

IN THIS ISSUE

ISSN 2052-1553 CODEN ICFNAW 11(15) 4471–4888 (2024)



Cover

See You Zi, Weichun Huang
et al., pp. 4568–4575.

Image reproduced by
permission of Weichun
Huang from *Inorg. Chem.
Front.*, 2024, **11**, 4568.

INORGANIC CHEMISTRY

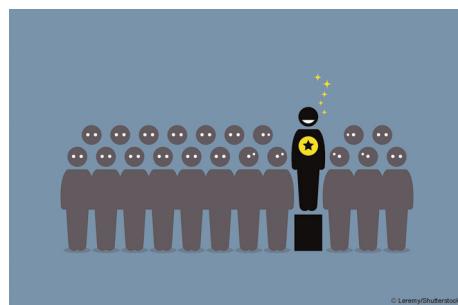
FRONTIERS

CCS CHINESE CHEMICAL SOCIETY RSC ROYAL SOCIETY OF CHEMISTRY rsc.li/frontiers-inorganic

EDITORIAL

4484

Outstanding Reviewers for *Inorganic Chemistry Frontiers* in 2023

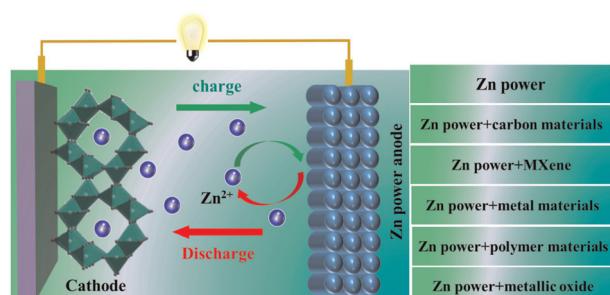


REVIEWS

4485

Advanced aqueous zinc-ion batteries based on an anode constructed from zinc powder: a review

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



ChemComm

**Uncover new possibilities
with outstanding
preliminary research**

**Original discoveries, fuelling
every step of scientific progress**

rsc.li/chemcomm

**Fundamental questions
Elemental answers**

REVIEWS

4499

 $^{225}\text{Ac}/^{213}\text{Bi}$ radionuclide generators for the separation of ^{213}Bi towards clinical demands

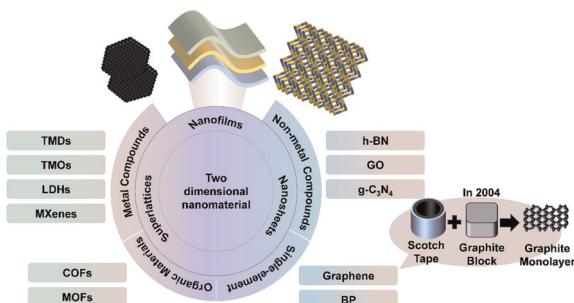
Hongshan Zhu, Stephan Heinitz, Koen Binnemans, Steven Mullens and Thomas Cardinaels*



4528

Synthesis and electrochemical application of two-dimensional manganese-based materials

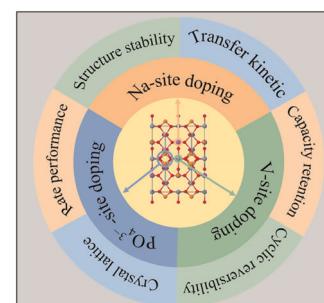
Jing Hu,* Panpan Tao, WenYu Fan, Rui Yang, Haoyu Feng, Bingrong Guo, Haijin Li, Li Xu* and Siwei Li*



4552

Doping modification of sodium superionic conductor $\text{Na}_3\text{V}_2(\text{PO}_4)_3$ cathodes for sodium-ion batteries: a mini-review

Yurui Shao, Yijun Qian,* Tianshu Zhang, Pengcheng Zhang, Haocong Wang,* Tao Qian and Chenglin Yan*

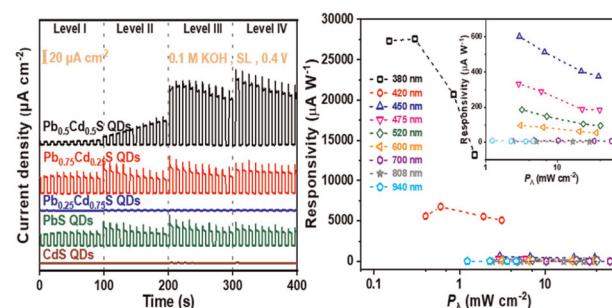


RESEARCH ARTICLES

4568

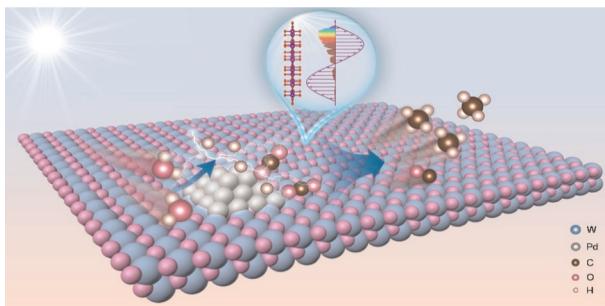
Ternary $\text{Pb}_{1-x}\text{Cd}_x\text{S}$ quantum dot-based UV-vis-NIR photoelectrochemical photodetection with superior photoresponsivity and detectivity

Youhua Zhu, Zhihui Huang, Songrui Wei, Yi Hu, Hongyan Chen, Mengke Wang, You Zi* and Weichun Huang*



RESEARCH ARTICLES

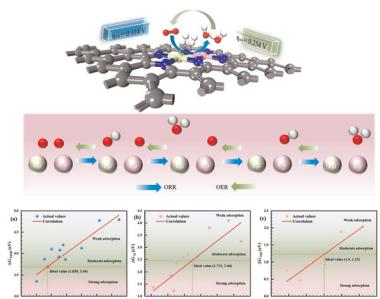
4576



Enhanced photocatalytic CO_2 reduction to CH_4 via restorable surface plasmon and $\text{Pd}_n\text{-W}^{\delta+}$ synergistic sites

Weisheng Hu, Zehua Liu, Liang Chen,* Ting Wang, Yangguang Hu, Ran Long, Dong Liu* and Benxia Li*

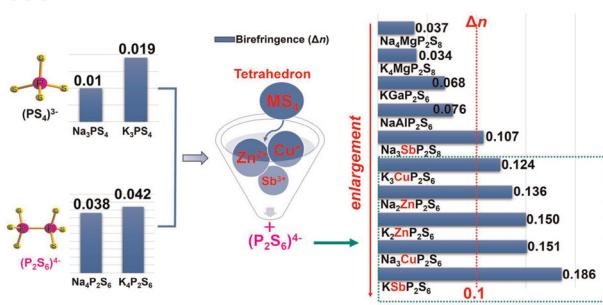
4590



Insights into the origin of Co-based bimetallic catalysts with a *para*-structure exhibiting ORR and OER bifunctional activities

Yuxi Zhu, Chaoling Han and Zhenqian Chen*

4603

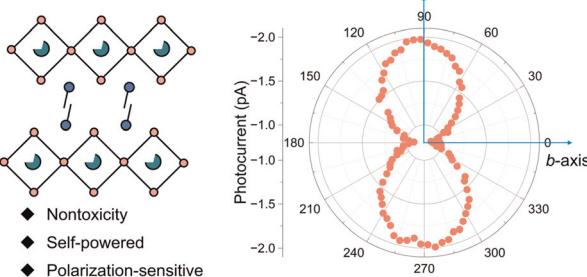


Greatly enhanced optical anisotropy in thiophosphates inspired by rational coupling of tetrahedra and ethane-like $[\text{P}_2\text{S}_6]^{4-}$ groups

Ning Zhao, Dazhi Lu,* Jingjing Xu, Kui Wu,* Haohai Yu* and Huaijin Zhang

4611

2D Polar Lead-Free Perovskite



A polar two-dimensional lead-free hybrid perovskite for self-powered polarization-sensitive photodetection

Cheng-Dong Liu, Chang-Chun Fan, Bei-Dou Liang and Wen Zhang*

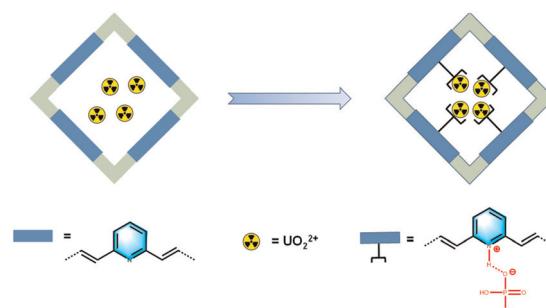


RESEARCH ARTICLES

4619

Direct phosphorylation of a pyridine-functionalized porous organic polymer for efficient uranium capture

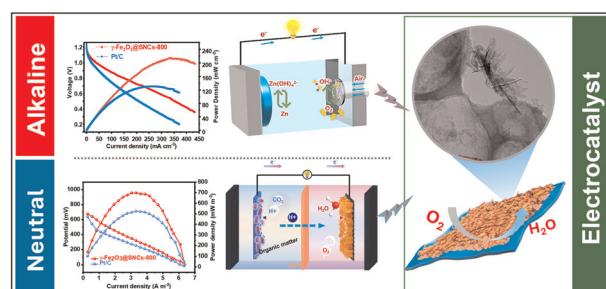
Anni Ye, Lizhen Zhong, Liecheng Guo, Feng Gao, Zhiwu Yu* and Feng Luo*



4625

 $\gamma\text{-Fe}_2\text{O}_3$ decorating N,S co-doped carbon nanosheets as a cathode electrocatalyst for different-scenario fuel cells

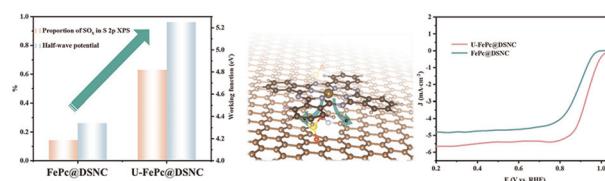
Xintao Zhou, Mingyang Wu, Kai Chen, Haijian Wang, Zhenhai Wen* and Suqin Ci*



4638

Synergistic coupling of defective SO_x -containing carbon and iron phthalocyanine for efficient oxygen reduction

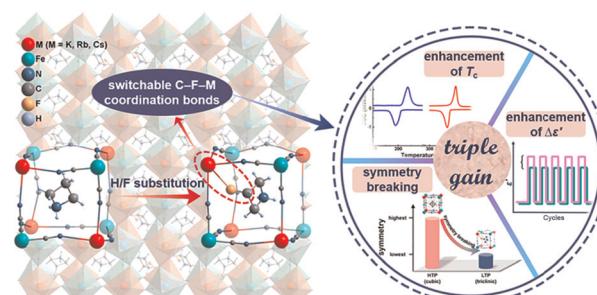
Yu Cao, Yukun Zhao, Yan Zhang, Kai Zhu, Xinjun Wang, Ge Li,* Qing Zhang* and Zhengyu Bai*



4647

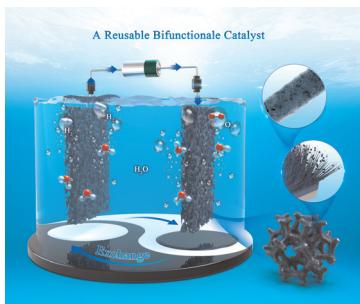
Switchable coordination bonds in 3D cyano-bridged perovskite ferroelastics: achieving the largest leap of symmetry breaking and enhanced dielectric switching performance

Sheng-Qian Hu, Meng-Zhen Li, Zhao-Hong Chen, Jun-Si Zhou, Luan-Ying Ji, Yong Ai and Xiao-Gang Chen*



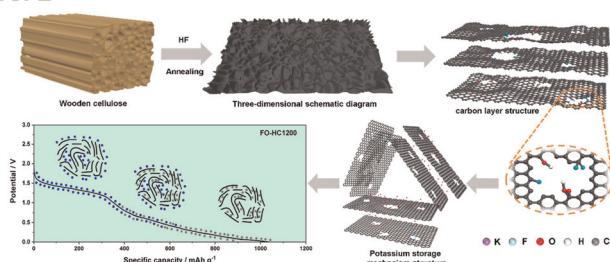
RESEARCH ARTICLES

4654


Construction of a reversible-cycling bifunctional electrocatalyst $\text{CoP}_2@\text{Co}(\text{CO}_3)_{0.5}\text{OH}/\text{Cu}/\text{NF}$ with Mott–Schottky structure for overall water splitting

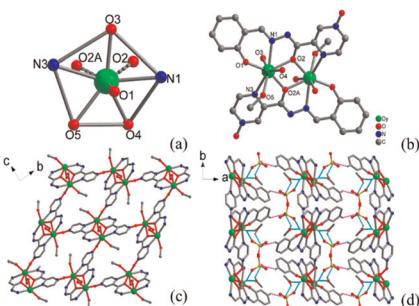
Xinyuan Liao, Xiaomin Lang, Ting Zhang, Chunmei Li, Jian Zou, Qing Li, Weihua Hu and Hua Lin*

4672


A fluorine/oxygen co-doping scheme for biomass carbon provides excellent rapid reaction kinetics for sodium/potassium-ion batteries

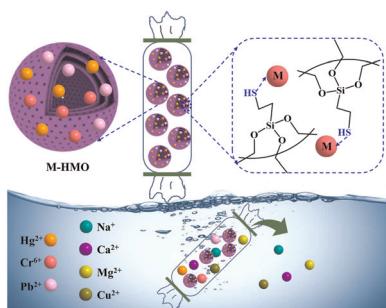
Liuchao Yang, Bin He, Mingxin Li, Shenghu Li, Dan Xiao, Yujue Wang, Yan Meng, Qian Zhao,* Qu Yue* and Wei Feng*

4686


Coordination-driven assembly of dysprosium layers into a framework featuring enhanced energy barriers and quantum tunneling of magnetization

Zhen-Na Huang, Rong Sun, Fang Ma, Jing Yang, Xiao-Xiao Huang, Hao-Ling Sun* and Song Gao*

4695



Meng Cheng, Yuqi Liu, Hao Jiang, Chunling Li,* Shuangqing Sun and Songqing Hu*

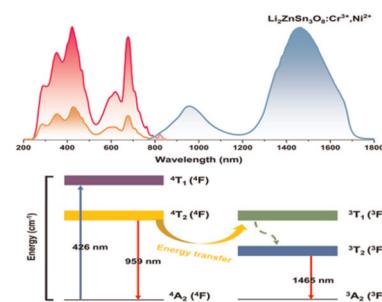


RESEARCH ARTICLES

4711

Blue light-excited broadband NIR-II-emitting $\text{Li}_2\text{ZnSn}_3\text{O}_8:\text{Cr}^{3+},\text{Ni}^{2+}$ phosphor for multifunctional optical applications

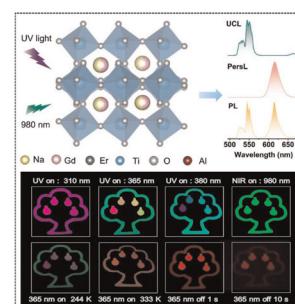
Zhexuan Gao, Yi Zhang, Yinyan Li, Shilong Zhao, Peng Zhang, Xiaolong Dong, Degang Deng* and Shiqing Xu*



4721

Multicolor and multimodal luminescence in an Er^{3+} -single-doped double perovskite for advanced anti-counterfeiting and encryption

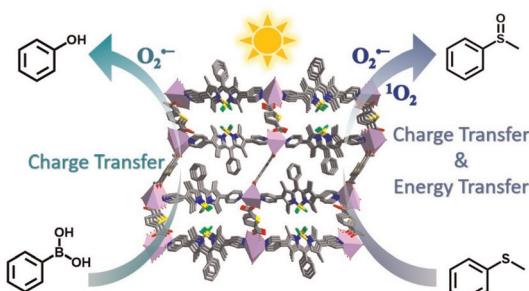
Sixia Li, Peng Zhang, Zhenbing Wang, Yuzhu Yang, Xuan Miao and Weisheng Liu*



4731

Novel BODIPY-based MOFs toward high-efficiency photocatalytic oxidation of sulfides and arylboronic acids

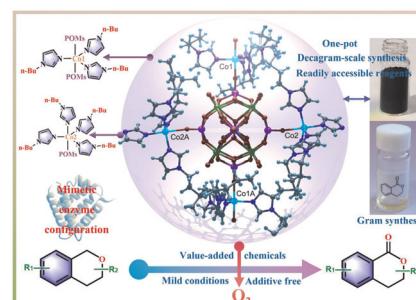
Qian Kang, Shao-Dan Wang, Jie Guo, Kai-Li Mo, Kang-Le Lv and Li-Li Wen*



4740

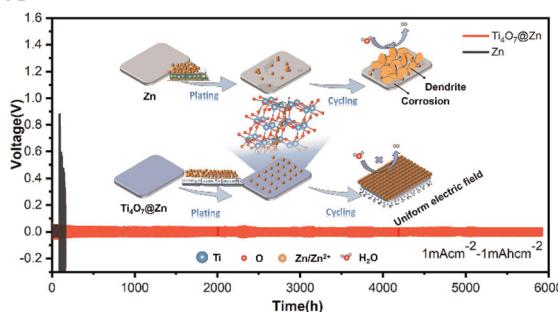
An artificial enzyme of a polyoxometalate-supported cobalt complex for the oxidation of isochromans to isochromanones by activating O_2

Xiangyu Ren, Hongrui Tian, Baokuan Chen,* Lingling Dai, Yanfeng Bi* and Guoping Yang*



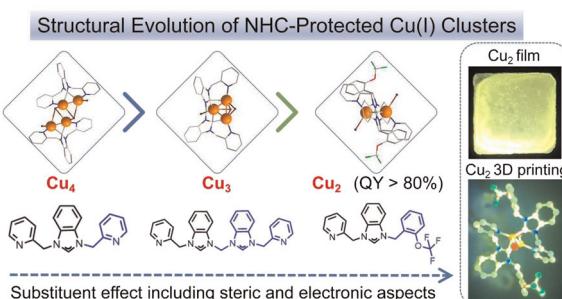
RESEARCH ARTICLES

4748

**Ti₄O₇ coating creates a highly stable Zn anode for aqueous zinc-ion batteries**

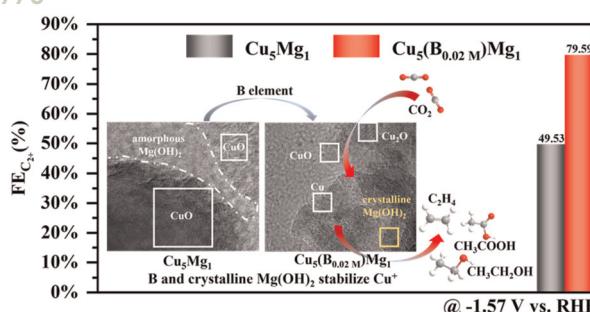
Mengjuan Chen, Yimeng Cui, Wenfeng Liu, Zhenpu Shi, Hongyu Dong, Hongyun Yue, Zhaoxia Cao, Zhansheng Lu, Shuting Yang* and Yanhong Yin*

4757

**Structural regulation of NHC-protected copper(i) clusters through substitution for photoluminescence enhancement**

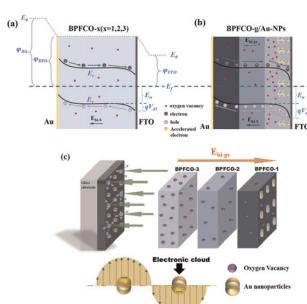
Yan-Yan Yang, Rui-Chen Hao, Qing-Qing Wu, Peng Luo,* Jun Xu,* Xi-Yan Dong* and Chuan-Xiang Zhang

4770

**Steady Cu⁺ species via magnesium and boron co-modification for enhanced CO₂ electroreduction to C₂₊ products: an *in situ* Raman spectroscopic study**

Hua Yang, Xuefan Mu, Jiejin Guan, Bo Ouyang, Huaming Li and Yilin Deng*

4780

**Multiple strategies to greatly enhance the photovoltaic characteristics of BiFeO₃-based films**

Zehao Sun, Jie Wei,* Shigeng Song, Minchuan Xiahou, Ao Cao, Junlong Zhang, Youxin Yuanfeng, Guogang Chen and Yongqiang Chen

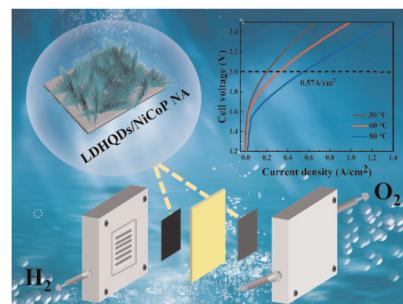


RESEARCH ARTICLES

4794

Novel NiCoP nanoarray modified by NiFeCo layered double hydroxide quantum dots as highly efficient bifunctional electrocatalysts in anion exchange membrane water electrolysis

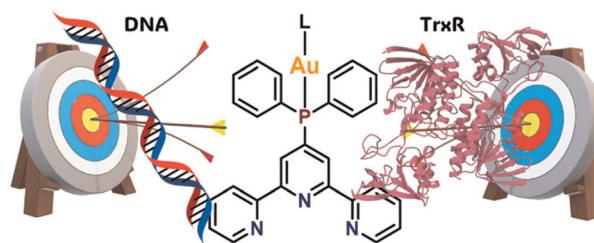
Lina Li, Shuang Liu, Tao Yang,* Linlin Zhou, Kang Wang, Enhui Wang, Xiangtao Yu, Kuo-Chih Chou, Rui Guo, Zhen Ma and Xinmei Hou*



4802

A dual approach to cancer treatment: gold(i) terpyridine derivatives as DNA binders and inhibitors of mammalian thioredoxin reductase

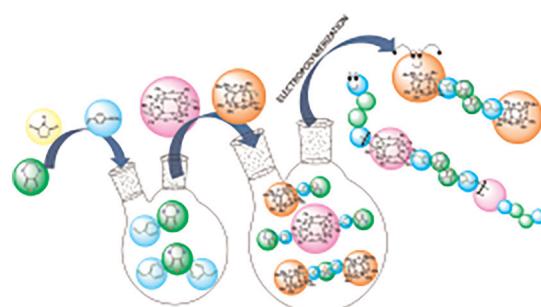
Maria Gil-Moles, M. Elena Olmos, José M. López-de-Luzuriaga,* Ingo Ott* and M. Concepción Gimeno*



4815

New EDOT–SQ systems for electrochromic applications

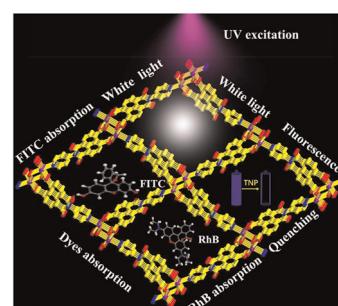
Aleksandra Mermela, Monika Wałęsa-Chorab, Monika Ludwiczak and Patrycja Żak*



4826

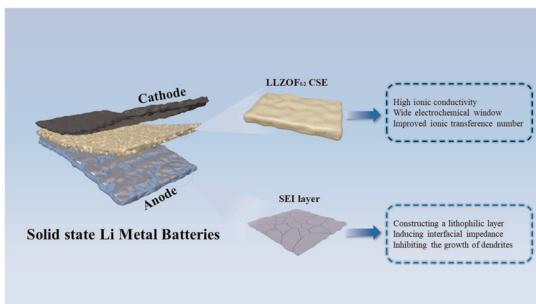
Single-component rare-earth-free white light-emitting metal–organic framework towards nitroaromatic explosive sensing and dye adsorption

Yan-Wu Zhao, Bin Xue, Nan Zhang, Li-E Guo, Sheng-Yan Zhu and Xian-Ming Zhang*



RESEARCH ARTICLES

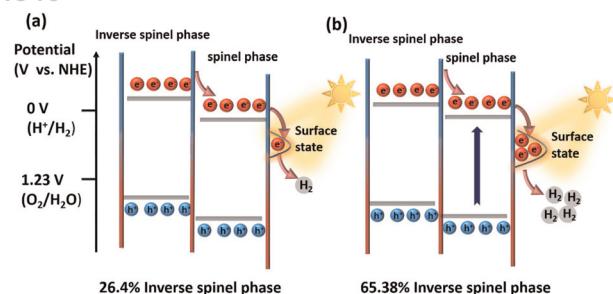
4835



Dendrite-free solid-state lithium batteries enabled by a fluorine doped $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ composite electrolyte and LiAlF_4 interphase

Yuezhen Mao, Fanghui Mi, Tianyuan Wang, Zhijun Zhang and Chunwen Sun*

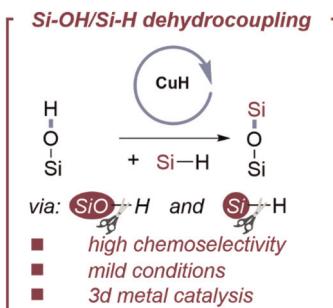
4846



Controllable phase transition dependent photoinduced charge separation in CuFe_2O_4 for photocatalytic hydrogen evolution

Dongfen Hou, Jingqi Tian, Jingying Wei, Dailing Jia, Ke Ma, Huagu Xue and Tengfei Jiang*

4855



Copper-driven formation of siloxanes via dehydrocoupling between hydrosilanes and silanols

Martyna Markwitz, Kacper Łyczek, Qingqing Bu and Krzysztof Kuciński*

4867



Highly efficient NIR-II photothermal conversion from a 2,2'-biquinoline-4,4'-dicarboxylate-based photochromic complex

Ning-Ning Zhang, Ya-Tong Liu, Li Li, Xiang-Tong Liu, Ke Xu, Zhen-Yu Li and Yong Yan*



RESEARCH ARTICLES

4876

Bimetallic ZnCo-MOF derived porous Ir-doped cobalt oxides for water oxidation with improved activity and stability

Junliang Chen, Jie Liu, Shaojie Xu, Yi Wu, Yunan Ye and Jinjie Qian*

