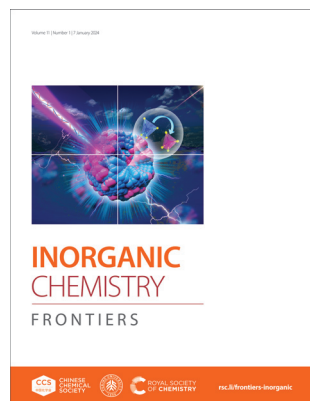


IN THIS ISSUE

ISSN 2052-1553 CODEN ICFNAW 11(1) 1-312 (2024)



Cover

See Xiao-Song Zhang *et al.*, pp. 71–84.

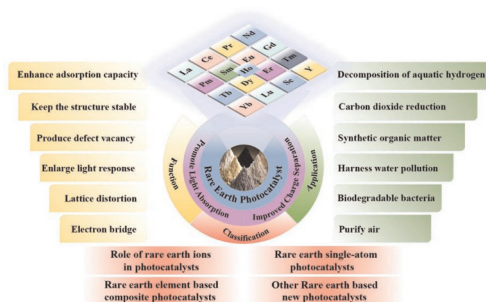
Image reproduced by permission of Xing-Yao Zhao, Xiao-Song Zhang, Xiao-Kai Gong, Xiu-Rong Yuan, Min-Xing Chen, Shu-Wei Huang, Bao-zeng Zhou, Jian-Ping Xu and Lan Li from *Inorg. Chem. Front.*, 2024, **11**, 71.

REVIEWS

11

The multiple roles of rare earth elements in the field of photocatalysis

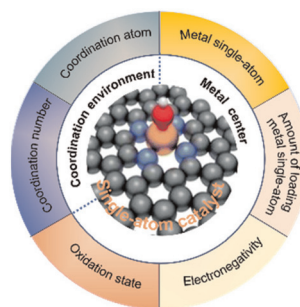
Jing An, Yang Qu* and Guofeng Wang*



29

Local structural environment of single-atom catalysts

Zheng Chen and Lili Han*



GOLD
OPEN
ACCESS

RSC Applied Polymers

**The application of polymers,
both natural and synthetic**

Interdisciplinary and open access

rsc.li/RSCApplPolym

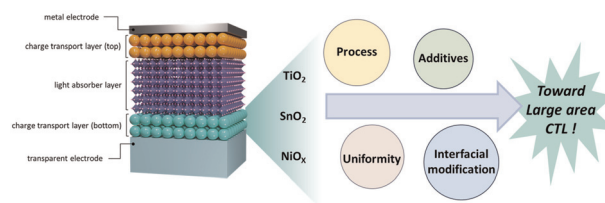
**Fundamental questions
Elemental answers**

REVIEWS

50

Towards scalability: progress in metal oxide charge transport layers for large-area perovskite solar cells

Seongmin Choi, Taeyeong Yong and Jongmin Choi*

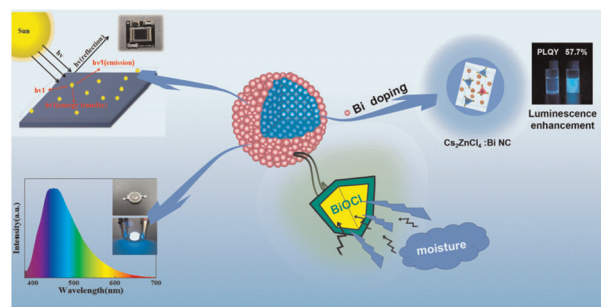


RESEARCH ARTICLES

71

Enhancing broadband blue luminescence efficiency and stability in Bi³⁺-doped Cs₂ZnCl₄ nanocrystals from STEs and advancing energy applications

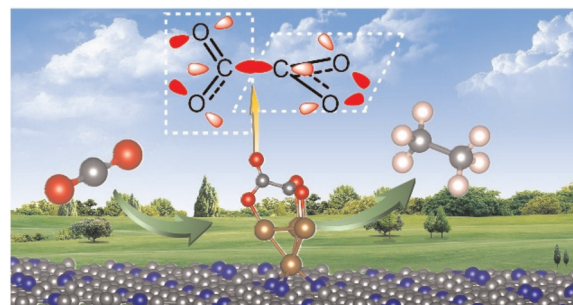
Xing-Yao Zhao, Xiao-Song Zhang,* Xiao-Kai Gong, Xiu-Rong Yuan, Min-Xing Chen, Shu-Wei Huang, Bao-zeng Zhou, Jian-Ping Xu and Lan Li



85

Direct coupling of two inert CO₂ molecules to form a C–C bond on the Cu⁰ atomic interfaces of the nitrogen-doped graphene-supported Cu₄ cluster

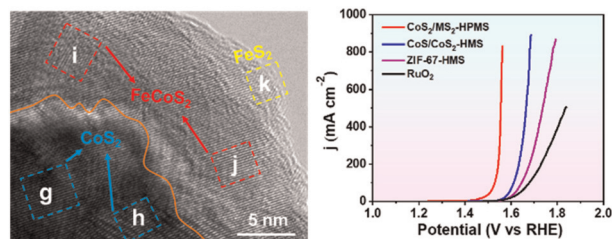
Xin-Jia Cui, Yong-Qing Qiu, Hong-Qiang Wang and Chun-Guang Liu*



98

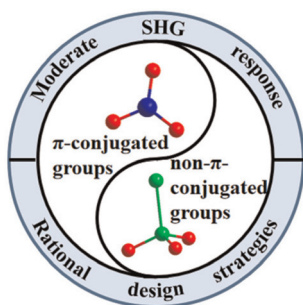
Heterogeneous CoS₂/MS₂ microspheres for an efficient oxygen evolution reaction

Xiaoqu Wang, Limin Wang, Karuppasamy Kohila Rani, Xinglan Peng, Yu Ning, Xiaotian Liu, Youjun Fan,* Du-Hong Chen* and Wei Chen*



RESEARCH ARTICLES

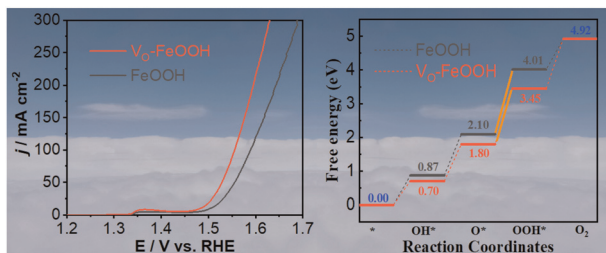
107



$\text{Na}_{10}\text{Zn}(\text{NO}_3)_4(\text{SO}_3\text{S})_4$: a nonlinear optical crystal combining inorganic π -conjugated and non- π -conjugated heteroanion groups

Zihao Yu, Qingran Ding,* Yuhang Jiang, Weiqi Huang, Changsheng Yang, Sangen Zhao and Junhua Luo*

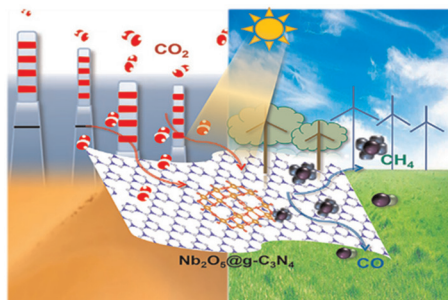
114



Oxygen defect engineering on low-crystalline iron(III) oxyhydroxide as a highly efficient electrocatalyst for water oxidation

Yaning Fan, Junjun Zhang,* Kongliang Luo, Xuanyu Zhou, Jiahua Zhao, Weiwei Bao, Hui Su, Nailiang Wang,* Pengfei Zhang and Zhenghong Luo

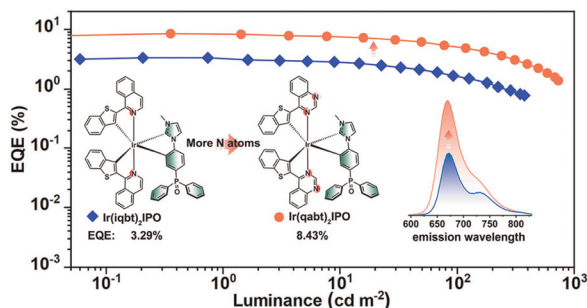
123



Efficient $\text{Nb}_2\text{O}_5@\text{g-C}_3\text{N}_4$ heterostructures for enhanced photocatalytic CO_2 reduction with highly selective conversion to CH_4

Xiaofeng Wang, Jingwen Jiang, Lilian Wang and Hong Guo*

133



Boosting the efficiency of deep-red Ir(III) complexes by modulating nitrogen atoms for high-performance OLEDs

Li-Li Wen, Jia-Ming Zhang, Yi-Ping Han, Ying-Chen Duan,* Wen-Fa Xie,* Kui-Zhan Shao, Guo-Gang Shan* and Zhong-Min Su

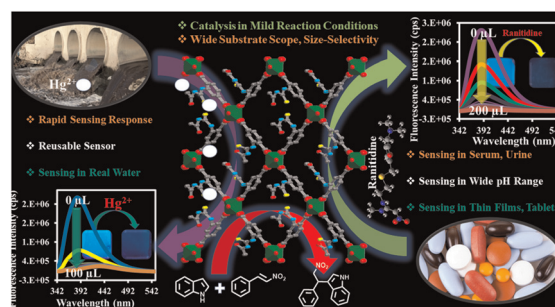


RESEARCH ARTICLES

142

A recyclable MOF@polymer thin film composite for nanomolar on-site fluorometric detection of heavy metal ion and anti-histamine drug and efficient heterogeneous catalysis of Friedel–Crafts alkylation

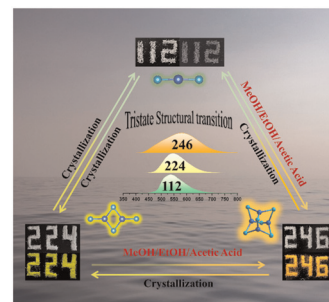
Sk Sakir Hossain, Veerappan Karthik, Amarajothi Dhakshinamoorthy* and Shyam Biswas*



156

Reversible tri-state structural transitions of hybrid copper(I) bromides toward tunable multiple emissions

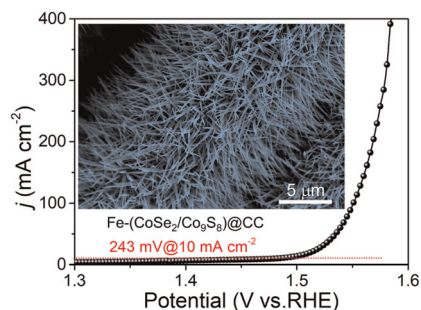
Jiajing Wu,* Jing-Li Qi, Yue Guo, Shufang Yan, Wenlong Liu and Sheng-Ping Guo*



164

Fe doping and interface engineering-induced dual electronic regulation of CoSe₂/Co₉S₈ nanorod arrays for enhanced electrochemical oxygen evolution

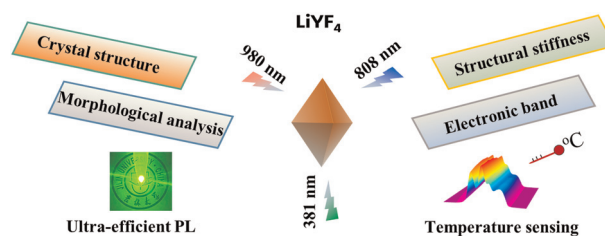
Guangyao Zhou,* Chao Wei, Zhijuan Li,* Bin He, Zhenyuan Liu and Jing Li



172

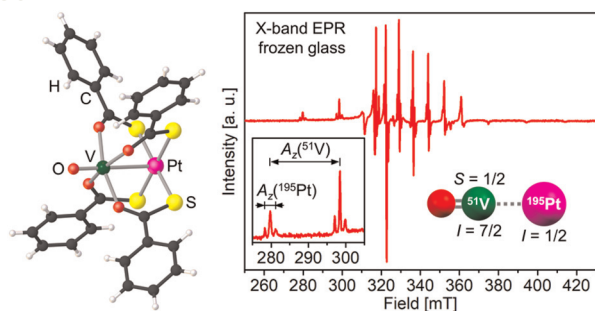
A latest-generation fluoride with excellent structural stiffness for ultra-efficient photoluminescence and specific four-peak emission temperature sensing

Kejie Li, Mengmeng Dai, Zuoling Fu,* Zhiying Wang, Hanyu Xu and Rong Wang



RESEARCH ARTICLES

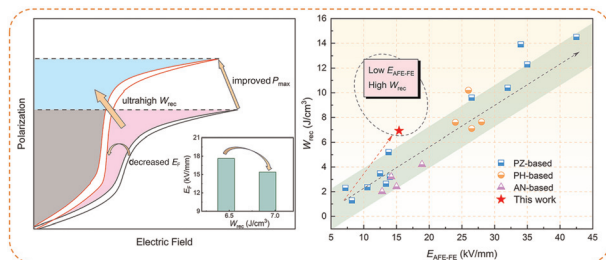
186



Quantum spin coherence and electron spin distribution channels in vanadyl-containing lantern complexes

Manuel Imperato, Alessio Nicolini, Marco Borsari, Matteo Briganti, Mario Chiesa, Yu-Kai Liao, Antonio Ranieri, Arsen Raza, Enrico Salvadori, Lorenzo Sorace and Andrea Cornia*

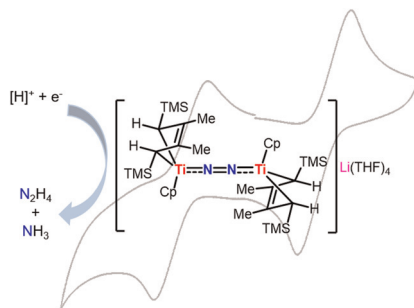
196



Improving energy storage properties of PbHfO₃-based antiferroelectric ceramics with lower phase transition fields

Yan Li, Tongqing Yang* and Xiaohui Liu

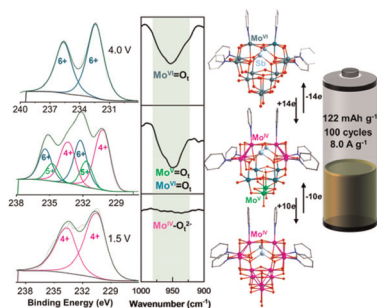
207



Dinitrogen activation by a titanium hydride complex supported by 2-butene ligand

Xianghui Shi, Yongliang Zhang, Mingdong Zhong, Rui Feng, Yuanjin Chen, Lei Yu, Yue Wu, Junnian Wei* and Zhenfeng Xi

215



14-electron reduced Mo₆^{IV}-ε-Keggin polyoxometalates: highly stable and reversible electron/Li⁺ sponge materials

Jie Zi, Meng Cao, Fang Yu, Cuiming Ren, Ruili Sang and Li Xu*

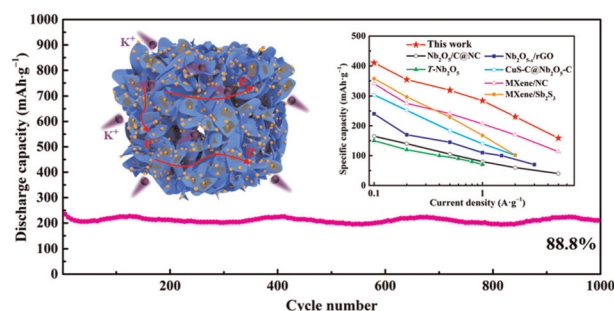


RESEARCH ARTICLES

224

In situ built nanoconfined Nb₂O₅ particles in a 3D interconnected Nb₂C MXene@rGO conductive framework for high-performance potassium-ion batteries

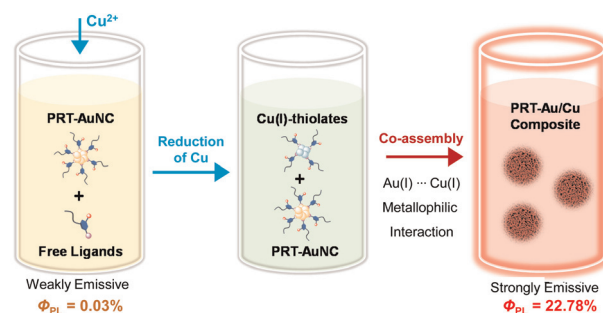
Cong Liu, Zhitang Fang, Weizhi Kou, Xiaoge Li, Jinhua Zhou, Gang Yang, Luming Peng, Xuefeng Guo, Weiping Ding and Wenhua Hou*



237

A cooperative effect of copper-induction and AIE leading to bright luminescence of gold nanoclusters

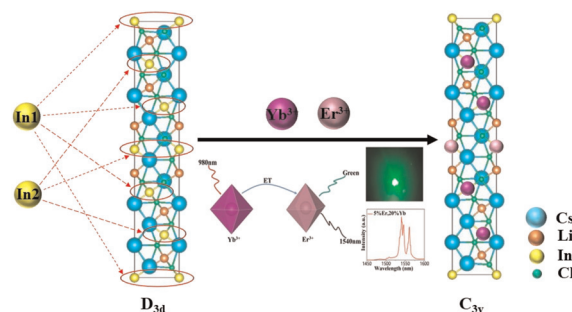
Yongjie Zhang,* Luyao Feng, Jingyan Luan, Guomei Zhang, Ning Sheng and Jinglin Shen*



246

Revealing the role of a unique local structure in lanthanide-doped Cs₂LiInCl₆ in boosting visible and NIR-II luminescence

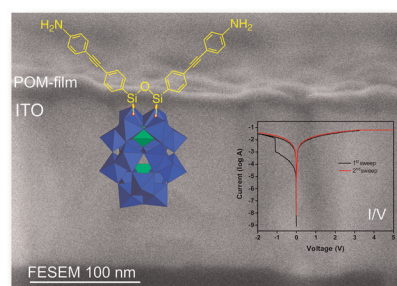
Qiudong Duan, Yusheng Xu, Ruijing Yang, Dongfeng Hong, Dacheng Zhou, Qi Wang, Yong Yang, Jin Han, Yugeng Wen* and Jianbei Qiu*



255

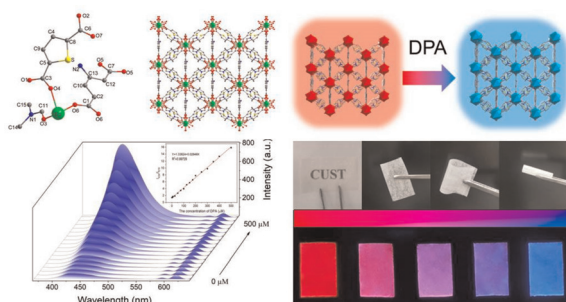
Covalent shaping of polyoxometalate molecular films onto ITO electrodes for charge trapping induced resistive switching

Raphaël Salles, Wei Church Poh, Maxime Laurans, Florence Volatron, Antoine Miche, Sandra Alves, Christian Carino, Ludovic Torteche, Guillaume Izzet, Pooi See Lee* and Anna Proust*



RESEARCH ARTICLES

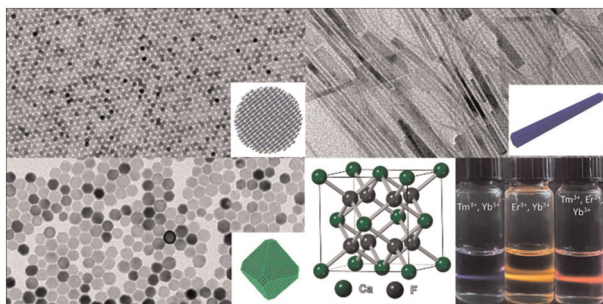
269



Eu³⁺-MOF fluorescence sensor based on a dual-ligand strategy for visualised detection of an anthrax biomarker 2,6-pyridine dicarboxylic acid

Runnan Wang, Hao Zhang, Jing Sun* and Zhongmin Su*

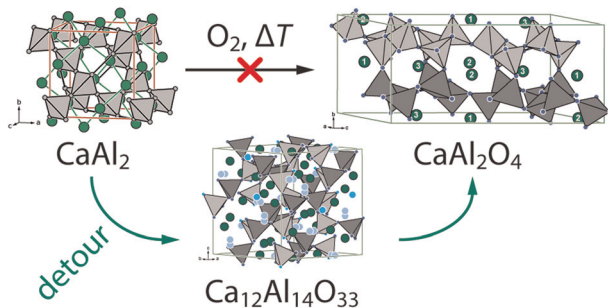
278



Shape-controlled synthesis and self-assembly of highly uniform upconverting calcium fluoride nanocrystals

Taejong Paik,* Nicholas J. Greybush, Stan Najmr, Ho Young Woo, Seong Vin Hong, Seung Hyeon Kim, Jennifer D. Lee, Cherie R. Kagan and Christopher B. Murray*

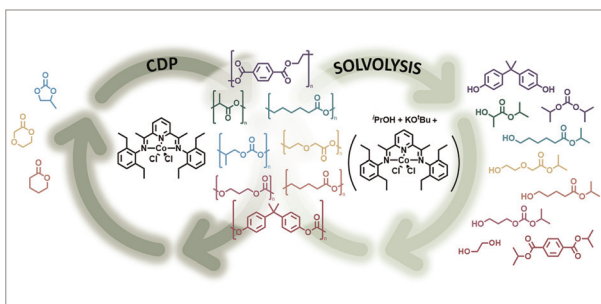
286



Mechanistic studies on the formation of ternary oxides by thermal oxidation of the cubic laves phase CaAl₂

Elias C. J. Gießelmann, Stefan Engel, Johannes G. Volpini, Hubert Huppertz, Guido Kickelbick* and Oliver Janka*

298



Divergent methods for polyester and polycarbonate depolymerization with a cobalt catalyst

Kai D. Knight and Megan E. Fieser*

