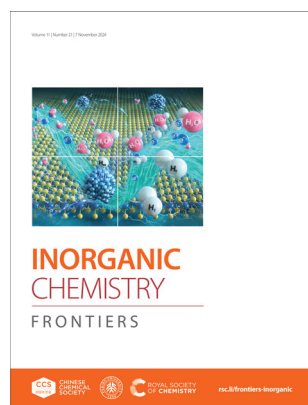


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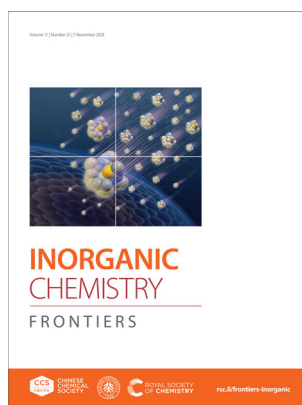
ISSN 2052-1553 CODEN ICFNAW 11(21) 7191-7668 (2024)



#### Cover

See Zhiyuan Zeng *et al.*, pp. 7296–7306.

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#### Inside cover

See Brett M. Paterson *et al.*, pp. 7307–7323.

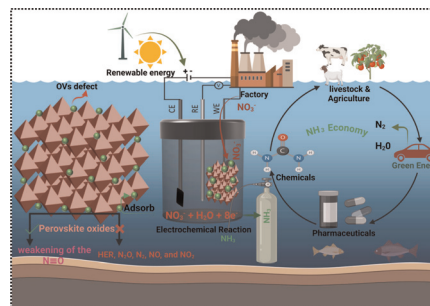
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### REVIEWS

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#### Emerging applications of perovskite oxides in electrochemical reduction of carcinogenic nitrate to ammonia: a recent review

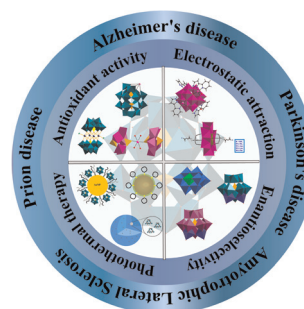
Sadeeq Ullah, Aftab Ahmad, Hefa Cheng, Amin Ullah Jan, Daxiang Cui\* and Lu Li\*



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#### Targeting protein aggregation: the promising application of polyoxometalates in neurodegenerative diseases

Junyi Chen, Wen-Zhu Yang, Huilan Chen, Xiuxia Ding, Hongxu Chen, Cai-Hong Zhan\* and Zhigang Jin\*



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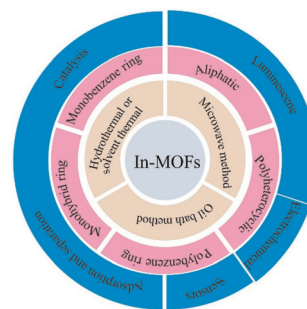
Fundamental questions  
Elemental answers

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## Recent advances in carboxylate-based indium(III)-organic frameworks

Yong-Jie Song, Yi-Hao Zuo, Zi-Feng Li\* and Gang Li\*

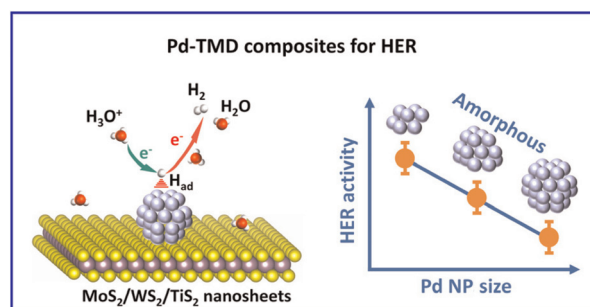


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## Fabrication of amorphous subnanometric palladium nanostructures on metallic transition metal dichalcogenides for efficient hydrogen evolution reaction

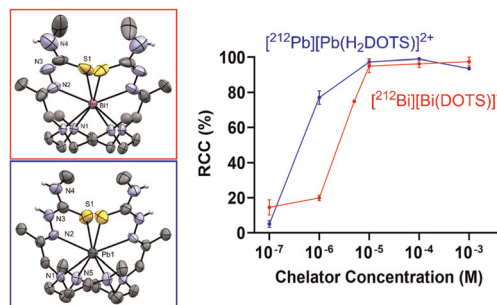
Liang Mei, Yuefeng Zhang, Zimeng Ye, Ting Han, Honglu Hu, Ruijie Yang, Ting Ying, Weikang Zheng, Ruixin Yan, Yue Zhang, Zhenbin Wang and Zhiyuan Zeng\*



7307

Rapid and stable complexation of the  $\alpha$ -generators bismuth-212 and lead-212 with a tetraazamacrocyclic chelator bearing thiosemicarbazone pendant arms

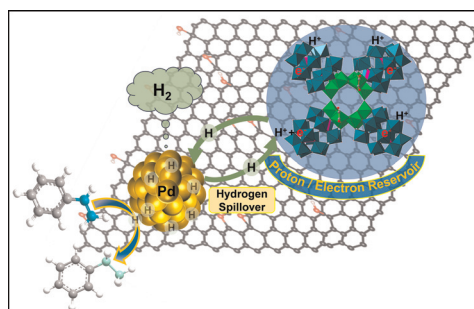
Melyssa L. Grieve, Patrick R. W. J. Davey, Paul V. Bernhardt, Craig M. Forsyth and Brett M. Paterson\*



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## An unprecedented oxalate-functionalized Ta/W polyoxometalate enabling the self-assembly of a 2D composite for catalytic hydrogenation

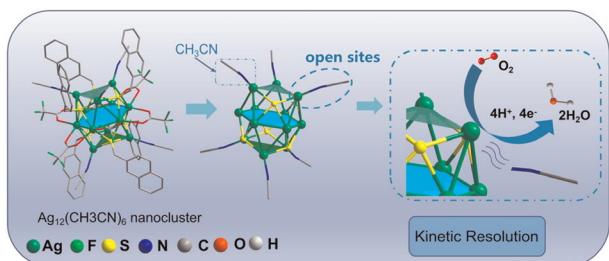
Shujun Li,\* Meng-Yao Huang, Weiyi Cheng, Waqas Ali Shah, Xu-Sheng Dai, Nana Ma,\* Qianyi Zhao\* and Xuenian Chen\*





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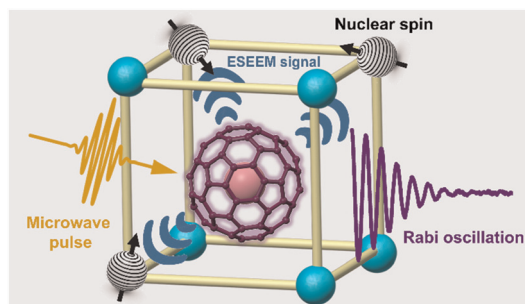
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### Boosting the oxygen reduction activity of silver nanoclusters via selective exposure of solvent-coordinated sites

Zhao-Di Wang, Ye Han, Wen-Yan Sun, Peng Peng\* and Shuang-Quan Zang\*

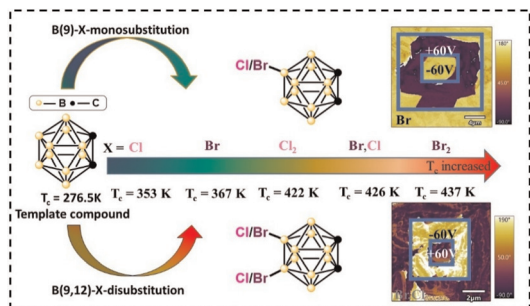
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### A 3D-assembled endohedral nitrogen fullerene in a metal–organic framework toward spin qubit and quantum sensors

Xin-Yu Hui, Yu-Shuang Zhang, Qi Xiong, Zhi-Rong Wu, Song Gao, Shen Zhou\* and Shang-Da Jiang\*

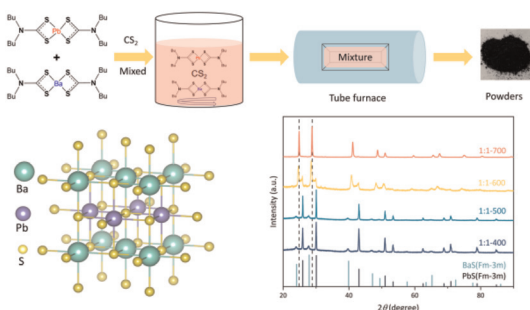
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### Halogenated carborane molecular ferroelectric crystals with high-temperature phase transition

Wenjing Guo, Wenkang Cheng, Yuting Li, Zhenhong Wei\* and Hu Cai\*

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### Theoretical prediction and experimental synthesis of a Ba<sub>0.5</sub>Pb<sub>0.5</sub>S alloy via the molecular precursor route

Guoxin Wu, Liang Wang,\* Kepeng Song, Jiashuo Xu, Jinghai Li, Xinzhuo Fang, Dan Huang, Liqiang Zheng, Qilin Wei\* and William W. Yu\*

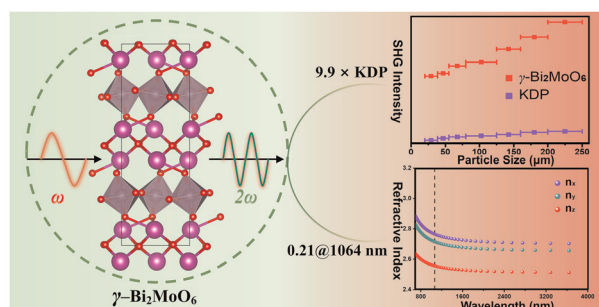


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**Computer-aided screening of bismuth molybdates nonlinear optical crystals  $\gamma$ -Bi<sub>2</sub>MoO<sub>6</sub>**

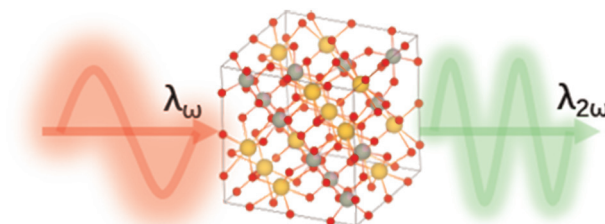
Xuefan Wang, Yan Xiao, Wenjing Tan, Hongbo Huang, Daqing Yang, Ying Wang and Bingbing Zhang\*



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**A defect pyrochlore-like acentric cubic lead titanium-tellurate crystal exhibiting strong second harmonic generation activity and an extended transparent window**

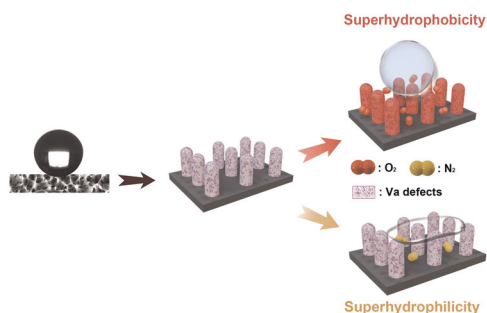
Tinghui Zhang, Lili Li, Jing Chai, Haitao Zhou,\* Ning Ye, Zhanggui Hu, Yicheng Wu and Conggang Li\*



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**On the origin of the surface superhydrophobicity of rough-textured inorganic materials with intrinsic hydrophilicity**

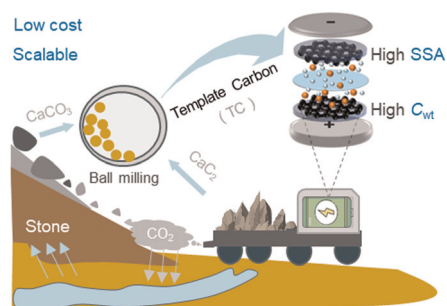
Ruihang Wen, Xiaobing Chen, Gaocan Qi,\* Wenbin Li and Zhihao Yuan\*



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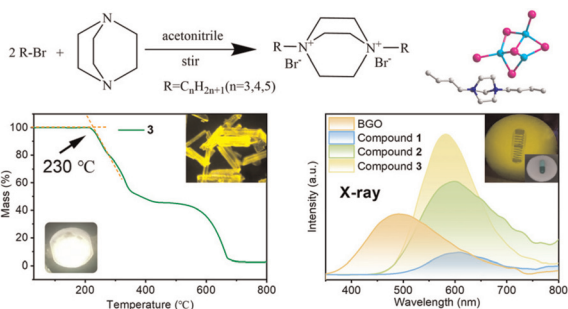
**Cost-effective conversion of "stones" into high-performance capacitor carbon through a solid–solid inorganic chemical reaction**

Yongfeng Bu, Shihao Wang, Yuman Li, Shengda Tang, Qin Kang, Zhaomin Zhu, Hui Li, Li Pan and Hongyu Liang\*



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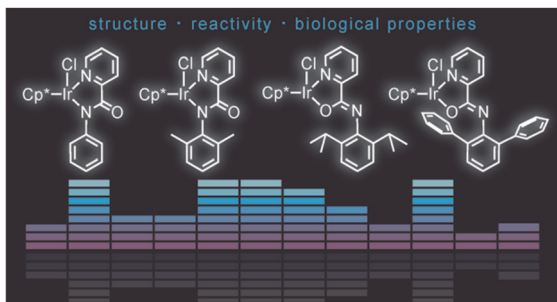
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### Stabilization of copper iodide hybrids with increased strength of ionic bonding for lighting and X-ray imaging

Qianqian Wang, Haibo Li,\* Jiali Fan, Zhennan Zhou, Hua Tong, Jialin Zhu, Wei Liu\* and Gangfeng Ouyang\*

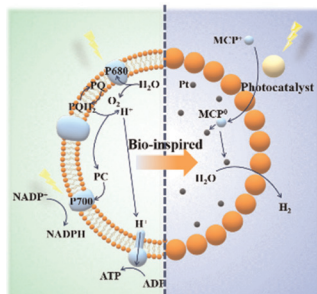
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### Understanding structural isomerism in organoiridium picolinamidate complexes and its consequences on reactivity and biological properties

Hieu D. Nguyen, Croix J. Laconsay, Rahul D. Jana, Tuhin Ganguly, Sally T. Hoang, Kanika Kaushal, Judy I. Wu and Loi H. Do\*

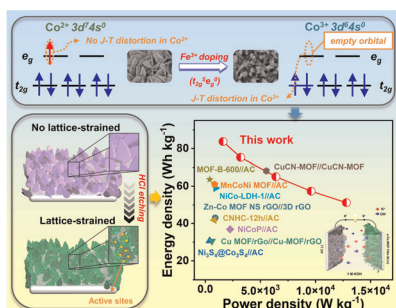
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### Bioinspired electron carrier mediated transmembrane photocatalytic hydrogen evolution in silica colloidosomes

Chengkun Bai, Bingdi Wang, Zhengshun Jiang, Chunying Lv, Zhenning Liu, Shiyu Wang, Song Liang\* and Hongying Zang\*

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### Engineered iron-doped MOF nanosheets: acid-induced lattice strain for enhanced rate performance in asymmetric supercapacitors

Yuan Yuan, Gong Chen, Qihui Zhao, Yuanzun Fu and Yunhe Zhao\*

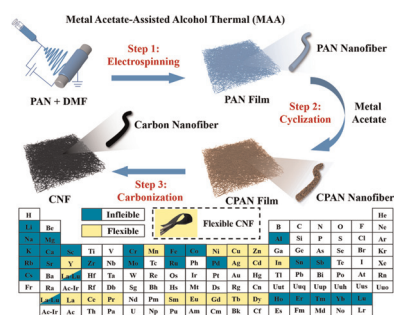


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### A general metal acetate-assisted alcohol thermal strategy to fabricate flexible carbon nanofiber films for supercapacitors

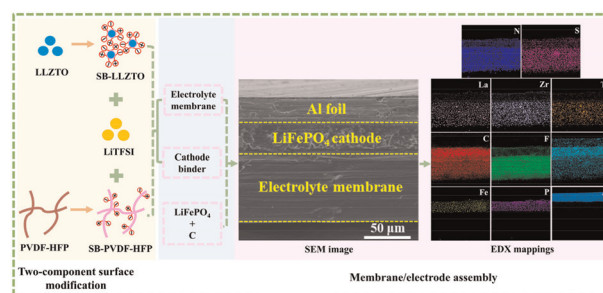
Wei Song, Kaixuan Wang,\* Xiao Lian, Fangcai Zheng, Chunyan Xu\* and Helin Niu\*



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### Building continuous Li-ion transport channels from cathode to anode in solid-state lithium-metal batteries

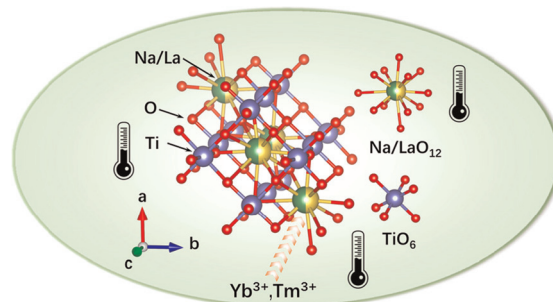
Xianxi Liu, Hongying Hou,\* Yixuan Wang, Sen Ming, Yutao Niu, Xiaohua Yu,\* Ju Rong and Shizhao Xiong\*



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### Excellent temperature sensitivities based on the FIR technique of up-conversion luminescence in a novel NaLaTi2O6:Yb3+,Tm3+ material

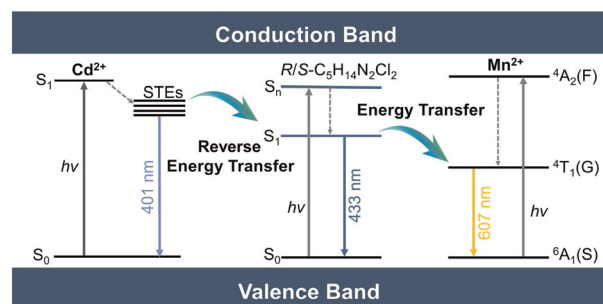
Kai Li, Zhiyu Zhang, Daiman Zhu\* and Changtao Yue\*



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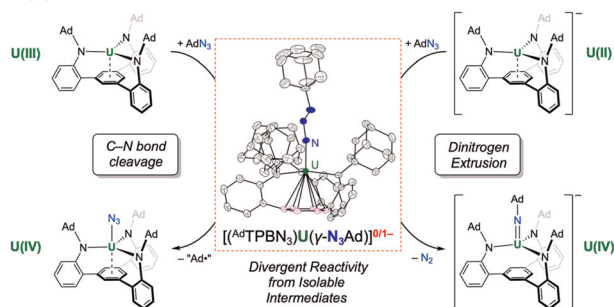
### Variable energy transfer in one-dimensional chiral Mn/Cd-based halides and strong stereo-selective fluorescence for chiral recognition

Sidan Wang, Pei Wang, Guojun Zhou,\* Nan Zhang, Yilin Mao and Xian-Ming Zhang\*



## RESEARCH ARTICLES

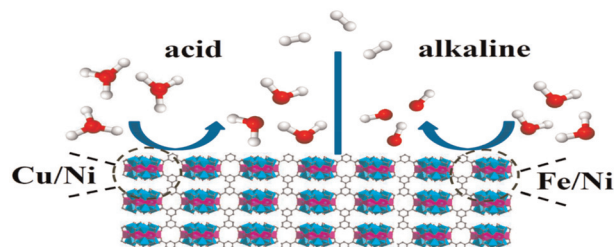
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### Divergent reactivity of U(III) and U(II) complexes with organoazides *via* isolable diazenylimido intermediates

Chong Deng, Yihu Yang, Yi Wang and Wenliang Huang\*

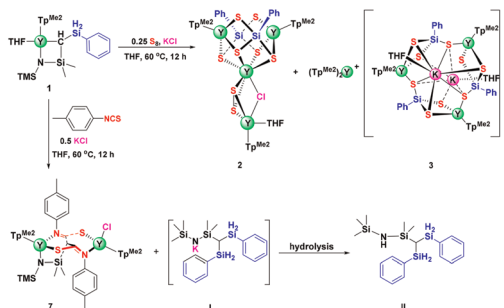
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### Bimetallic MOF-based catalysts with enhanced activity for electrochemical hydrogen evolution in acid and alkaline electrolytes

Rui-Zhe Zhang,\* Lele Lu, Peng Cheng and Wei Shi\*

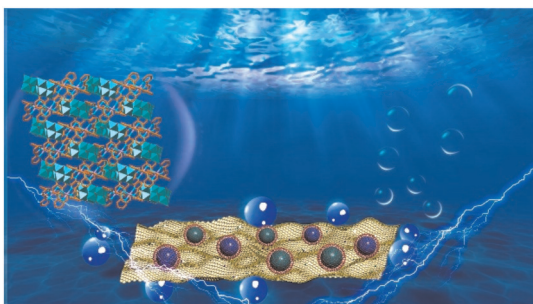
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### Tuning the reactivity of an yttrium complex bearing a functionalized silylamido ligand using solvated KCl

Qing You, Jiamin Cai, Jie Zhang\* and Xigeng Zhou\*

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### Polyoxometalate derived bimetallic phosphide electrocatalysts for high-efficiency hydrogen evolution reaction

Yunxiu Zhao, Jinghong Wen, Ping Li, Yang Xiang, Meiqi Li, Suna Wang, Jianmin Dou, Yunwu Li,\* Huiyan Ma\* and Liqiang Xu\*



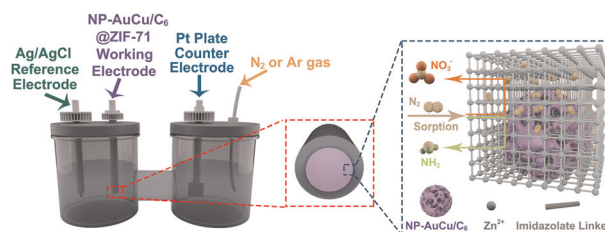


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**A bifunctional nanoporous gold–copper@ZIF film for highly efficient nitrogen electro-fixation**

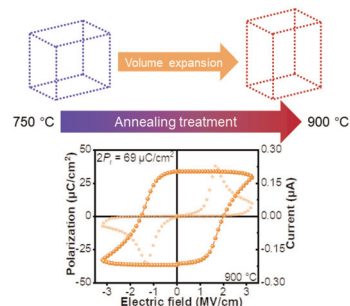
Shulin Zhao, Guorui Tang, Xiaoyun Liu, Yue Pang, Yijie Yang\* and Cheng-Peng Li\*



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**Large ferroelectricity in  $\text{Hf}_{0.85}\text{Ce}_{0.15}\text{O}_{2-\delta}$  polycrystalline thin films via lattice expansion**

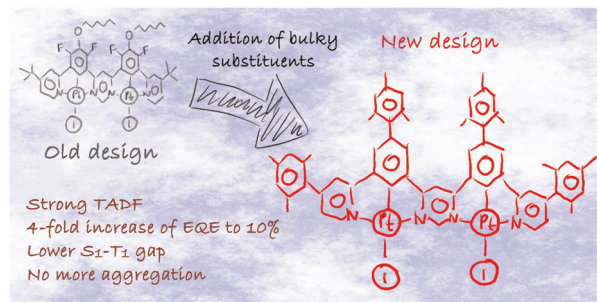
Hangren Li, Jie Tu, Guoqiang Xi, Xiuqiao Liu, Xudong Liu, Siyuan Du, Dongfei Lu, Da Zu, Yuxuan Zhang, Qingxiao Wang, Dongxing Zheng, Xixiang Zhang, Jianjun Tian and Linxing Zhang\*



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**Dinuclear platinum(II) complexes emitting through TADF: new ligand design to minimise aggregation and the  $S_1-T_1$  energy gap**

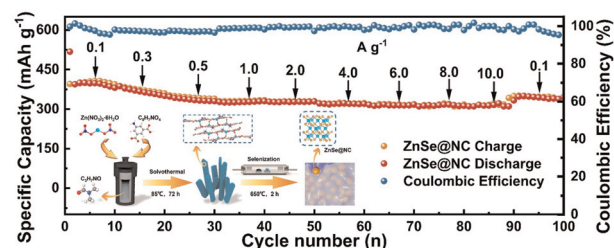
Piotr Pander,\* Yana M. Dikova, Emma V. Puttock and J. A. Gareth Williams\*



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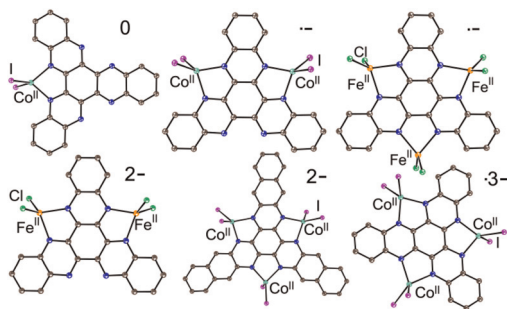
**Nitrogen-doped carbon coated zinc selenide nanoparticles derived from metal–organic frameworks as high-rate and long-life anode materials for half/full sodium-ion batteries**

Yunxiu Wang, Yilin Wang, Zenghui Cai, Zhijiang Yu, Hao Dong, Yifan Zhang, Yanli Zhou, Xintao Zhang, Yanjun Zhai,\* Fuyi Jiang\* and Caifu Dong\*



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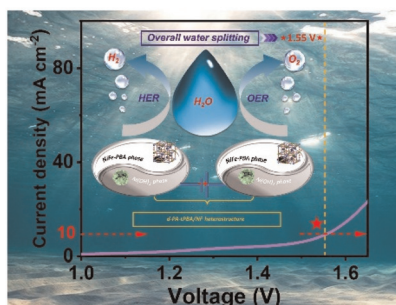
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### Effect of nuclearity and reduction state of the central ligand on magnetic properties of hexaazatrinaphthylene-based cobalt(II) and iron(II) complexes: from extremely weak to record-breaking antiferromagnetic exchange interaction

Maxim V. Mikhailenko, Vladislav V. Ivanov, Maxim A. Faraonov, Aleksey V. Kuzmin, Salavat S. Khasanov, Ilya A. Yakushev, Natalia N. Breslavskaya, Elena N. Timokhina, Tatiana Yu. Astakhova, Akihiro Otsuka, Hideki Yamochi, Hiroshi Kitagawa and Dmitri V. Konarev\*

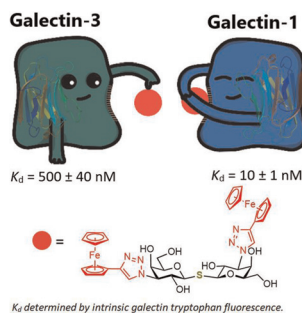
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### Phytic acid-modified NiFe-PBA stacked by $\pi$ - $\pi$ force for reinforcement electrocatalytic water oxidation

Zheng Ye, Chun Han, Yuan Yuan, Gong Chen, Yuanzun Fu and Yunhe Zhao\*

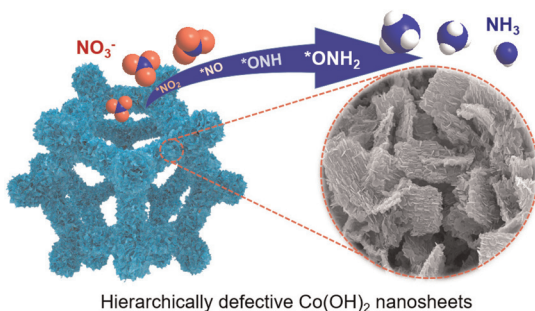
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### Ferrocene- and ruthenium arene-containing glycomimetics as selective inhibitors of human galectin-1 and -3

Vojtěch Hamala, Martin Kurfiřt, Lucie Červenková Štastná, Hedvika Hujerová, Jana Bernášková, Kamil Parkan, Jakub Kaminský, Nina Habanová, Jaroslav Kozák, Alžběta Magdolenová, Martin Zavřel, Tatiana Staroňová, Veronika Ostatná, Lucie Žaloudková, Aleš Daňhel, Jitka Holčáková, Petr Voňka, Roman Hrstka\* and Jindřich Karban\*

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### Deep self-reconstruction of $\text{CoF}_2$ to hierarchically defective $\text{Co(OH)}_2$ nanosheets for electrocatalytic reduction of nitrate to ammonia

Yong Huang, Bo Xing, Qian Liu, Shengjun Sun, Lisi Xie, Xiaolei Li, Tingshuai Li, Xuping Sun, Abdulmohsen Ali Alshehri, Qingquan Kong\* and Xiaonan Liu\*

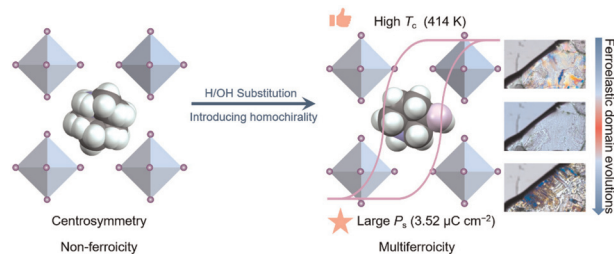


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## H/OH substitution achieving high-temperature multiferroicity in a Sn(IV)-based hybrid perovskite

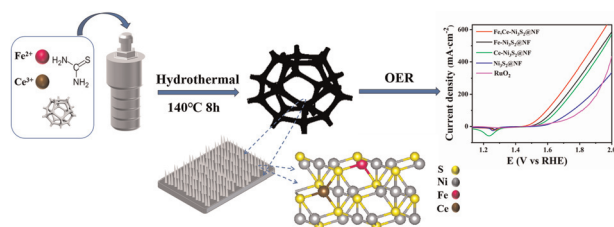
Mei-Ling Ren, Wang Luo, Ze-Jiang Xu, Hua-Kai Li, Lang Liu, Chao Shi, Na Wang,\* Heng-Yun Ye\* and Le-Ping Miao\*



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Synergistic Fe,Ce doping of Ni<sub>3</sub>S<sub>2</sub> for enhancing oxygen evolution reaction performance

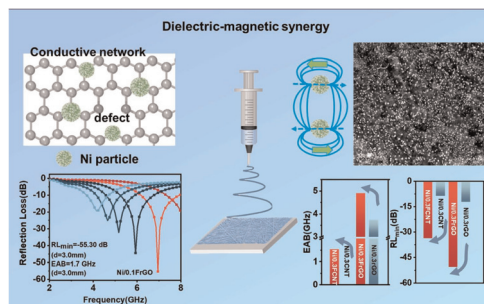
Yu He, Kefan Shi, Xueqin Wang, Xingzi Zheng, Lanke Luo, Liu Lin, Zemin Sun\* and Genban Sun\*



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## PMMA-assisted electrospinning uniformly incorporates magnetic particles into carbon nanomaterials for efficient microwave absorption

Xin Kou, Xijin Zhao, XingYao Xiong, Shenglin Yuan, Hui Huang, Xiangcheng Li\* and Yongpeng Zhao\*



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Elucidating the local structure of Li<sub>1+x</sub>Al<sub>x</sub>Ti<sub>2-x</sub>(PO<sub>4</sub>)<sub>3</sub> and Li<sub>3</sub>Al<sub>x</sub>Ti<sub>2-x</sub>(PO<sub>4</sub>)<sub>3</sub> (x = 0, 0.3) via total scattering

Matthew S. Chambers,\* Jue Liu, Olaf J. Borkiewicz, Kevin Llopart, Robert L. Sacchi and Gabriel M. Veith\*

