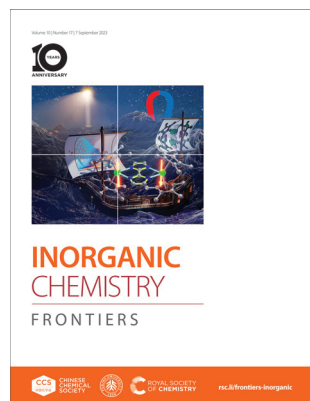


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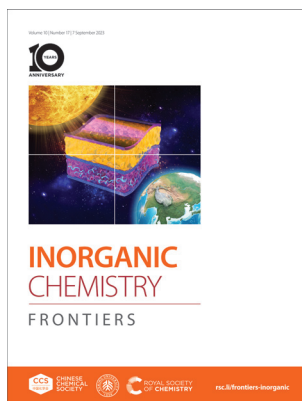
ISSN 2052-1553 CODEN ICFNAW 10(17) 4891–5200 (2023)



#### Cover

See Florian Benner and Selvan Demir, pp. 4981–4992.

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#### Inside cover

See Lianfeng Duan, Fushen Lu *et al.*, pp. 4993–5003.

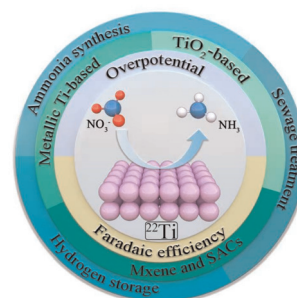
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### REVIEWS

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#### Recent developments in Ti-based nanocatalysts for electrochemical nitrate-to-ammonia conversion

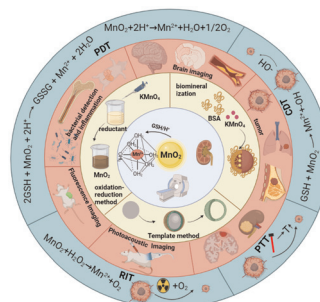
Wenda Chen, Yuan Xu, Jiaxin Liu, Huiqun Cao, Yongliang Li, Xiangzhong Ren, Shenghua Ye,\* Jianhong Liu\* and Qianling Zhang\*



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#### Advances in the application of manganese dioxide and its composites for theranostics

Jiaqi Hao, Yu Zhao, Yiqi Ma, Beibei Liu, Yonglan Luo, Sulaiman Alfaifi, Xuping Sun\* and Min Wu\*



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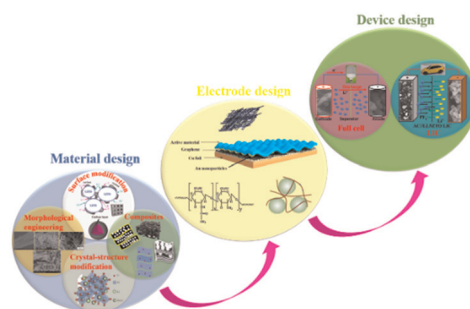


## REVIEWS

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**Li<sub>2</sub>ZnTi<sub>3</sub>O<sub>8</sub> anode: design from material to electrode and devices**

Huanhuan Liu, Xue Zhang, Haoran Xu, Wenzhao Ma, Lijuan Wang,\* Zhaohui Meng\* and Fei Wang\*

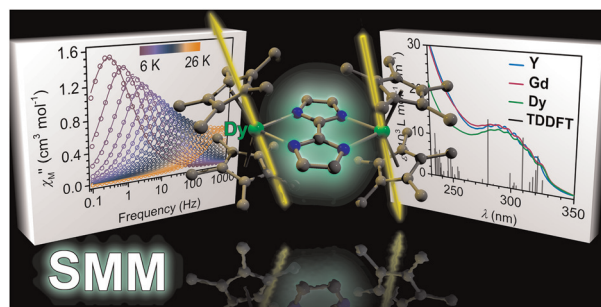


## RESEARCH ARTICLES

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**From unprecedented 2,2'-bisimidazole-bridged rare earth organometallics to magnetic hysteresis in the dysprosium congener**

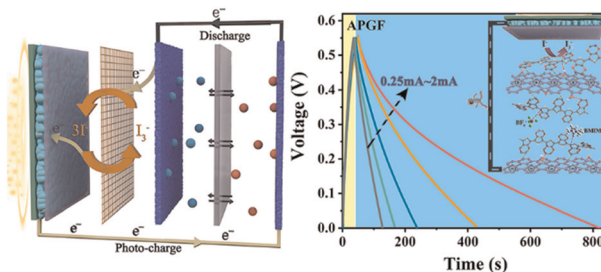
Florian Benner and Selvan Demir\*



4993

**Compatible and high-efficiency quasi-solid-state integrated photocapacitor based on the synergism of PEDOT/RGO electrode and gel electrolyte to improve the carrier migration**

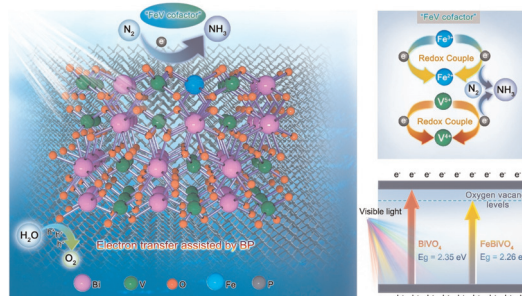
Yuan duo Qu, Siqi Liao, Liangyi Wu, Junkai Wang, Lianfeng Duan,\* Xia He and Fushen Lu\*



5004

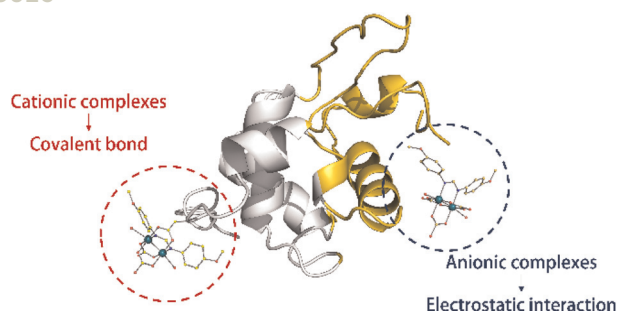
**"FeV-cofactor"-inspired bionic Fe-doped BiVO<sub>4</sub> photocatalyst decorated with few-layer 2D black phosphorus for efficient nitrogen reduction**

Hongda Li, Shuai Jian, Boran Tao, Guoxiao Xu, Baosheng Liu, Shaonan Gu,\* Guofu Wang\* and Haixin Chang\*



## RESEARCH ARTICLES

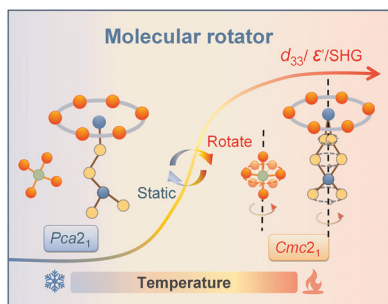
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### Charge effect in protein metalation reactions by diruthenium complexes

Aarón Terán, Giarita Ferraro, Ana E. Sánchez-Peláez, Santiago Herrero\* and Antonello Merlino\*

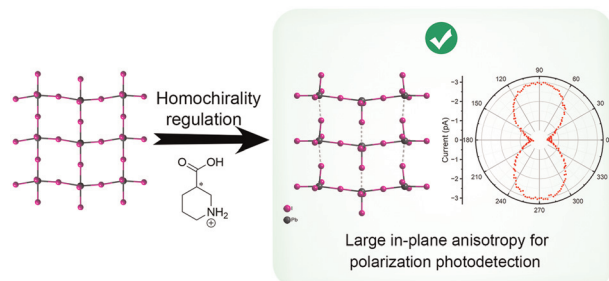
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### Remarkable enhancement of optical and electric properties by temperature-controlled solid-phase molecular motion

Meng-Meng Lun, Chang-Yuan Su, Qiang-Qiang Jia, Zhi-Xu Zhang, Jie Li, Hai-Feng Lu,\* Yi Zhang\* and Da-Wei Fu\*

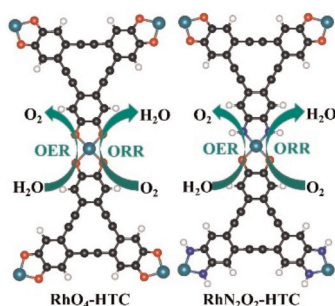
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### Large in-plane anisotropic 2D perovskites toward highly linear polarized light responses

Bei-Dou Liang, Chang-Chun Fan, Cheng-Dong Liu, Tong-Yu Ju, Chao-Yang Chai,\* Xiang-Bin Han\* and Wen Zhang\*

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### Two-dimensional conductive metal-organic frameworks as efficient electrocatalysts for oxygen evolution and reduction reactions

Yanan Zhou, Li Sheng, Lanlan Chen, Qiquan Luo, Wenhui Zhao,\* Wenhua Zhang\* and Jinlong Yang\*





# Rational construction of VSe<sub>2</sub> encapsulated in seleniumized polyacrylonitrile toward a high-rate capacity and wide temperature tolerance for potassium-ion batteries

## A three-dimensional Mn(II) coordination polymer with ferroelasticity obtained by introducing coligands to form novel networks

Novel ferroelastic 3D coordination polymer

UV OFF  $\longleftrightarrow$  UV ON

Crystal Powder

Crystal Powder

Paraelastic Ferroelastic

*mmmF2/m*

## Co-doped long persistent luminescence materials $\text{LiSr}_3\text{SiO}_4\text{Cl}_3\text{:Eu}^{2+}, \text{Ln}^{3+}$ (Ln = Dy, Ho, Er): construction and verification of VRBE and HRBE scheme and their multifunctional applications

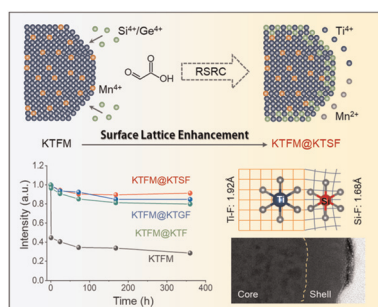
Figure 1 consists of four panels. Panel (a) shows HRBE and VRBE spectra of LSSOC-Eu3+Dy3+ complexes. The HRBE spectrum (left y-axis, -2 to 6 eV) shows peaks for Eu3+ (red) and Dy3+ (blue) ions. The VRBE spectrum (right y-axis, 2.6 to 3.2 eV) shows peaks for Eu3+ (red) and Dy3+ (blue) ions. Panel (b) shows a plot of  $\ln(T_2/\beta)$  vs.  $1/(h\nu_{1/\lambda_0})$  for LSSOC-Eu3+Dy3+ complexes. The plot shows a linear relationship for Eu3+ (red) and Dy3+ (blue) ions. Panel (c) shows SEM images of LSSOC-Eu3+Dy3+ complexes. The images show the morphology of the complexes at different magnifications. Panel (d) shows PL intensity and decay time of LSSOC-Eu3+Dy3+ complexes. The plot shows PL intensity (left y-axis,  $10^0$  to  $10^4$   $\text{cm}^{-1}$ ) and decay time (right y-axis, 0 to 0.32 ms) vs. decay time (x-axis, 0 to 10 ms). The inset shows a zoomed-in view of the decay time region.

# Fast rotating dipole array inducing large dielectric response in a Ruddlesden–Popper hybrid perovskite ferroelastic

Figure 1 illustrates the ferroelastic phase transition in the polyimide PI-1. The top schematic shows the transition from a ferroelastic phase (left) to a paraelastic phase (right) upon heating. The ferroelastic phase is characterized by a 'Static' state with a high 'On-off ratio > 100' and a 'Switch off' process. The paraelastic phase is characterized by a 'Rotating' state and a 'Switch on' process. The transition is reversible. The bottom part shows a series of XRD patterns for PI-1 at temperatures ranging from 300 K to 420 K. The patterns show a transition from a sharp peak at 408 K to a broad amorphous halo at 300 K. A scale bar of 0.2 nm is provided for the XRD patterns.

## RESEARCH ARTICLES

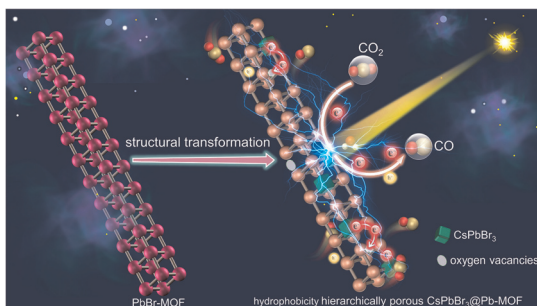
5089



### Surface lattice enhancement of red-emitting fluorides enabled by embedding small cations

Pingping Wan, Chen Yang, Aolin Wang, Liping Yu, Shixun Lian and Wenli Zhou\*

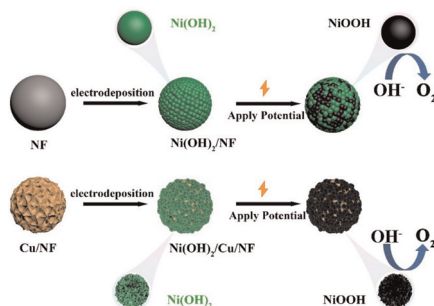
5098



### Oxygen vacancies confined in hierarchically porous CsPbBr<sub>3</sub>@Pb-MOF through *in situ* structural transformation for promoting photocatalytic CO<sub>2</sub> reduction

Yangwen Hou, Man Dong, Jingting He, Jing Sun, Chunyi Sun,\* Xiao Li, Xinlong Wang and Zhongmin Su\*

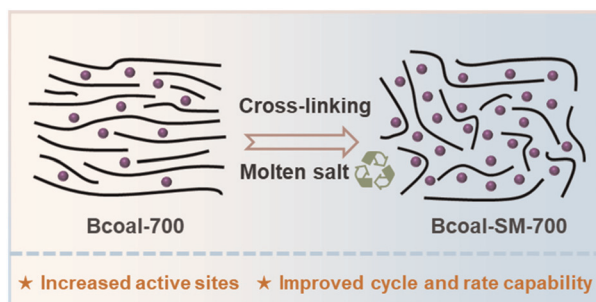
5111



### A copper interface promotes the transformation of nickel hydroxide into high-valent nickel for an efficient oxygen evolution reaction

Junjun Zhang, Fengchen Zhou, Aiming Huang, Yong Wang, Wei Chu\* and Wen Luo\*

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### Molten salt assisted fabrication of coal-based carbon anode materials for efficient Na ion storage

Wei Zhang, Ning Sun,\* He Chen, Razium Ali Soomro and Bin Xu\*

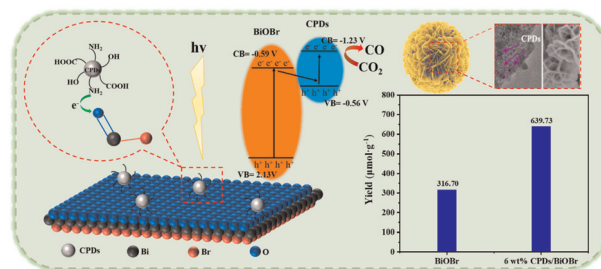


## RESEARCH ARTICLES

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### Up-conversion effect boosted the photocatalytic CO<sub>2</sub> reduction activity of Z-scheme CPDs/BiOBr heterojunction

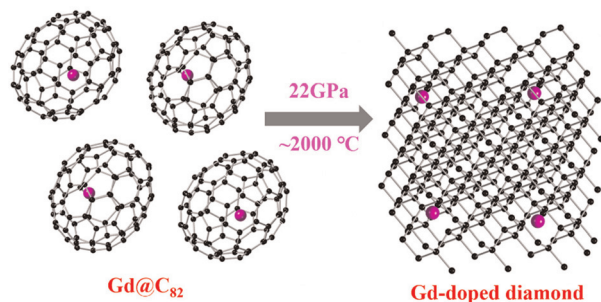
Jing Xie,\* Xiaojing Zhang, Zhenjiang Lu, Jindou Hu, Aize Hao, Yue Feng and Yali Cao\*



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### Gd-doped diamond synthesized using Gd@C<sub>82</sub> under high pressure and high temperature

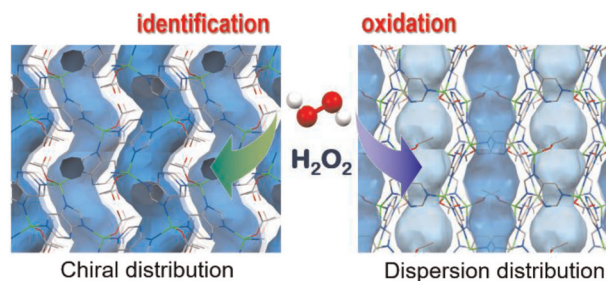
Shuhang Liu, Jun Han, Rongli Cui, Xin Yang, Yunfan Fei, Xingyu Tang, Yida Wang, Yajie Wang, Yongjin Chen, Jiajia Feng, Haiyan Zheng, Kuo Li\* and Xiaoyang Liu\*



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### Recognition, detection and host–guest chemistry of hydrogen peroxide in a fluorescent metal–organic framework with chiral helical channels

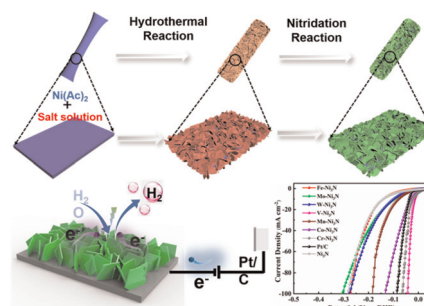
Hong Cai,\* Jie-Wen Wu, Xiao-Jun Cai, Zhou Lu, Ya-Liang Lai, Jing-Xuan Sun, Zhuo-Li Yuan, Yang-Ying Huang, Jing-Wen Cai, Wen Lu, Yi-Hong Lu, Hui-Ying Zhang and Dan Li\*



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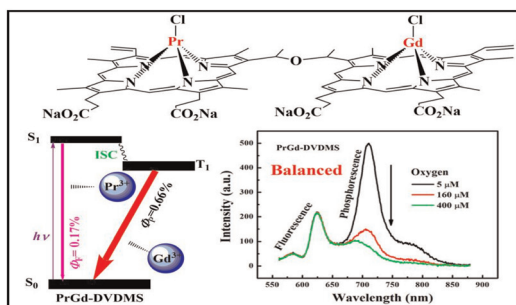
### Formulating a heterolytic cleavage process of water on Ni<sub>3</sub>N nanosheets through single transition metal doping for ultra-efficient alkaline hydrogen evolution

Wansen Ma, Meng Wang, Chaowen Tan, Jiancheng Wang, Yanan Dai, Liwen Hu, Xuwei Lv, Qian Li and Jie Dang\*



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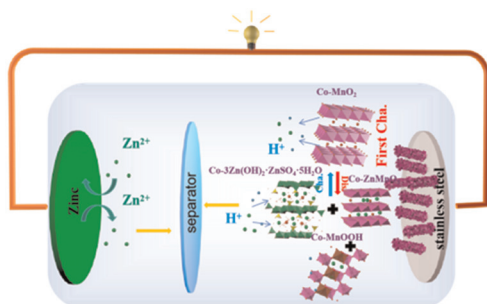
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### Balancing the phosphorescence and fluorescence of a double-ring porphyrin using different lanthanides for ratiometric oxygen sensing

Huimin Zhao,\* Qingqing Wang, Shumin Wang, Junyue Yin, Huibin Wang, Wenhao Shao, Zixin Yao, Jianting Yao and Lixin Zang\*

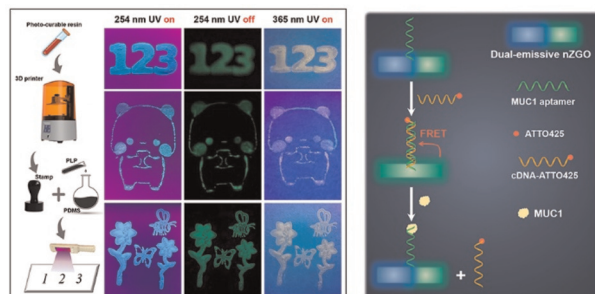
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### Cobalt-doped $\delta$ -MnO<sub>2</sub>/CNT composites as cathode material for aqueous zinc-ion batteries

ShuLing Liu,\* Jie Wang, ZiXiang Zhou, Ying Li, Wei Zhang and Chao Wang

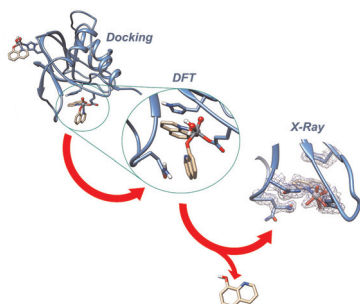
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### Dual-emissive persistent luminescent phosphors for multi-mode anti-counterfeiting and ratiometric luminescent aptasensors

Peng Lin, Junpeng Shi,\* Lin Liu, Yile Kang, Liang Song, Maochun Hong\* and Yun Zhang\*

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### Interaction of V<sup>IV</sup>O–8-hydroxyquinoline species with RNase A: the effect of metal ligands in the protein adduct stabilization

Giarita Ferraro, Luigi Vitale, Giuseppe Sciortino, Federico Pisanu, Eugenio Garribba\* and Antonello Merlino\*

