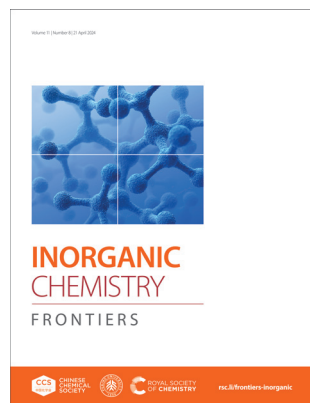


IN THIS ISSUE

ISSN 2052-1553 CODEN ICFNAW 11(8) 2191-2510 (2024)



Cover

© BlackJack3D/Getty Images

EDITORIAL

2202

Electrochemical frontiers in the nitrogen cycle

Xuping Sun,* Jieshan Qiu and Chenghua Sun

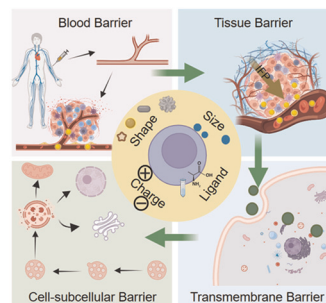


CHEMISTRY FRONTIERS

2205

Gold nanoparticles cross cell-subcellular barriers for biological regulation

Xiang Zheng, Guangchao Qing, Yaru Jia, Fangzhou Li, Lanju Xu, Xing-Jie Liang* and Jinchao Zhang*



RSC Applied Polymers

GOLD
OPEN
ACCESS

The application of polymers,
both natural and synthetic

Interdisciplinary and open access

rsc.li/RSCApplPolym

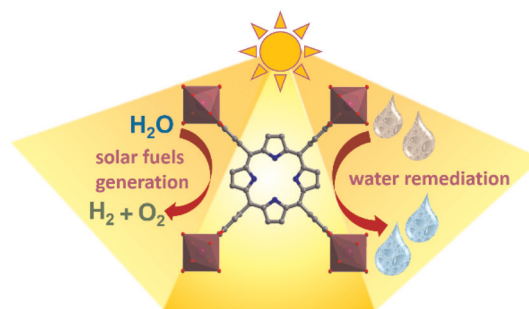
Fundamental questions
Elemental answers

REVIEWS

2212

Porphyrin-based MOFs for photocatalysis in water: advancements in solar fuels generation and pollutants degradation

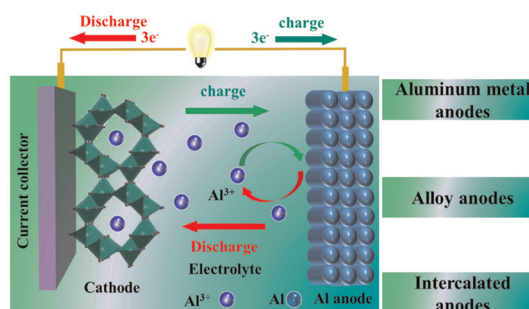
Fangbing Liu, Irene Rincón, Herme G. Baldoví, Amarajothi Dhakshinamoorthy, Patricia Horcajada, Sara Rojas,* Sergio Navalón* and Alexandra Fateeva*



2246

Recent progress in aluminum anodes for high-performance rechargeable aqueous Al-ion batteries

Le Li, Shaofeng Jia, Yue Shi, Conghui Wang, Hengwei Qiu, Yongqiang Ji, Minghui Cao* and Dan Zhang*

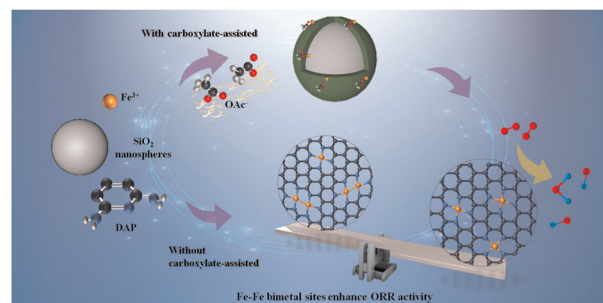


RESEARCH ARTICLES

2260

Carboxylate trapping engineering to fabricate monodispersed dual-atom iron sites for efficient oxygen reduction

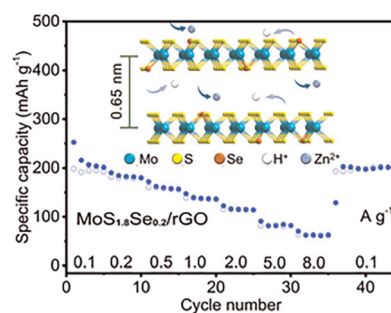
Hailiang Chu, Yilong Wu, Shujun Qiu, Chunfeng Shao,* Yongpeng Xia, Yongjin Zou, Baitao Li, Kai Dai* and Lixian Sun*



2272

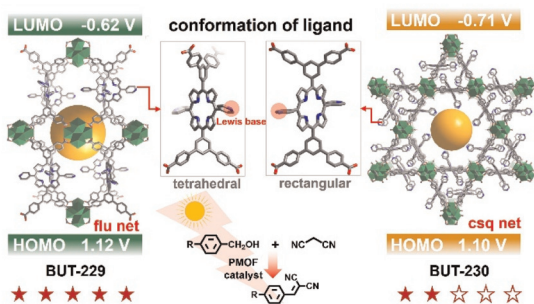
Selenium doping induced phase transformation and interlayer expansion boost the zinc storage performance of molybdenum disulfide

Mengfan Niu, Wenli Xin, Lei Zhang, Min Yang, Yaheng Geng, Xilin Xiao, Hui Zhang and Zhiqiang Zhu*



RESEARCH ARTICLES

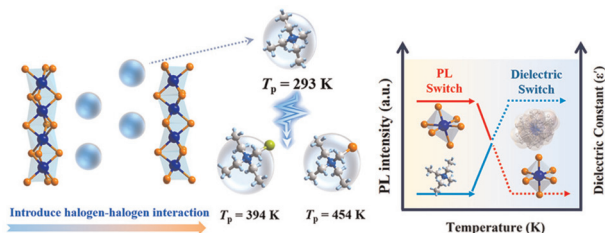
2281



Boosting structural variety and catalytic activity of porphyrinic metal–organic frameworks by harnessing bifunctional ligands

Wei Wu, Xiu-Liang Lv,* Tao He, Guang-Rui Si, Hongliang Huang, Lin-Hua Xie,* Yabo Xie and Jian-Rong Li

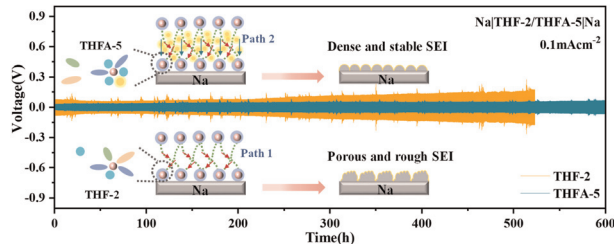
2290



Structural phase transition drives outright photoluminescence quenching and dielectric duple bistable switching

Zhi-Jie Wang, Ming-Jing Shen, Zhi-Peng Rao, Pei-Zhi Huang, Meng-Meng Lun, Bo-Wen Deng, Jun-Yi Li, Chang-Feng Wang, Hai-Feng Lu,* Da-Wei Fu* and Yi Zhang*

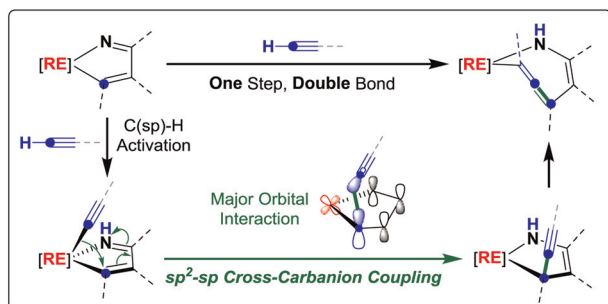
2300



A composite electrolyte based on aluminum oxide filler/polyester polymer via *in situ* thermal polymerization for long-cycle sodium metal batteries

Qiujun Wang, Xin He, Di Zhang, Zhaojin Li, Huilan Sun, Qujiang Sun, Bo Wang* and Li-Zhen Fan*

2312



sp^2 - sp cross-carbanion coupling at a rare-earth center leading to the formation of carbon–carbon double bonds

Zhengqi Chai, Ze-Jie Lv, Wei Liu, Jinxiao Yang, Junnian Wei and Wen-Xiong Zhang*

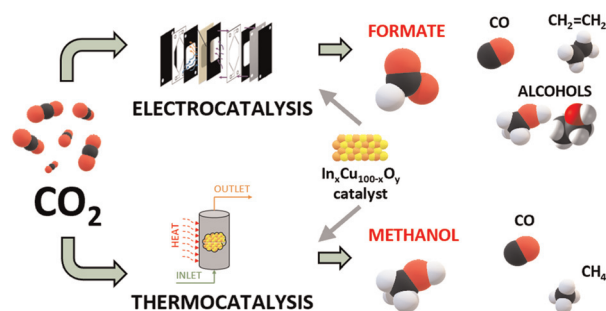


RESEARCH ARTICLES

2319

Development of In–Cu binary oxide catalysts for hydrogenating CO₂ via thermocatalytic and electrocatalytic routes

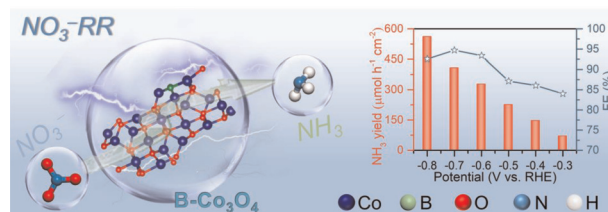
Marco Pietro Mezzapesa, Fabio Salomone, Hilmar Guzmán, Federica Zammillo, Roberto Millini, Letizia Bua, Gianluigi Marra, Alessandra Tacca, Rosamaria Marrazzo, Nunzio Russo, Raffaele Pirone, Simelys Hernández* and Samir Bensaid*



2339

High-efficiency ammonia synthesis via electrochemical nitrate reduction over Co₃O₄ nanoarrays by B doping

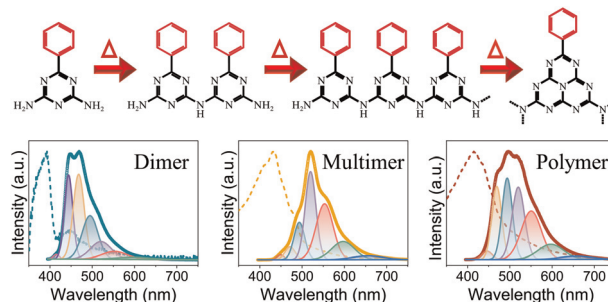
Zhiqin Deng, Heng Liu, Huiyong Wang, Chaoqun Ma,* Juan Du* and Baozhan Zheng*



2346

Understanding the synthesis mechanism, chemical structures and optical properties of aromatic carbon nitride

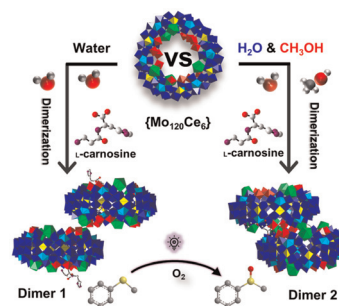
Yunhu Wang, Fangxu Dai, Yafei Tao, Kai Zhang, Bingjie Li, Mingming Zhang, Kang Liu, Jixiang Xu, Lei Wang and Jun Xing*



2355

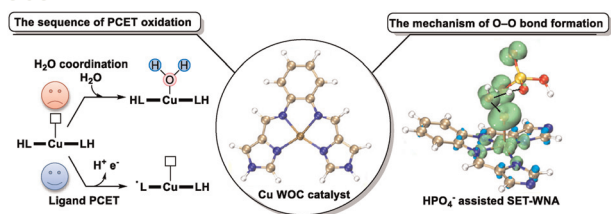
Solvent-modulated assembly of peptide and cerium functionalized gigantic {Mo₁₂₀Ce₆}₂ dimers for high-efficiency photocatalytic oxidation

Dexiang Zhou, Bingbing Li, Qixin Zhao, Xinyu Tang, Tingya Lan, Heyang Su, Guoping Yang* and Weimin Xuan*



RESEARCH ARTICLES

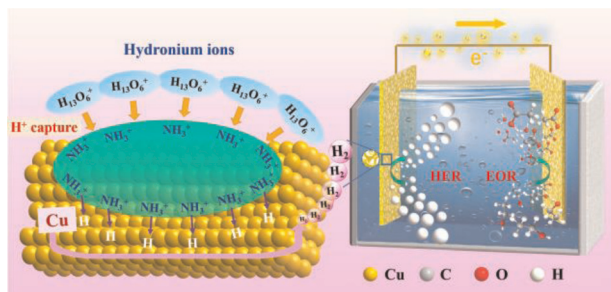
2365



Deciphering the active species and reaction mechanism in water oxidation catalyzed by a copper complex with redox-active ligands

Qing Fan, Cong Yang, Mengdi Li, Chen Wang, Guixia Wang, Xiangfei Kong and Qiping Zhu*

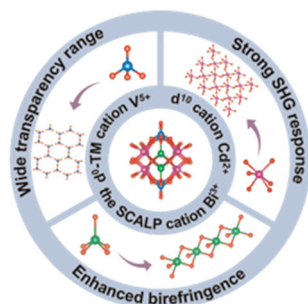
2373



Regulation of polyaniline thickness and substitution position on Cu foams to optimize hydrogen evolution and ethanol oxidation performance

Haiqiang Mu, Pengyue Shan, Min Zhu, Zhenli Lv, Guorui Ma, Jiaying Guo, Junzhuo Fang, Jin Zhang, Feng Li* and Jing Li*

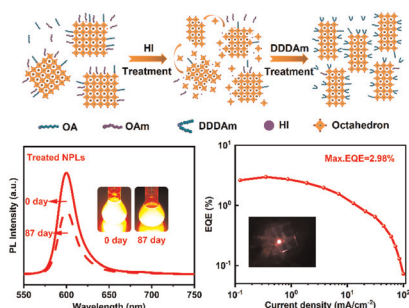
2384



Three in one: a cadmium bismuth vanadate NLO crystal exhibiting a large second-harmonic generation response and enhanced birefringence

Shuya Liu, Conggang Li,* Jinmiao Jiao, Yuheng She, Tinghui Zhang, Dianxing Ju, Ning Ye, Zhanggui Hu* and Yicheng Wu

2392



Achieving a near-unity photoluminescence quantum yield and high stability of CsPbI₃ nanoplatelets by hydroiodic acid-assisted ligand treatment

Zongnan Li, Yusheng Song, Sheng Cao,* Ke Xing, Zhentao Du, Bingsuo Zou and Jialong Zhao*

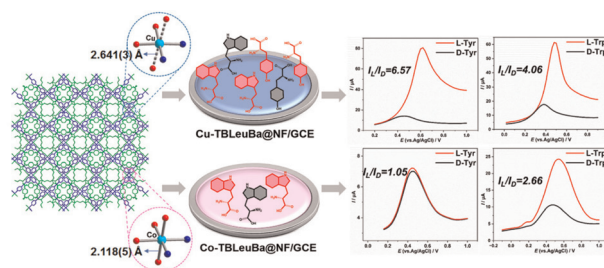


RESEARCH ARTICLES

2402

Isostructural chiral metal–organic frameworks with metal-regulated performances for electrochemical enantiomeric recognition of tyrosine and tryptophan

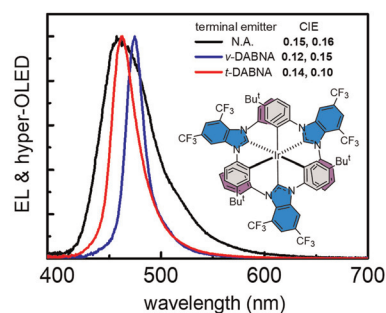
Ran An, Qiu-Yan Hu, Liu-Yang Song, Xu Zhang, Rui-Xuan Li, En-Qing Gao* and Qi Yue*



2413

Selective syntheses of homoleptic Ir(III) complexes bearing di-CF₃-functionalized benzoimidazol-2-ylidenes for generation of blue phosphorescence

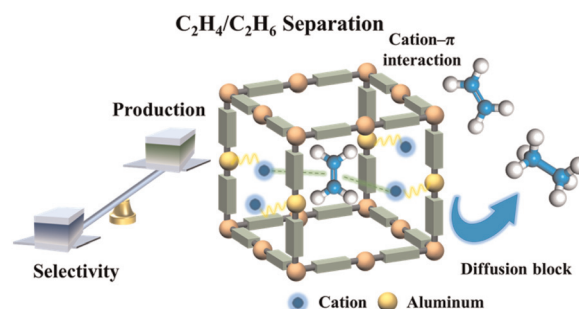
Jie Yan, Yi Pan, I-Che Peng, Wen-Yi Hung,* Bingjie Hu, Guowei Ni, Shek-Man Yiu, Yun Chi* and Kai Chung Lau*



2427

Enhancing the separation of C₂H₄/C₂H₆ in customized MOR zeolites

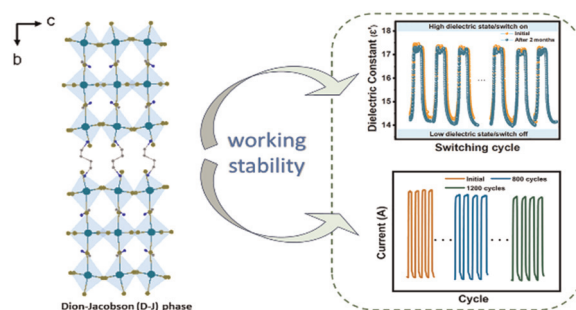
Hongwei Chen, Binyu Wang, Bin Zhang, Yongheng Ren, Jiahong Chen, Jiabao Gui, Xiufeng Shi, Wenfu Yan, Jinping Li and Libo Li*



2436

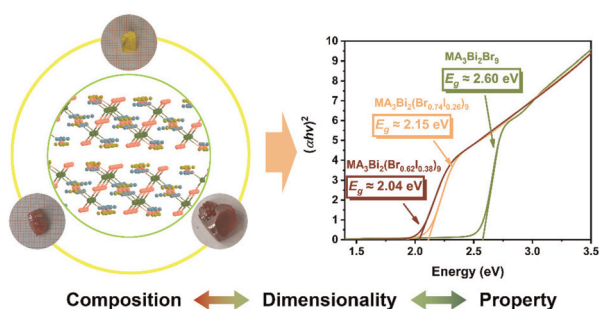
Durable dielectric switching and photo-responsivity in a Dion–Jacobson hybrid perovskite semiconductor

Peng Wang, Xinling Li, Huang Ye, Qianwen Guan, Yifei Wang, Yaru Geng, Chengshu Zhang, Hang Li and Junhua Luo*



RESEARCH ARTICLES

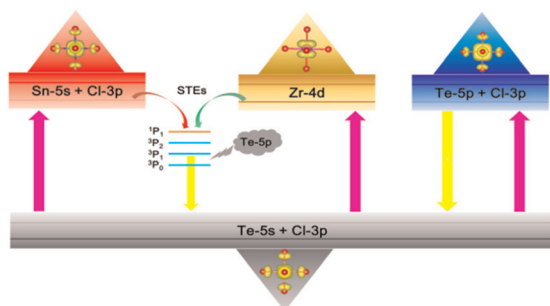
2442



Bulk single crystal growth and optoelectronic properties of the quasi-two-dimensional perovskites (CH_3NH_3)₃Bi₂X₉ ($\text{X}^- = \text{Br}^-$ and I^-)

Zhiyuan Li, Xiangjun Wang, Peng Zhao, Jingquan Liu* and Xiangxin Tian*

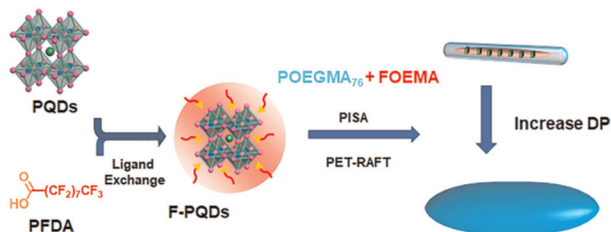
2457



Competition mechanism of self-trapped excitons and Te^{4+} ions emission in the Te^{4+} doped vacancy-ordered double perovskite Rb_2HfCl_6 and its excellent properties

Ruxin Liu, Kaishun Zou, Guanglu Zhang, Min Feng, Mingxuan Li and Juncheng Liu*

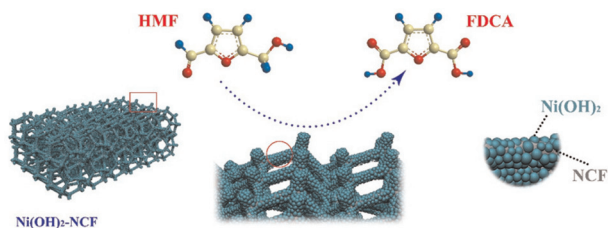
2471



Perovskite photoinitiated RAFT-mediated polymerization-induced self-assembly for organic-inorganic hybrid nanomaterials

Bingfeng Shi, Wanchao Hu, Shiyi Li, Zhinan Xia and Changli Lü*

2479



Electrochemical conversion of 5-hydroxymethylfurfural over CuNi bimetallic catalysts: the synergistic effect of interfacial active sites

Yiwei Zhao, Chao Zhang,* Shuangxi Xing,* Zuhang Jin and Tingting Xiao

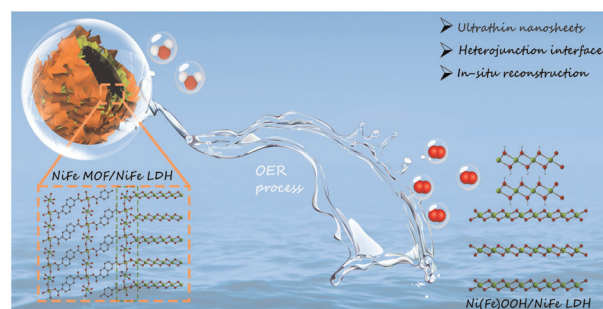


RESEARCH ARTICLES

2489

Ultrathin 2D–2D NiFe LDH/MOF heterojunction nanosheets: an efficient oxygen evolution reaction catalyst for water oxidation

Haoran Yin, Shibiao Su, Di Yao, Lixia Wang, Xinqiang Liu, Tayirjan Taylor Isimjan, Xiulin Yang* and Dandan Cai*



2498

N-heterocyclic carbene-stabilized Cu₉ clusters with combined thermally activated delayed fluorescence and phosphorescence

Lin-Mei Zhang, Mo Xie, Hui-Zhi Wei, Shang-Fu Yuan,* Dong-Sheng Li and Tao Wu*

