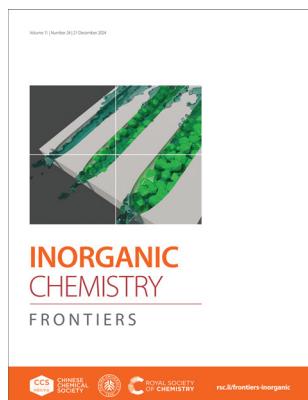


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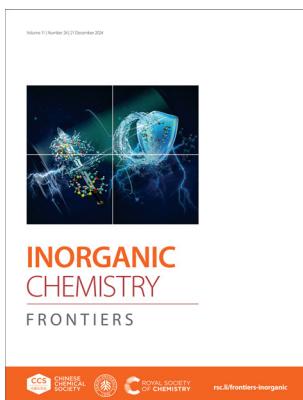
ISSN 2052-1553 CODEN ICFNAW 11(24) 8577–8956 (2024)



#### Cover

See Waldemar A. Mammolié,  
Matías Rafti *et al.*,  
pp. 8627–8639.

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2024, **11**, 8627.



#### Inside cover

See Hua Ji, He Zhu, Si Lan  
*et al.*, pp. 8640–8648.

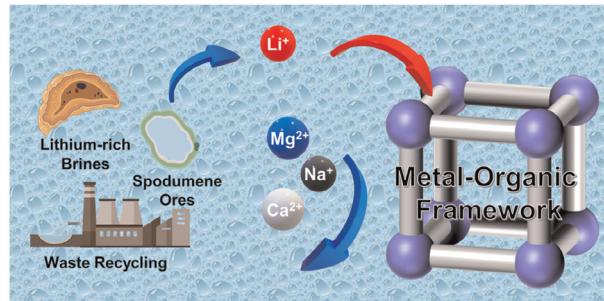
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**11**, 8640.

### REVIEWS

8589

#### Lithium extraction by metal–organic frameworks

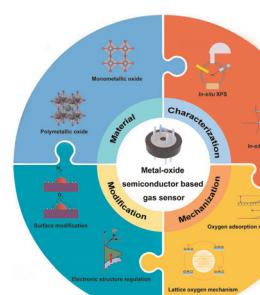
Zongsu Han, Joshua Rushlow, Yihao Yang, Jiatong Huo,  
Wei Shi\* and Hong-Cai Zhou\*



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#### Surface oxygen chemistry of metal oxide semiconductors for gas-sensing applications

Jiayu Li, Ertai Na, Xudong Liang, Qihua Liang,  
Meihong Fan, Hui Chen,\* Guo-Dong Li\* and  
Xiaoxin Zou\*





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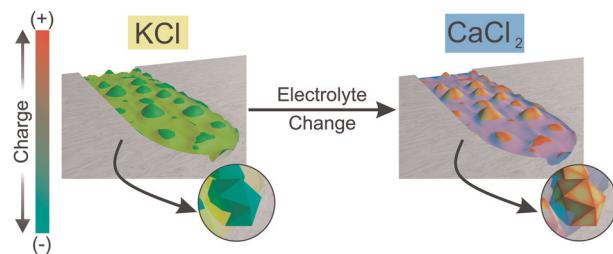
Fundamental questions  
Elemental answers

## RESEARCH ARTICLES

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**Calcium chloride as an ionic response modulator in metal–organic framework-modified nanochannels (MOF@SSNs): enhancing ionic current saturation and selectivity**

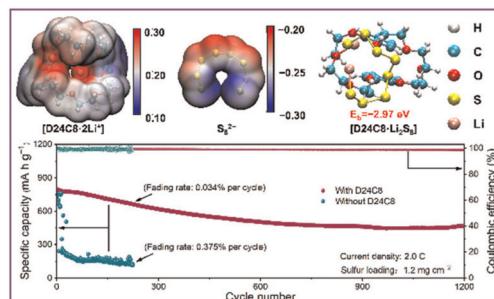
Angel L. Huamani, Gregorio Laucirica, Juan A. Allegretto, María Eugenia Toimil-Molares, Agustín S. Picco, Marcelo R. Ceolín, Aline R. Passos, Omar Azzaroni, Waldemar A. Mamisollé\* and Matías Rafti\*



8640

**Benzo-crown ether electrolyte additives in facilitating sulfur evolution and lithium anode stabilization for high-performance lithium–sulfur batteries**

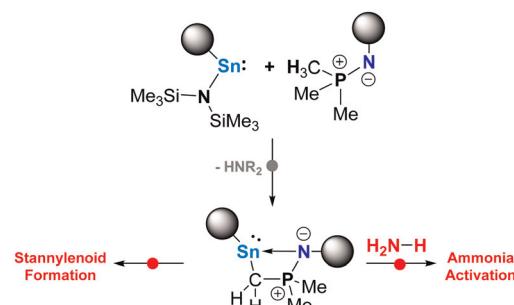
Zhihua Wang, Zhenjun Xue, Junru Ke, Min Dong, Bei Ma, Zhe Zhang, Hua Ji,\* Qingmin Ji, He Zhu\* and Si Lan\*



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**Ammonia activation using a heteroleptic stannylenene and lithium stannylenoid formation facilitated by hemilabile iminophosphorane-based ligands**

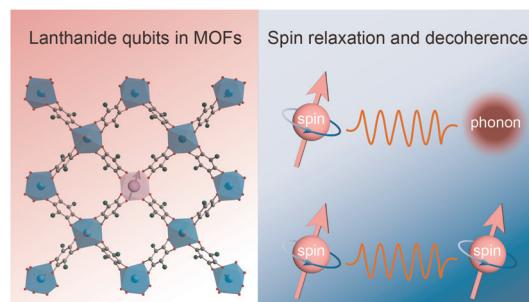
David M. J. Krengel, Nico Graw, Regine Herbst-Irmer, Dietmar Stalke, Oliver P. E. Townrow\* and Malte Fischer\*



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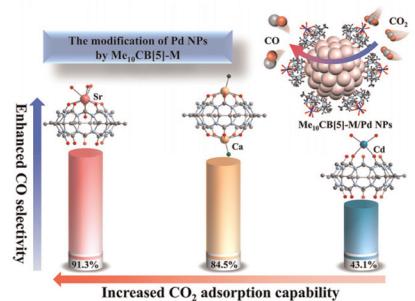
**Optimizing the spin qubit performance of lanthanide-based metal–organic frameworks**

Xiya Du and Lei Sun\*



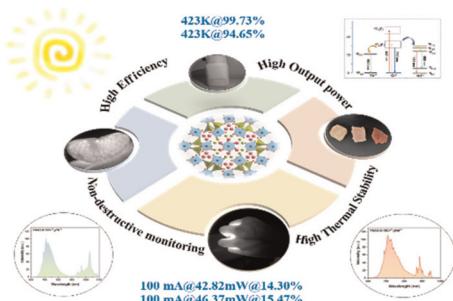
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Enhancing CO<sub>2</sub> electroreduction with decamethyl-cucurbit[5]uril-alkaline earth metal modified Pd nanoparticles

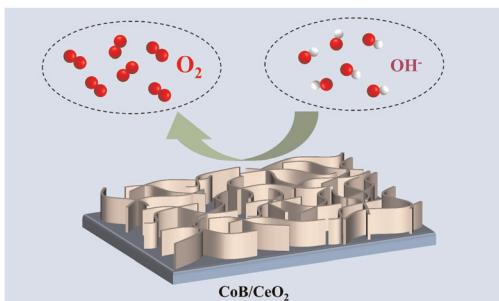
Tao Shao, Xianmeng Song, Zongnan Wei, Shuaibing Yang, Siying Zhang, Rong Cao and Minna Cao\*

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Tunable luminescence via Cr<sup>3+</sup>-Yb<sup>3+</sup>/Nd<sup>3+</sup> energy transfer in Cr<sup>3+</sup> and Yb<sup>3+</sup>/Nd<sup>3+</sup> coactivated NIR phosphors for non-destructive analysis

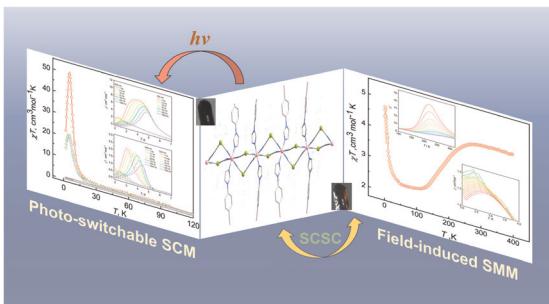
Xiaowei Zhang, Dashuai Sun, Pengcheng Luo, Luhui Zhou, Zheng Lu, Jia Liu, Congcong Fan, Xinyu Ye\* and Hongpeng You\*

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A moss-like CoB/CeO<sub>2</sub> heterojunction as an efficient electrocatalyst for the oxygen evolution reaction under alkaline conditions

Weijie Fang, Chaofan Liu, Jiang Wu,\* Weikai Fan, Le Chen, Zaiguo Fu, Lin Peng, Ping He, Jia Lin\* and Zhongwei Chen\*

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## Reversible on-off switching of a single-chain magnet via single-crystal-to-single-crystal transition and light-induced metal-to-metal electron transfer

Meng-Jia Shang, Han-Han Lu, Qiang Liu, Ren-He Zhou, Hui-Ying Sun, Zhen Shao, Liang Zhao, Yin-Shan Meng\* and Tao Liu\*

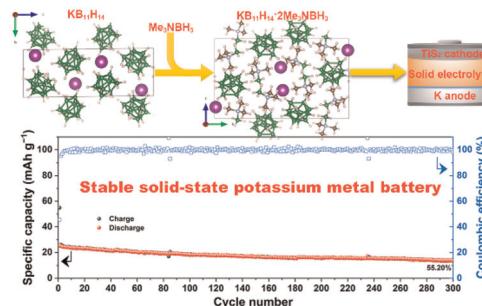


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**Stable solid-state potassium metal batteries enabled by a  $\text{KB}_{11}\text{H}_{14} \cdot 2\text{Me}_3\text{NBH}_3$  complex electrolyte**

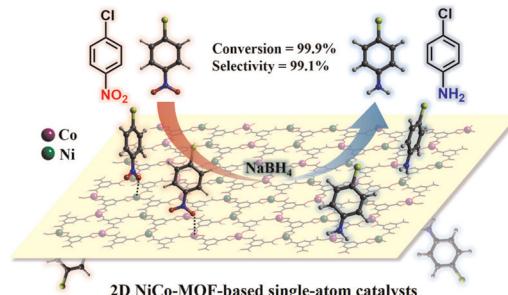
Guo-Guo Zhang, Pengtao Qiu,\* Jia-Xin Kang, Zhiwei Lu, An-Qi Zhu, Xiaohu Yu and Xuenian Chen\*



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**Ultrathin 2D NiCo-MOF bimetallic nanosheets as single-atom catalysts for chemoselective hydrogenation of nitroarenes**

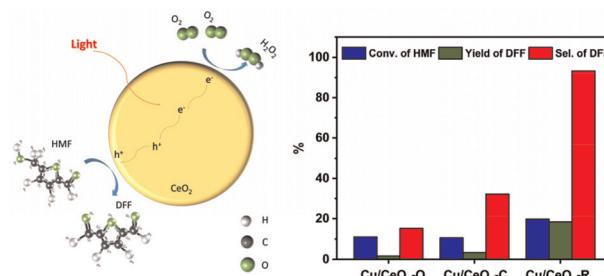
Yu-Xuan Zhang, Yi-Jie Ma, Yu-Jia Zhao, Zi-Yan Wang, Cai-Xia Yu,\* Xiao-Qiang Li\* and Lei-Lei Liu\*



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**Facet-engineered  $\text{CeO}_2$  with Cu single atoms drives photocatalytic selective oxidation of 5-hydroxymethylfurfural**

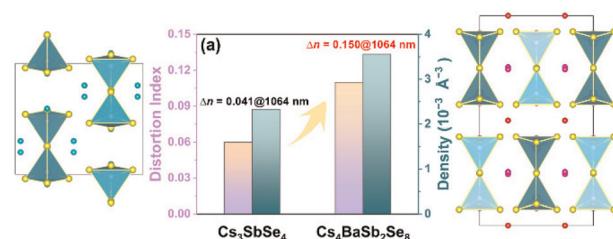
Yifei Li, Senyao Meng, Ping Wang, Miao He, Jiasai Yao, Cheng Yang, Fangzhou Mo, Jiang Li\* and Zhenxing Li\*



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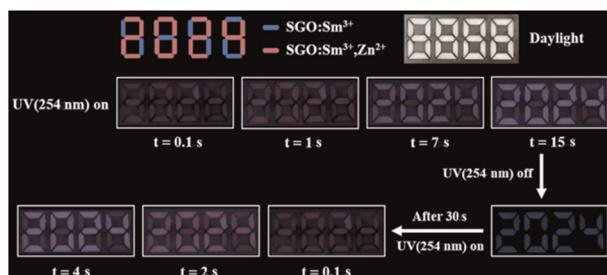
**Simple aliovalent cation substitution to induce strong optical anisotropy enhancement in a rare thioantimonate(v) family**

Qixian Ren, Wangfei Che, Mengmeng Chen, Chen Cui,\* Yabo Wu\* and Zhi Su\*



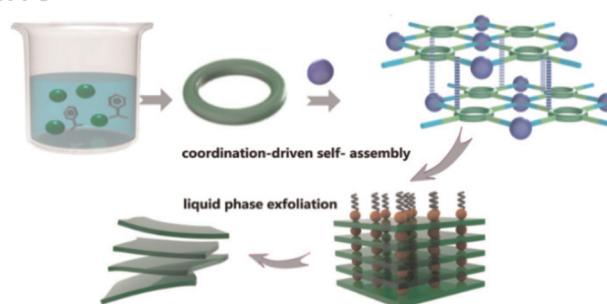
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**Enhancement of the dynamic luminescence and self-recovery performance of  $\text{Zn}^{2+}$  co-doped  $\text{Sr}_3\text{Ga}_4\text{O}_9:\text{Sm}^{3+}$** 

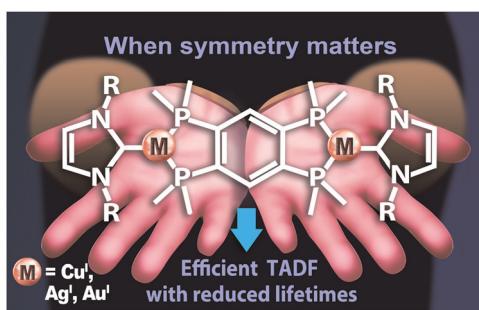
Jingjing Li, Zhangwen Long, Xiaqing Jiang, Junyi Yang, Dacheng Zhou, Yong Yang, Qi Wang, Hao Wu\* and Jianbei Qiu\*

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**Unprecedented aluminum molecular ring based-layer with tailorabile optical limiting effect**

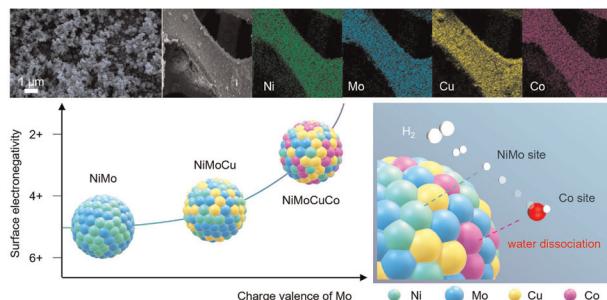
Lin Geng, Di Wang, Ran-Qi Chen, San-Tai Wang, Chan Zheng,\* Wei-Hui Fang\* and Jian Zhang

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**Toward highly efficient TADF-active Cu(I), Ag(I) and Au(I) carbene complexes using symmetry-based design strategy**

Alexander V. Artem'ev,\* Maxim I. Rogovoy, Ilia M. Odud, Maria P. Davydova, Marianna I. Rakhmanova, Pavel A. Petrov, Valery K. Brel, Oleg I. Artushin, Konstantin A. Brylev, Denis G. Samsonenko, Alexey S. Berezin, Dmitry E. Gorbunov and Nina P. Gritsan\*

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**A highly active and durable NiMoCuCo catalyst with moderated hydroxide adsorption energy for efficient hydrogen evolution reaction**

Hyeonggeun Choi, Seunghwan Jo, Ki Hoon Shin, HeeYoung Lim, Liting Zhang, Keon Beom Lee, Young-Woo Lee\* and Jung Inn Sohn\*

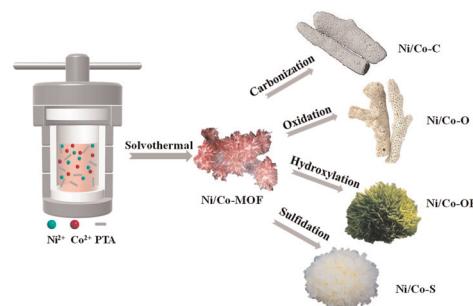


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**Exploring the optimal post-treatment strategy for boosting the electrochemical performances of a new bimetal–organic framework-based supercapacitor**

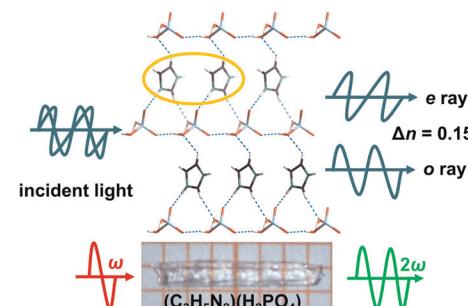
Xinwen Dou, Mingyue Liu, Tian Cao, Chan Wang, Yingjie Zhang, Yuhang Jia, Qiang Ju and Zhenlan Fang\*



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**Large optical anisotropy in noncentrosymmetric phosphate with pseudo 2D intercalated layer**

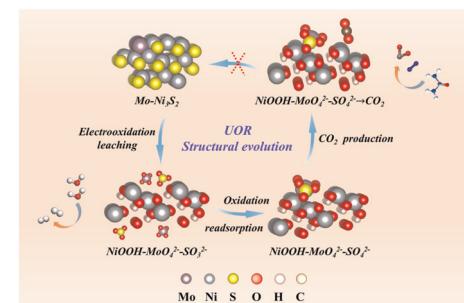
Qiao Xia, Xingxing Jiang, Lu Qi, Chao Wu,\* Zheshuai Lin, Zhipeng Huang, Mark G. Humphrey, Kazuyuki Tatsumi and Chi Zhang\*



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**Dissecting the role of anions in surface reconstruction in urea oxidation to maximize assisted hydrogen production**

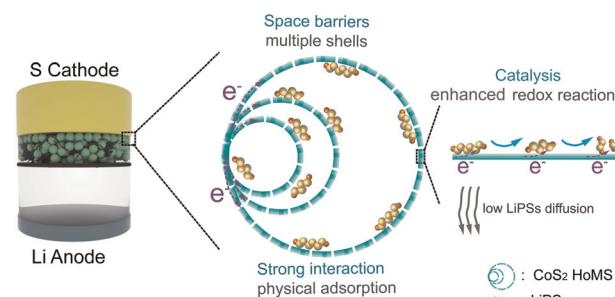
Weiwei Bao, Mameng Yang, Taotao Ai,\* Jie Han,\* Zhifeng Deng, Xiangyu Zou, Peng Jiang and Junjun Zhang



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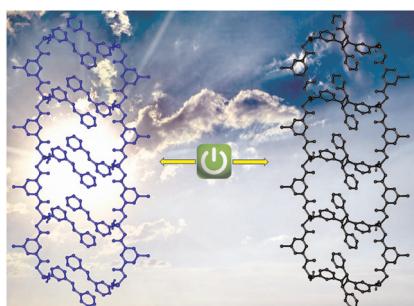
**Multifunctional separator modified with catalytic multishelled structural CoS<sub>2</sub> enables a stable lithium–sulfur battery**

Ruyi Bi, Jilu Zhao, Mei Yang, Jiangyan Wang,\* Ranbo Yu\* and Dan Wang\*



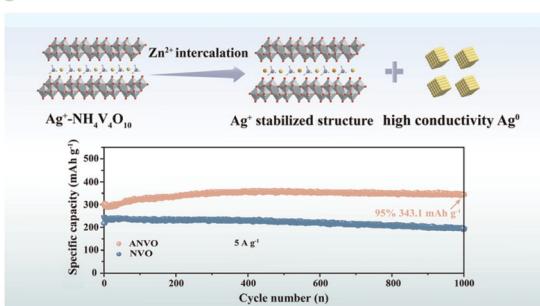
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**Reversible single-crystal to single-crystal photoreaction between a coordination comb and a ladder displays photo-switchable fluorescence**

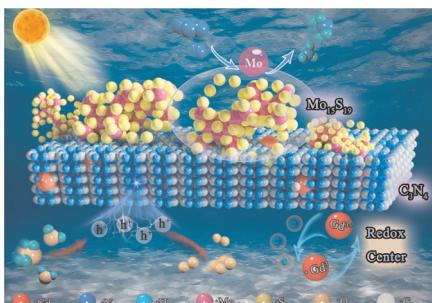
Ni-Ya Li, Xin-Yu Wang, Pei-Xuan Zhang, Ning-Ning Zou, Wen Qiu, Yu-Fei Xing, Yun-Jian Wang,\* Xiao-Yan Tang\* and Dong Liu\*

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**Dual effects of Ag<sup>+</sup> intercalation boosting the kinetics and stability of NH<sub>4</sub>V<sub>4</sub>O<sub>10</sub> cathodes for enhanced zinc ion storage**

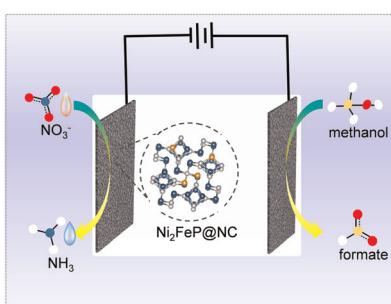
Zhou Fang, Yi Tong, Yue Yang, Anjun Hu, Jianping Long, Yan Zhao, Xin Lai, Daojiang Gao\* and Mengjiao Liu\*

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**Multistage construction of Gd-doped g-C<sub>3</sub>N<sub>4</sub>/Mo<sub>15</sub>S<sub>19</sub> composites enabled both N<sub>2</sub> activation and multiple electron transfer for an enhanced photocatalytic nitrogen reduction reaction**

Xiaoyu Jiang, Boran Tao and Hongda Li\*

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**Ammonia and formate cosynthesis via nitrate electroreduction combined with methanol electrooxidation over nitrogen-doped carbon-encapsulated nickel iron phosphide**

Zongyi Wang, Jiuli Chang\* and Zhiyong Gao\*

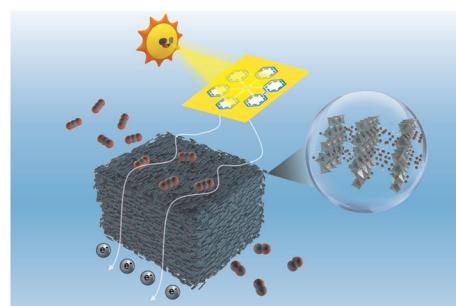


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**A non-equivalent Ni doped La-MOF for enhanced photocatalytic CO<sub>2</sub> reduction through oxygen vacancy regulation and electronic structure optimization**

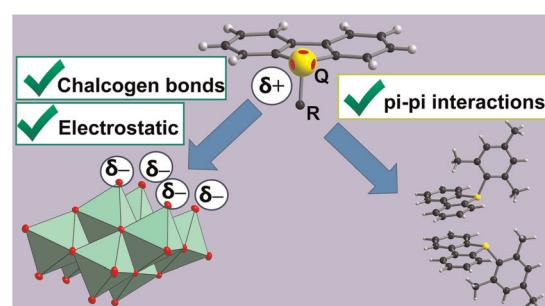
Tongzheng Zhang, Zhaohui Huang, Guanshun Xie, Le Liao, Changqiang Yu, Xiuqiang Xie\* and Nan Zhang\*



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**Chalcogen bonds provide supramolecular association of beta-octamolybdate and chalconium cations**

Anna A. Kuznetsova, Vadim V. Yanshole, Mikhail V. Il'in, Alexander S. Novikov, Dmitrii S. Bolotin, Maxim N. Sokolov and Pavel A. Abramov\*



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**Metal node exchange-driven ligand-strain modulation strategy for one-dimensional crystalline coordination polymers**

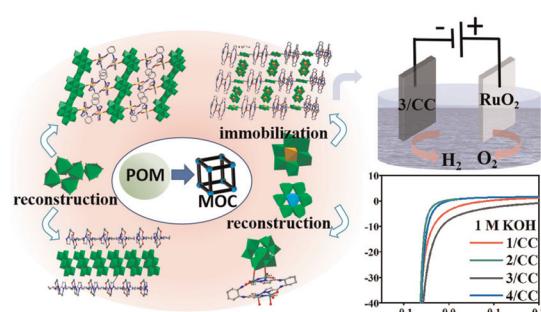
Gengxin Wu, Yong-Kang Zhu, Dongxia Li, Jia-Rui Wu, Yan Wang,\* Zhiqian Zhang\* and Ying-Wei Yang\*



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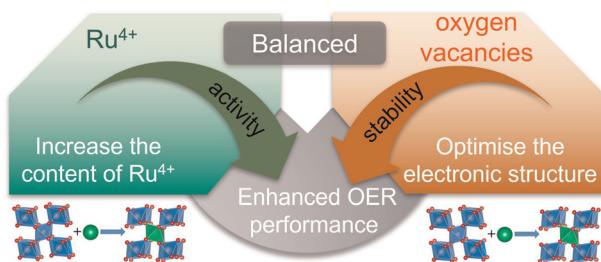
**Reconstruction and immobilization of polymolybdate induced by metal–organic coordination units for enhanced electrocatalytic hydrogen generation**

Jingyi Ma, Zhihan Chang,\* Xue Xi, Juju Liang, Yuchun Lin, Yaling Zhu and Xiuli Wang\*

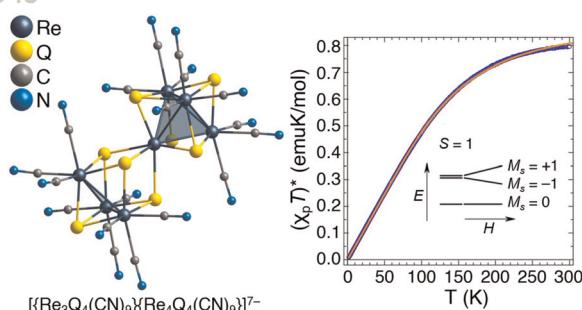


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## CORRECTION

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**Correction: Coordination tuning of Ni/Fe complex-based electrocatalysts for enhanced oxygen evolution**

Hongbo Zhou, Xuan Hao, Jixin Guan, Yilin Deng, Zi Wei, Yashu Liu and Guoxing Zhu\*

**Strontium-doped RuO<sub>2</sub> electrocatalyst with abundant oxygen vacancies for boosting OER performance**

Bei An, Xiaoqian Li, Yuan Lin, Fanfan Shang, Huijie He, Hairui Cai, Xiaoxiao Zeng, Weitong Wang, Shengchun Yang\* and Bin Wang\*

**Multispin superatoms: seven-nuclear rhenium clusters with unusual magnetic properties**

Aleksei S. Pronin, Yakov M. Gaifulin, Taisiya S. Sukhikh, Alexander N. Lavrov and Yuri V. Mironov\*

