

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 61(41) 7345–7520 (2025)



Cover

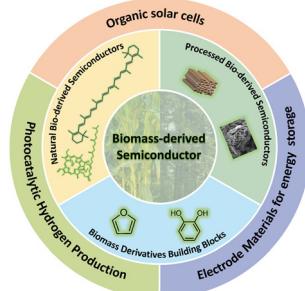
See XiaoYing Sun, Bo Li
et al., pp. 7368–7383.
Image reproduced by
permission of Bo Li from
Chem. Commun.,
2025, 61, 7368.

HIGHLIGHT

7356

Biomass-derived semiconductors for renewable energy technologies

Siyu Ji, Shuyao Tian, Pengcheng Guan and Xu-Hui Jin*

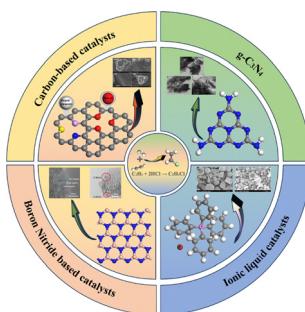


FEATURE ARTICLES

7368

Current status and perspective of metal-free materials as catalysts in acetylene hydrochlorination: active site, dopant, and mechanism

HuiJie Wang, LingLing Shang, BaiRan Wang,
XiaoYing Sun* and Bo Li*



GOLD
OPEN
ACCESS

EES Batteries

Exceptional research on
batteries and energy storage

Part of the EES family

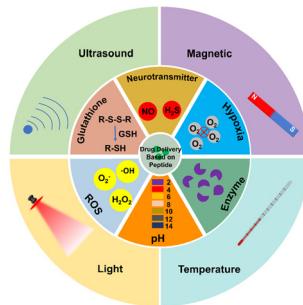
Join
in | Publish with us
rsc.li/EESBatteries

FEATURE ARTICLES

7384

Stimuli-responsive peptide-based nanodrug delivery systems for tumor therapy

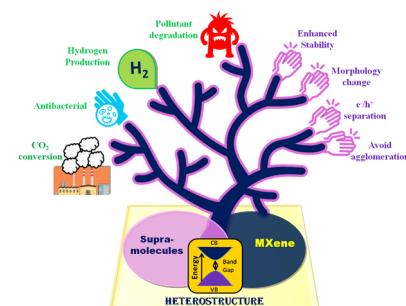
Lei Zhou, Ting-Jie Zhang, Lu Zhang, Qiu-Ying Deng,
 Zhi-Yu Xia, Si-Lin Chen, Dong-Bing Cheng,*
 Zeng-Ying Qiao* and Hao Wang*



7408

Supramolecular structure@MXenes for photocatalytic applications – a review

Pankaj Verma, Jan H. van Maarseveen and
 N. Raveendran Shiju*

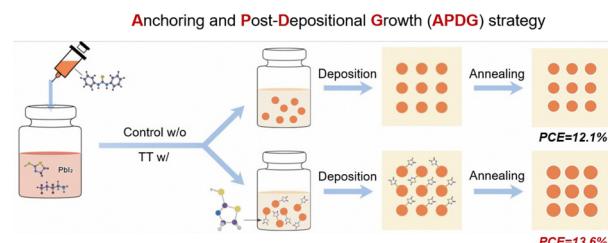


COMMUNICATIONS

7426

Anchoring and post-depositional growth enables matrix manipulation of PbS QD inks and efficient solar cells

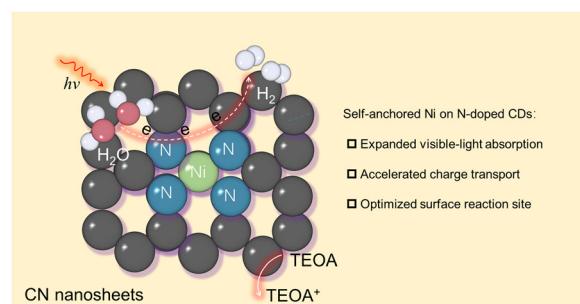
Haotian Gao, Leliang Song, Kunyuan Lu,* Qingda Chang,
 Haoyu Zhao, Xiaobo Ding, Qianqian Lin, Chuang Zhang,
 Zeke Liu* and Wanli Ma*



7430

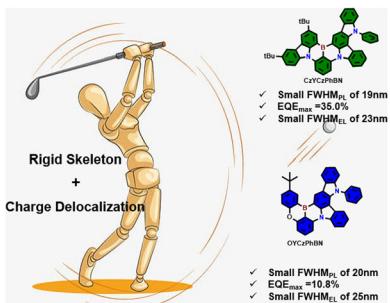
Self-anchored nickel cocatalyst on nitrogen-doped carbon dots for enhanced photocatalytic hydrogen evolution

Weiqin Yin, Ganghua Zhou, Xin Ning,* Xiaozhi Wang*
 and Xingwang Zhu*



COMMUNICATIONS

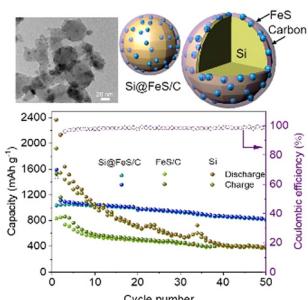
7434



Synergistic optimization of MR-TADF materials via a rigid skeleton and charge delocalization for enhanced photoluminescence and electroluminescence performance

Jun-Yi Wang, Hao-Ran Zheng, Xunwen Xiao* and Xu-Feng Luo*

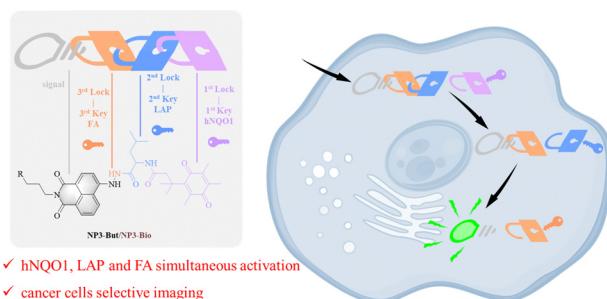
7438



Engineering iron sulfide/carbon co-coated silicon nanoparticles as a lithium-ion battery anode displaying stable capacity and rate-performance

Jinyun Liu,* Hui Zhang, Kehao Tao, Yajun Zhu, Shenglan Li, Yongmei Hua, Huizi Songtian, Tianli Han* and Jinjin Li*

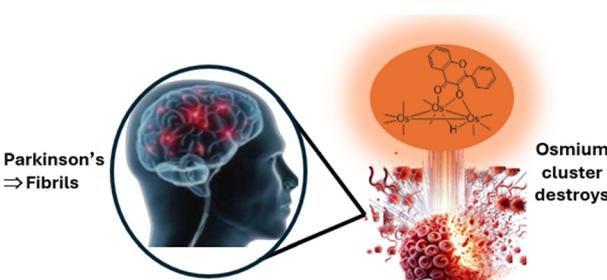
7442



Triple-locked fluorescent probes sequentially activated by hNQO1, LAP and FA: application in bioimaging of cancer cells

Langping Zhou, Han Chen, Weibing Zhang* and Junhong Qian*

7446



A triosmium carbonyl cluster that inhibits α -synuclein aggregation and disassembles preformed aggregates

Xin Liang, Balasz Gulyas, Mathangi Palanivel and Weng Kee Leong*

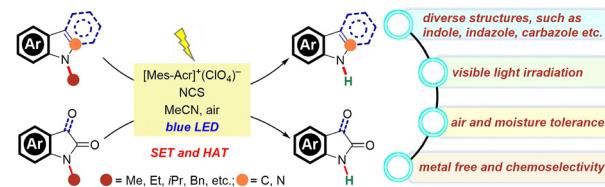


COMMUNICATIONS

7450

Visible-light-induced acridinium-catalyzed selective *N*-dealkylation of N-heterocycles

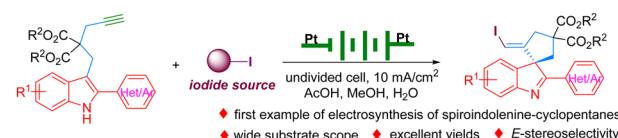
Shanshan Liu,* Yaoyao Zhang, Xianying Zhou and Lin-Yu Jiao*



7454

Electrochemical reaction of indole-tethered alkynes enabling stereoselective synthesis of iodovinyl spiroindolenine-cyclopentanes

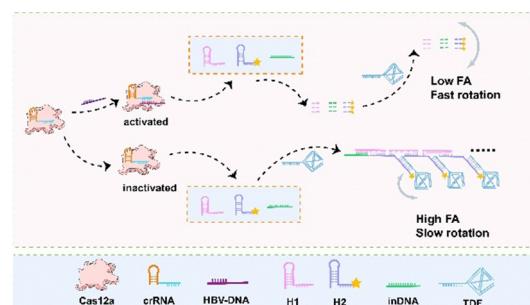
Jingrui He, Xinrui Zhou, Haibo Mei,* Ata Makarem, Ramin Javahershenas, Vadim A. Soloshonok and Jianlin Han*



7458

A novel CRISPR–Cas12a-based fluorescence anisotropy method with a high signal-to-background ratio for sensitive biosensing

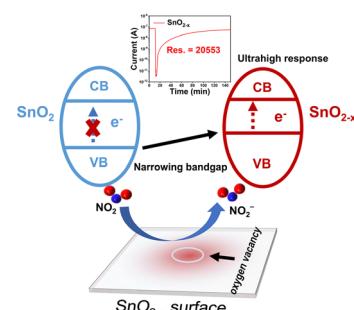
Yu Qin, Jia Li Xie, Kai Mao, Yuan Fang Li, Cheng Zhi Huang, Hong Yan Zou* and Shu Jun Zhen*



7462

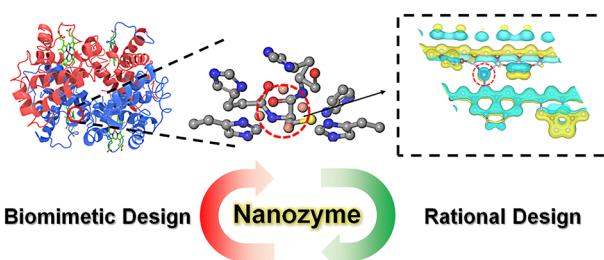
Enriched oxygen vacancies in SnO_{2-x} with narrow bandgap for highly sensitive gas sensing

Pei-Xuan Wu, Bo-Jing Ruan, Ke-Feng Li, Wei-Hua Deng,* Yong-Jun Chen* and Gang Xu



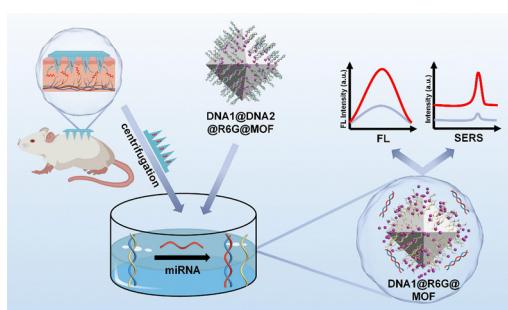
COMMUNICATIONS

7466

**Bioinspired single-atom nanzymes for microplastic degradation**

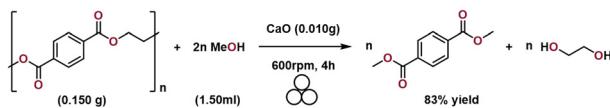
Yonghui Gao, Bin Pan, Yimeng Wang and Zhiling Zhu*

7470

***In situ* enrichment and ultrasensitive analysis of interstitial fluid miRNA enabled by hydrogel microneedles coupled with DNA-gated metal–organic frameworks**

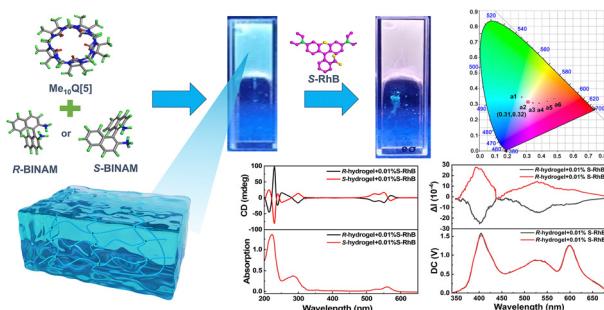
Kun Zou, Zhe Hao, Yu Liu,* Ruizhong Zhang,* Xiyan Li and Libing Zhang*

7474

**Mechanochemical methanolysis of polyethylene terephthalate using calcium oxide as solid base catalyst: a case study**

Sophea Chrea and Atsushi Takagaki*

7478

**Circularly polarized luminescence from decamethylcucurbit[5]uril-triggered chiral supramolecular hydrogels**

Bing An, Qingmei Ge, Hang Cong* and Ruihan Gao*



COMMUNICATIONS

7482

Synthesis of 1*H*-isothiochromenes by regioselective C–C and C–S bond formation of enaminothiones with alkynes under rhodium catalysis

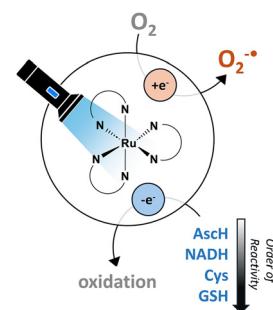
Kelu Yan,* Yuhang Sun, Jiangwei Wen, Qiuyun Li, Xinming Yu, Wenxu Shang and Xiu Wang



7486

Photocatalytic oxidation of biologically relevant reducing agents by $[\text{Ru}(\text{bpy})_3](\text{PF}_6)_2$

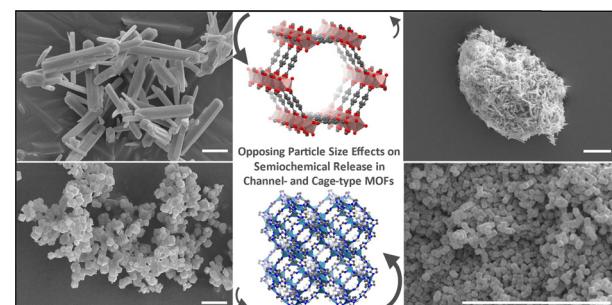
Iman Doumi, Daniella Al Othman, Shao-An Hua, Vincent Lebrun, Franc Meyer and Peter Faller*



7490

Particle size effects on vapour uptake and release dynamics in metal–organic frameworks

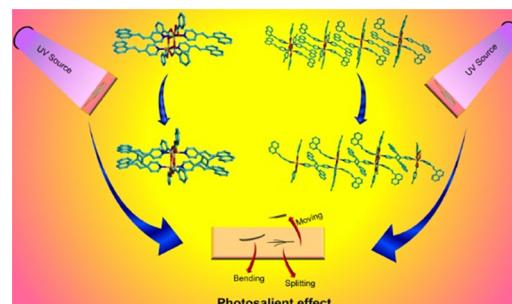
Joshua Nicks,* Cosmin Mudure, Jordan James, Alexander McDougall, William O. H. Hughes, John Spencer, Tina Düren and Andrew D. Burrows*



7494

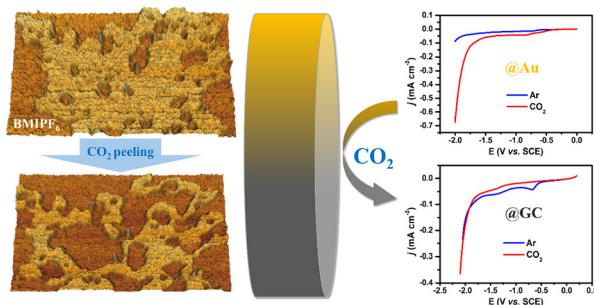
Light-driven structural transformations in isotypal Cd(II) complexes: stereoselectivity and photosalient motion

Uma Kurakula, Sanobar Naaz, Sourav Roy, Samim Khan, Abdul Malik Puthan Peedikakkal,* Raghavender Medishetty* and Mohammad Hidayetullah Mir*



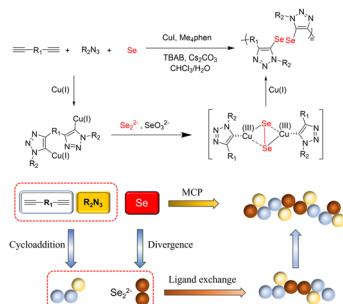
COMMUNICATIONS

7498

**Unveiling the CO₂ electrocatalytic mechanism in ionic liquids via real-time AFM and voltammetry**

Kaixuan Li, Shuai Liu, Ting Wang, Bingwei Mao* and Jiawei Yan*

7502

**Copper-catalyzed multicomponent polymerization of elemental selenium for regioselective synthesis of poly(5-diselenide-triazole)s**

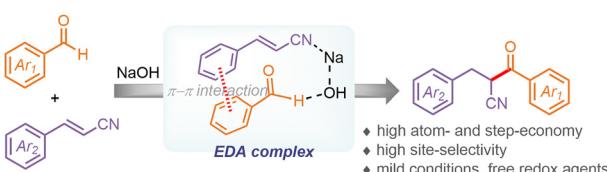
Yangyang Yue, Chen Qu, Nan Zheng, Yubin Zheng* and Wangze Song*

7506

**Bistricyclic aromatic enes with fast conformational transition for ultrathin piezochromic films**

Xiang-Ru Liu, Yihao Yin, Xian-Xian Xiao, Lin Zheng, Yan-Na Lu, Jun-Shuai Chen, Jin-Hui Gu, Yunjie Lu, Jia-Sen Xie, Mingwei Gu, Zhi-Guang Xu and Jin Ge*

7510

**Direct hydroacylation of arylacrylonitriles toward β-ketonitriles assisted by an EDA complex**

Zhenhui Wang, Shiqing Huang, Hao Hou, Wei Liu* and Wei Ou*



COMMUNICATIONS

7514

Electrocatalytic reduction of carbon dioxide using Cu-based ecocatalysts

Hong Phong Duong, Ngoc-Huan Tran,
Pierre-Alexandre Deyris, Yves-Marie Legrand,
Peter Hesemann, Claude Grison, Claire M. Grison* and
Marc Fontecave*

