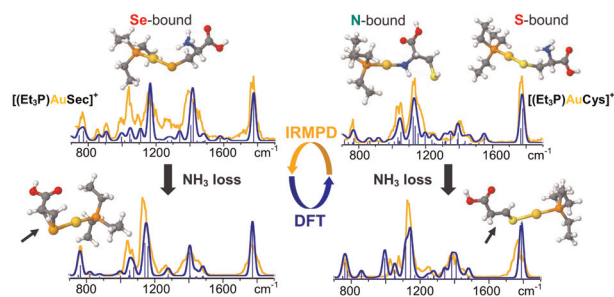


## RESEARCH ARTICLES

8464

### Vibrational analysis of auranofin complexes with cysteine and selenocysteine unveils distinct binding motifs and specific unimolecular reactivity

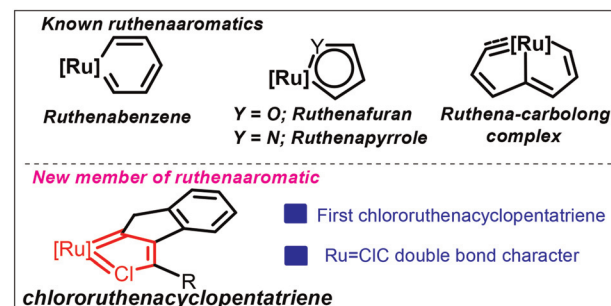
Roberto Paciotti,\* Davide Corinti,\* Cecilia Coletti, Nazzareno Re, Giel Berden, Jos Oomens, Simonetta Fornarini and Maria Elisa Crestoni



8479

### Synthesis and structure of chlororuthenacyclopentatriene

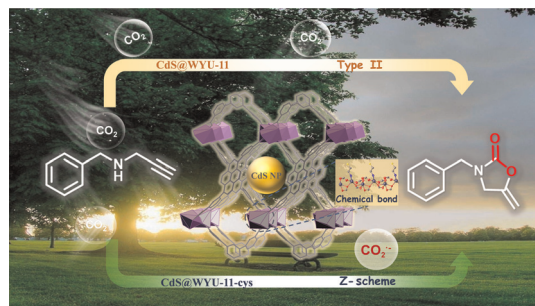
Zhenwei Chu, Zhishun Peng, Xu Cheng, Yuhui Hua, Guomei He, Jiangxi Chen\* and Guochen Jia\*



8489

### Engineering a pyrene MOF composite photocatalyst toward the formation of carbon dioxide radical anions through regulating the charge transfer from type II to Z scheme via a chemical bond-modulated strategy

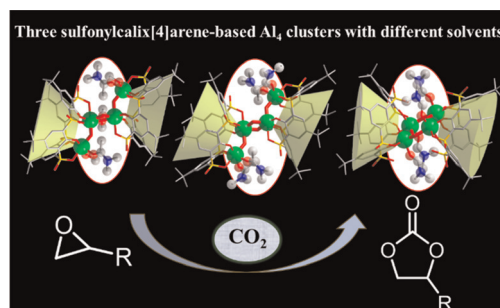
Xin Zhao, Yajun Zhao, Yuan-Peng Li, Pengbo Lyu,\* Chunying Chen, Zong-Wen Mo, Chao Peng, Jiewei Liu\* and Li Zhang\*



8502

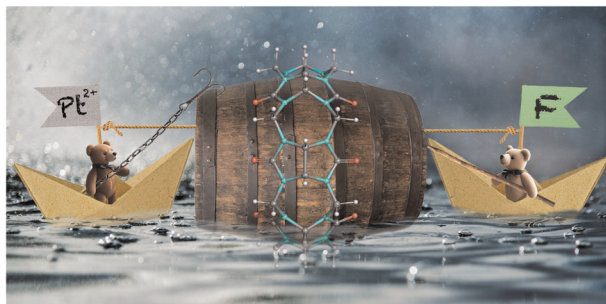
### Sulfonylcalix[4]arene-based Al<sub>4</sub> clusters: three aluminum oxo clusters with different coordinated solvents for the CO<sub>2</sub> cycloaddition reaction

Xiao-Jie Liu, Long-Xue Guo, Wei Xu, Ya-Wen Wang, Yuan-Hang Tian, Li-Xing Zhao, Xiao-Yu Li,\* Jin-Hua Li\* and Guo-Ming Wang



## RESEARCH ARTICLES

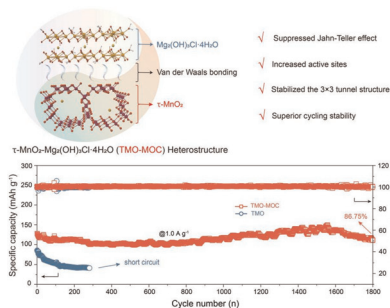
8510



### Revealing the effect of host–guest complementarity in supramolecular monofunctional platinum(II) drugs

Shib Shankar Paul, Jan Novotný,\* Jakub Jakubec, Kateřina Petrálková, Pia Jurček, Klára Rašková, Michaela Kuchynka, Michal Masařík, Petr Kulhánek and Radek Marek\*

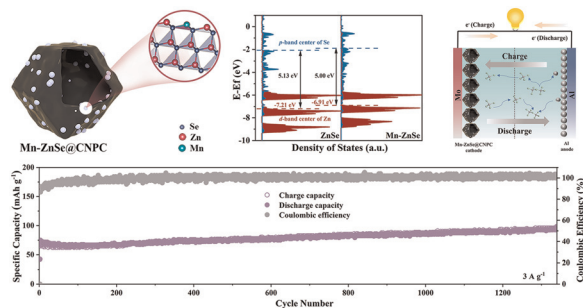
8526



### Heterointerface synergy between a 3 × 3 tunnel $\tau$ -MnO<sub>2</sub> cathode and Mg<sub>2</sub>(OH)<sub>3</sub>Cl·4H<sub>2</sub>O for achieving long cycle-life aqueous zinc-ion batteries

Fang Xu, Jialin Zheng, Dai-Huo Liu,\* Ao Wang, Zhenjiang Li, Chunyan Xu, Mengqin Song, Beinuo Zhang, Zhengyu Bai\* and Zhongwei Chen\*

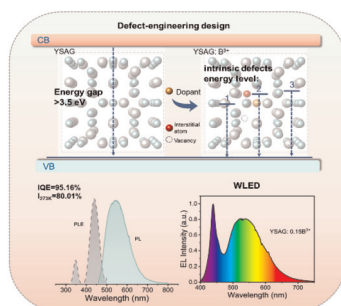
8535



### Boosted aluminum storage performance by d–p orbital modulation in zinc selenide with manganese element dopants

Han Wang, Rongkai Kang, Boya Zhang, Xingchang Zhang, Guowen Chen,\* Yiqun Du\* and Jianxin Zhang\*

8547



### A novel extra-broadband visible-emitting garnet phosphor for efficient single-component pc-WLEDs

Qianyi Chen, Zhenjie Lun, Dongdan Chen,\* Yongsheng Sun, Puxian Xiong, Siyun Li, Shanhui Xu\* and Zhongmin Yang

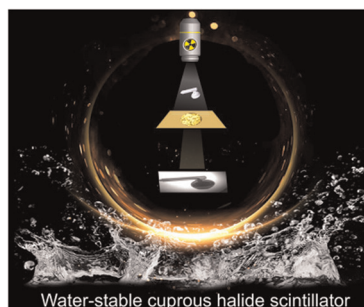


## RESEARCH ARTICLES

8555

**Zero-dimensional cuprous halide scintillator with ultra-high anti-water stability for X-ray imaging**

Jing-Ning Lv, Na Lin, Jia-Yi Zhang, Yu-Meng Liu, Li-Chuang Niu, Jie Shi, Xiao-Wu Lei\* and Zhi-Wei Chen\*



Water-stable cuprous halide scintillator

8564

**Three-dimensional porous rhodium–copper alloy nanoflowers stereoassembled on  $\text{Ti}_3\text{C}_2\text{T}_x$  MXene as highly-efficient methanol oxidation electrocatalysts**

Haiyan He, Yue Lan, Jinlong Qin, Quanguo Jiang, Lu Yang, Jian Zhang and Huajie Huang\*

