

IN THIS ISSUE

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Cover

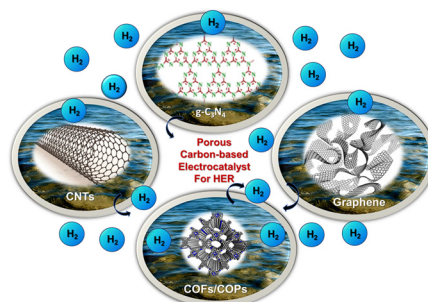
See Takahiro Iwamoto
et al., pp. 8180–8183.
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Takahiro Iwamoto from
Chem. Commun.,
2025, 61, 8180.

HIGHLIGHTS

8108

Metal-free carbon-based porous materials, promising electrocatalysts for hydrogen fuel production

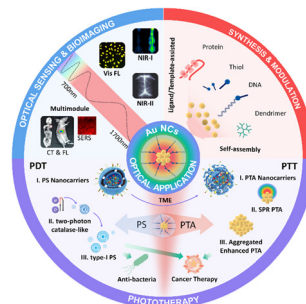
Siddhartha Samanta and Anirban Pradhan*



8120

Engineering ultrasmall gold nanoclusters: tailored optical modulation for phototherapeutic and multimodal biomedical applications

Wei Xiong, Yibao Huang, Chenxiao Zhao, Quan Luo,*
Linlu Zhao,* Fabiao Yu* and Ziyi Cheng*



Environmental Science: Atmospheres

GOLD
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and inspiring new ideas



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Fundamental questions
Elemental answers

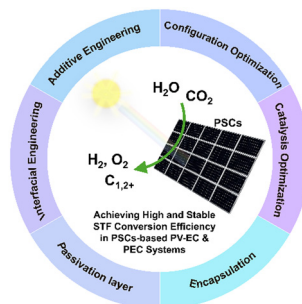


FEATURE ARTICLES

8137

Engineering perovskite solar cells for photovoltaic and photoelectrochemical systems: strategies for enhancing efficiency and stability

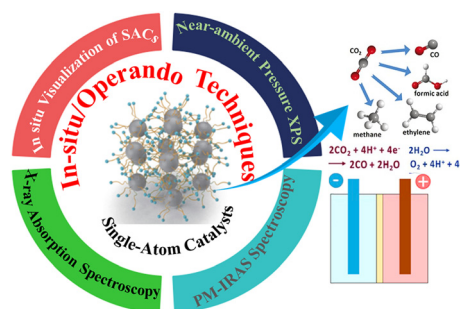
Won Jin Jang, Pil Ju Park, Joonhee Ma and Soo Young Kim*



8157

Operando characterization technique innovations in single-atom catalyst-derived electrochemical CO₂ conversion

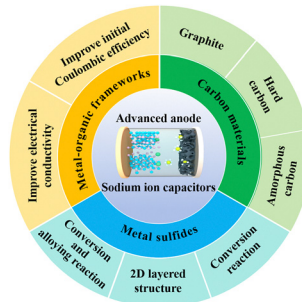
Syed Asim Ali, Iqra Sadiq and Tokeer Ahmad*



8170

Recent developments in advanced anode materials for sodium-ion capacitors: a mini-review

Jieming Cai, Haoji Wang, Zhiyu Hu, Youcai Liu, Wentao Deng, Hongshuai Hou, Guoqiang Zou* and Xiaobo Ji

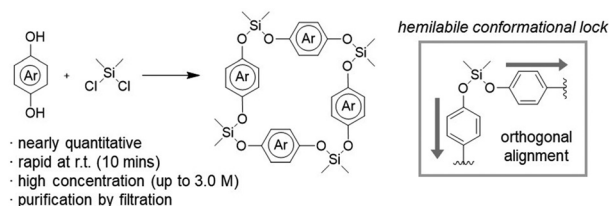


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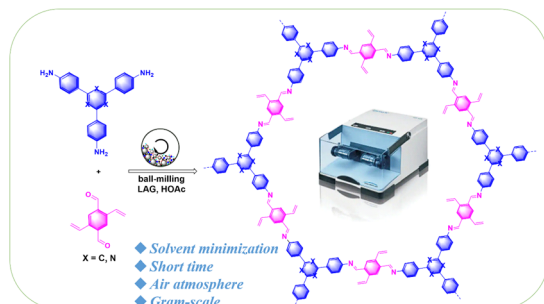
8180

Exclusive macrocyclization through multiple Si–O bond formations from diol and dichlorosilane

Takahiro Iwamoto,* Sota Amano, Kousuke Maeda, Natsuki Shibama, Wakana Sekiguchi, Yuki Kazama, Yasuyuki Nakamura, Koh Sugamata, Hiroaki Imoto, Kensuke Naka and Youichi Ishii



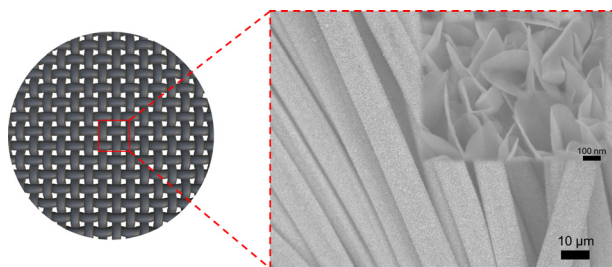
8184



Mechanochemically synthesized covalent organic frameworks as catalysts for the Suzuki–Miyaura coupling reaction

Hong Pan, Nana Wang and Guan-Wu Wang*

8188

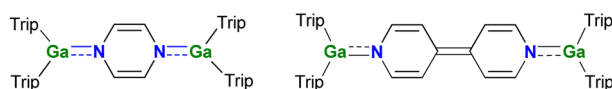


Planting MoS₂ nanosheets so that they stand vertically on a substrate using a dynamic magnetic field

Ruifeng Qi, Yong Cheng, Jinhong Hou, Xiaohua Qiao, Junqi Liu and Qingsong Huang*

8192

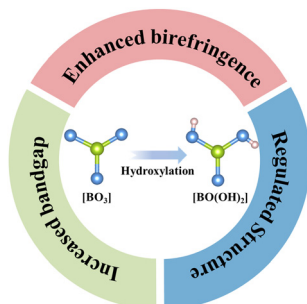
Heavier analogues of Thiele's and Chichibabin's hydrocarbons



Isolable GaN-based analogues of Thiele's and Chichibabin's hydrocarbons

Yuqi Jiang, Guo Pan, Ren Zhou, Ruihao Huang, Dongmei Ran, Daqian Xu* and Yuanting Su*

8196



CsBO(OH)₂: a new hydroxyborate with the rare [BO(OH)₂] group and a deep ultraviolet cutoff edge

Jinbin Fan, Luyong Zhang, Zilong Chen, Huimin Li, Zhihua Yang, Yun Yang, Fangfang Zhang* and Shilie Pan*

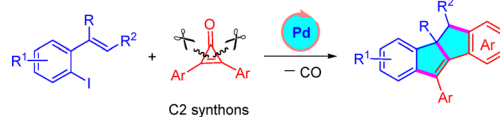


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8200

Palladium-catalyzed sequential [3+2] cyclization/C–H activation of *o*-iodostyrenes with cyclopropanones as C2 synthons

Jie Sun, Shaojie Zhang, Ruixue Wang, Zeng Lv and Xin-Xing Wu*

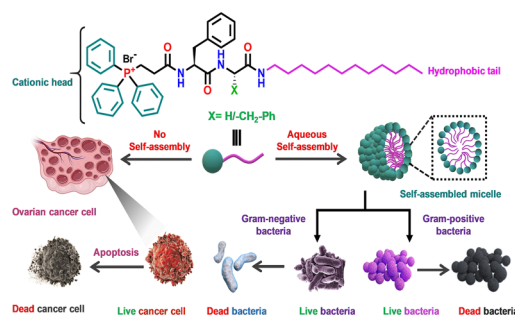


- ✓ C–C bonds cleavage of cyclopropanone
- ✓ Synthesis of tetracyclic products
- ✓ Constructed three C–C bonds in one pot
- ✓ Construction of quarterly carbon center

8204

Triphenyl phosphonium functionalized amphiphilic peptides as promising antibacterial and anticancer agents

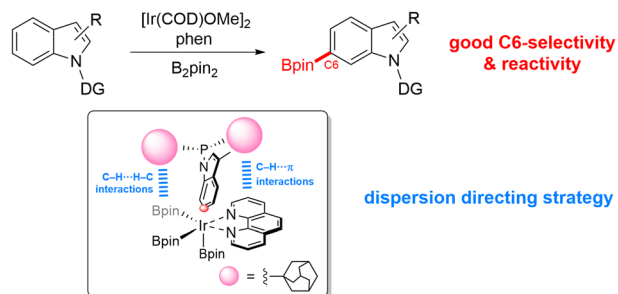
Tanushree Mondal, Sraddhya Roy, Ananya Das, Sagnik Banerjee, Biplab Mondal, Nabanita Chatterjee and Arindam Banerjee*



8208

Dispersion-controlled C6-selective C–H borylation of indoles

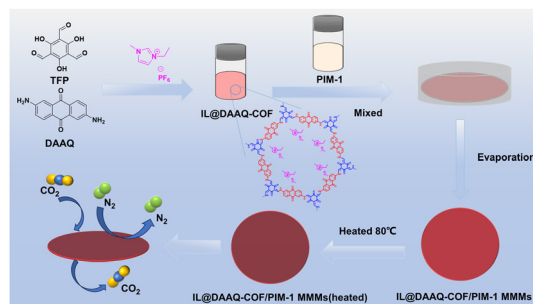
Tianyu Zheng, Hao Jiang, Jiawei Ma, Haochi Chen, Zhuangzhi Shi and Yong Liang*



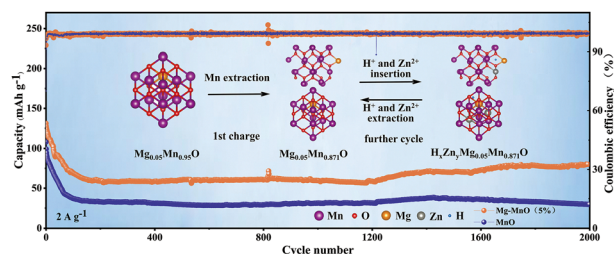
8212

A phase-transition ionic liquid endows COF-based mixed matrix membranes with efficient CO₂ separation

Shuyu Guo, Jingrao He, Hailong Han, Rui Han, Junxi Shou, Chenxiang Ai, Ruiren Tang, Shuai Gu,* Juntao Tang* and Guipeng Yu*



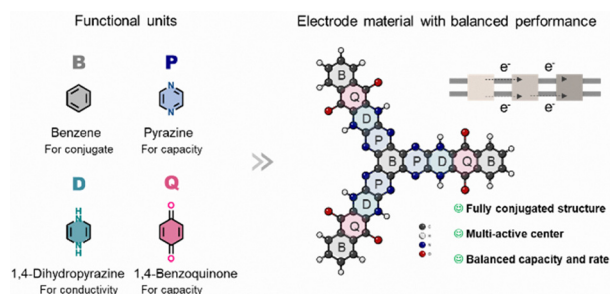
8216



Compositional doping and structure insights for high-performance aqueous Zn-ion batteries

Jianxin Yang, Yuchen Jiang, Tao Wang, Shuai Tong, Yang Wang, Dianwu Kang, Shutong Lu, Mengqi Zhang, Min Jia* and Xiaoyu Zhang*

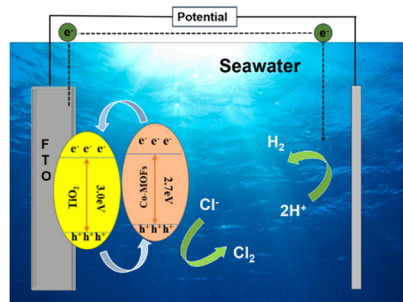
8220



DNA-inspired design of organic electrode materials for high-performance aqueous Zn-ion batteries

Liqu Tang, Mengpei Qi, Chi-Pong Tsui, Qing Zhang, Chak-Yin Tang, Yunhai Zhu* and Yingkui Yang*

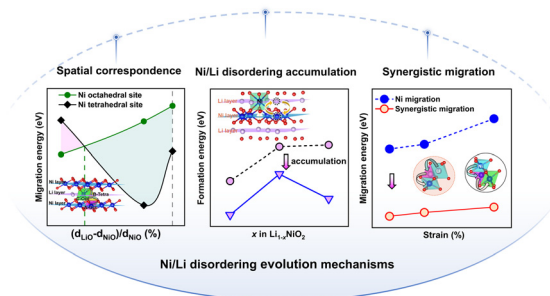
8224



Co-MOF incorporated TiO₂ nanorods for the photoelectrocatalytic decomposition of seawater aimed at hydrogen production and the concurrent synthesis of HClO

Chenhang Huangfu, Yuncai Song, Xiaohong Li, Wanggang Zhang, Jian Wang* and Yiming Liu*

8228



The Ni/Li disordering evolution mechanisms in Ni-based layered cathode materials: insights from first-principles calculations

Fanghua Ning, Huiying Zhang, Jingwen Dai, Xiaoyu Liu, Shigang Lu and Jin Yi*

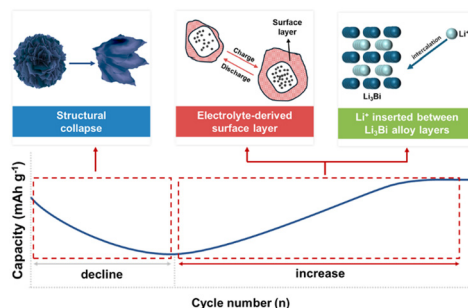


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The exploration and analysis of the superfluous lithium storage capacity of a Bi_2Se_3 -based composite

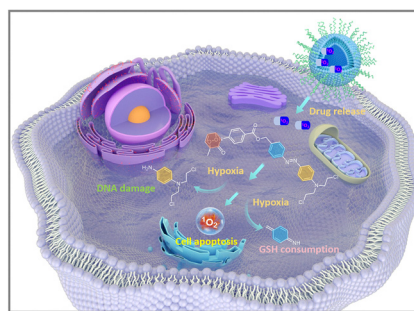
Zidong He, Zhenglei Geng, Yujie Huang, Xue Zhong, Yujin Li, Siyang Gan, Meiqing Guo,* Wentao Deng, Guoqiang Zou, Hongshuai Hou* and Xiaobo Ji



8236

Hypoxia-triggered singlet oxygen and nitrogen mustard release towards a synergistic therapeutic action

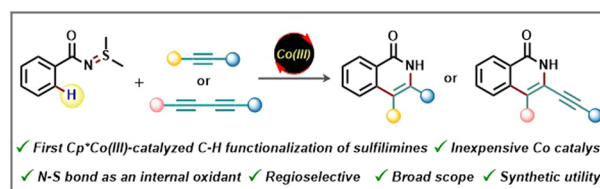
Yuan Qiao, Yun Nie, Yu Si, Xiao Qian, Yingxu Wu, Zhihao Chen, Tingting Zhang, Bing Liu,* Lei Wang* and Engin U. Akkaya*



8240

Harnessing sulfilimine as an oxidizing directing group in $\text{Cp}^*\text{Co(III)}$ -catalyzed [4+2] annulation with alkynes and 1,3-diynes

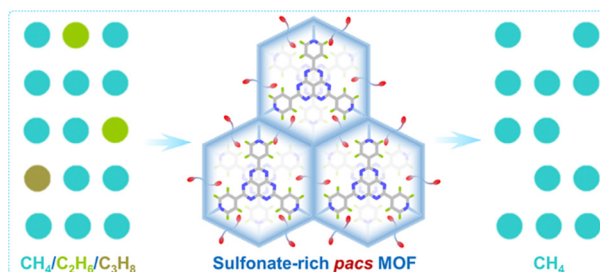
Arijit Ghosh and Amit B. Pawar*



8244

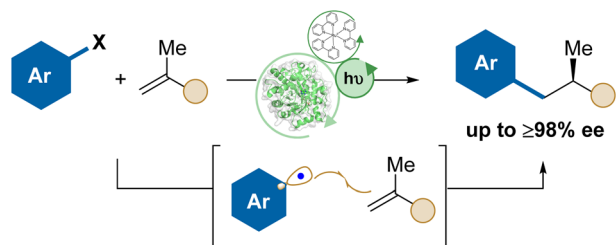
Pore space partition on a sulfonate-rich metal-organic framework for purification of methane from natural gas

Chaozhuang Xue,* Hui Peng, Jinle Hou and Konggang Qu



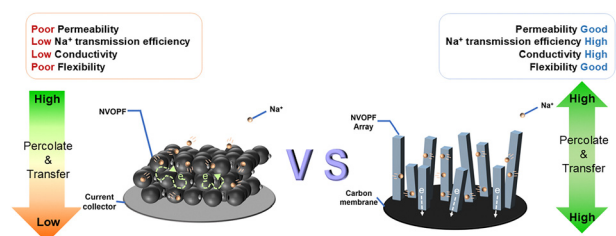
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**Photoenzymatically-induced asymmetric hydroarylation of alkenes with (hetero)aryl halides**

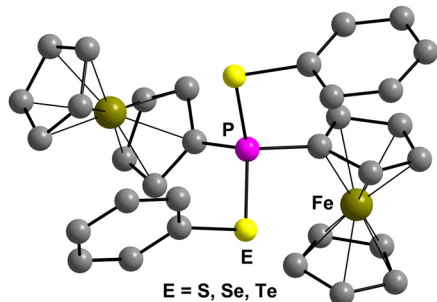
Corey L. Jones, Alandra Quinn, Xiaochun (Alex) Wang, Jason K. Smith, Jeffrey M. Casavant, Simon Berritt, Thomas Knauber, Carlos A. Martinez, Jovan Livada, Scott P. France, Paul Richardson, Roger M. Howard* and Hatice G. Yayla*

8252

**Orthogonal decoupling of an ionic-electronic transport microarchitectured vertical array cathode for flexible sodium-ion batteries**

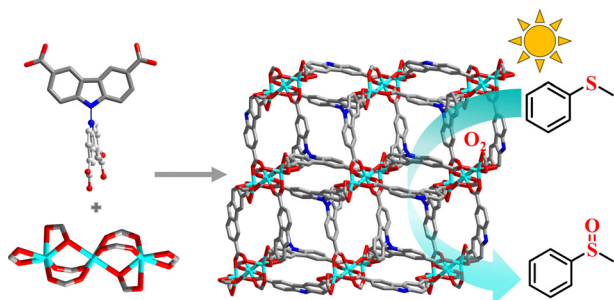
Long Li,* Ze Li, Jiaqi Meng, Xiaolong Zhu, Yu Meng, Andrey S. Vasenko, Dongyu Liu, Xingxing Jiao, Zhongxiao Song, Yangyang Liu* and Shujiang Ding*

8256

**Oxidative addition of diaryldichalcogenides to the diferrocenylphosphonium ion: synthesis, structure and organocatalytic activity**

Corina Stoian, Nils Schmidt, Thomas J. Kuczmera, Pim Puylaert, Enno Lork, Boris J. Nachtsheim,* Emanuel Hupf* and Jens Beckmann*

8260

**Carbazole-functionalized MOFs for efficient selective photocatalytic oxidation of thioethers to sulfoxides**

Dan Zhang, Mengrui Zhang, Xu Jing* and Chunying Duan

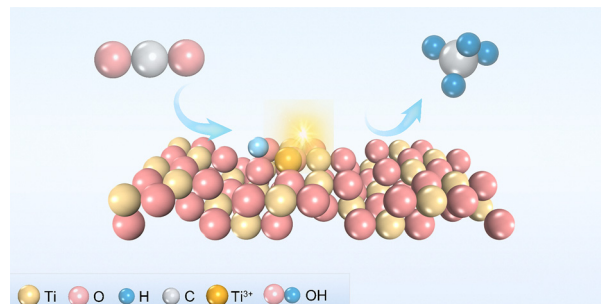


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Selective photoreduction of diluted CO₂ to CH₄ via topotactic transformation of mixed metal oxides derived from NiAlTi-LDH

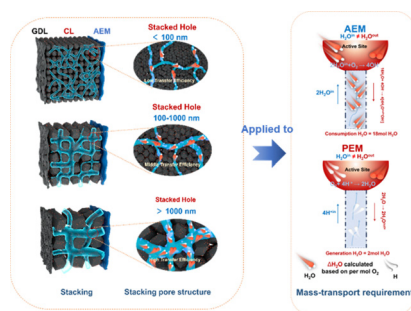
Zhangyi Hu, Da Ke, Jiahao Min, Hongzhou Yang, Qingwen Meng, Fan Tian, Yu Chen, Xuyang Xiong,* Zuozuo Wu* and Tengfei Zhou*



8268

Boosting the stability of a non-precious fuel cell catalyst via triple pyrolysis and stacking-pore regulation

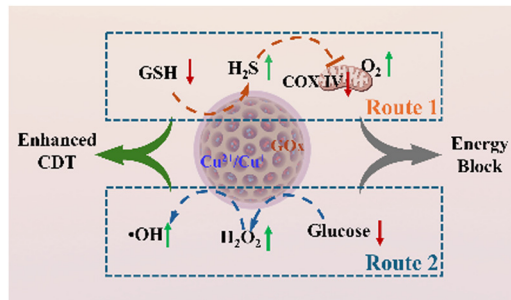
Xizhi Yang, Yanyan Xie, Zhenyang Xie, Jian Wang* and Wei Ding*



8272

An efficient nanoreactor reverses the tumor immunosuppressive microenvironment through synergetic dual-route reactions

Mingchao Xia, Hanxiang Li, Yuhang Wang, Hao Zhang and Zhengze Yu*



8276

N-doped carbon dots as electrolytes to boost photoelectrochemical water oxidation for a photo-assisted zinc–air battery

Zibo An, Chen-Guang Li, Yong-Shuai Zhang, Lei Zhang, Hui-Min Duan, Liu-Meng Mo and Hong-Yan Wang*

