

# Chem Soc Rev

Chemical Society Reviews

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## IN THIS ISSUE

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### Cover

See Jingyun Fang, Yijiang Liu, Zhiqun Lin *et al.*, pp. 2154–2187. Image reproduced by permission of Zhiqun Lin from *Chem. Soc. Rev.*, 2025, 54, 2154.



### Inside cover

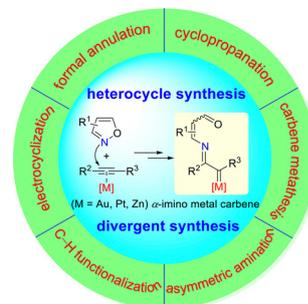
See Junwang Tang *et al.*, pp. 2188–2207. Image reproduced by permission of Junwang Tang from *Chem. Soc. Rev.*, 2025, 54, 2188.

## TUTORIAL REVIEW

2137

### Isoxazoles as efficient alkyne amination reagents in divergent heterocycle synthesis

Xin-Qi Zhu,\* Zhi-Xu Meng, Bo Zhou, Ming-Yu Teng and Long-Wu Ye\*

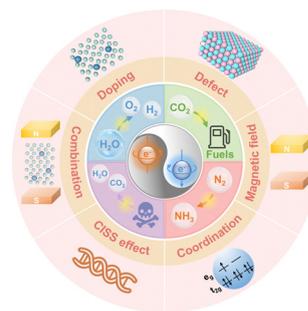


## REVIEW ARTICLES

2154

### Optimizing photocatalysis *via* electron spin control

Shaoxiong He, Yanxi Chen, Jingyun Fang,\* Yijiang Liu\* and Zhiqun Lin\*



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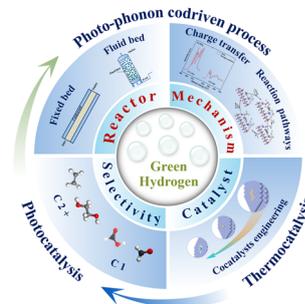


## REVIEW ARTICLES

2188

### From photocatalysis to photon–phonon co-driven catalysis for methanol reforming to hydrogen and valuable by-products

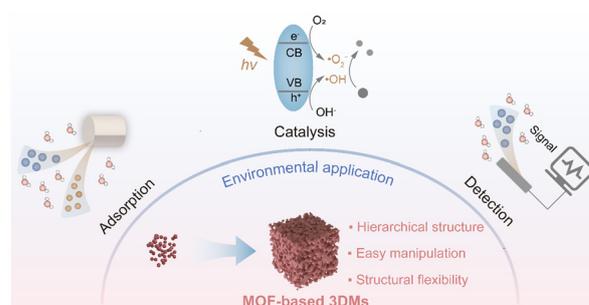
Hui Wang, Eleana Harkou, Achilleas Constantinou, Sultan M. Al-Salemc, George Manos and Junwang Tang\*



2208

### Environmental applications of metal–organic framework-based three-dimensional macrostructures: a review

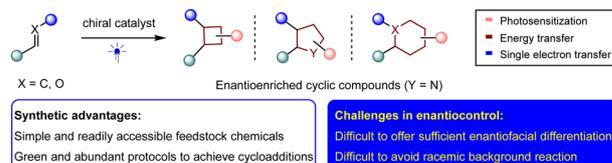
Cheng Chen, Liguo Shen,\* Boya Wang, Xinchun Lu, Saleem Raza, Jiujing Xu, Bisheng Li, Hongjun Lin\* and Banglin Chen\*



2246

### Catalytic asymmetric photocycloaddition reactions mediated by enantioselective radical approaches

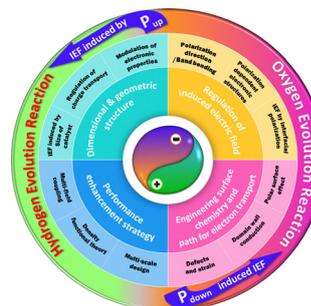
Yanli Yin, Mengdi You, Xiangtao Li and Zhiyong Jiang\*



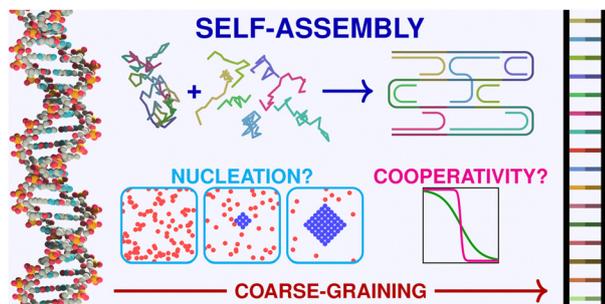
2275

### Dynamic regulation of ferroelectric polarization using external stimuli for efficient water splitting and beyond

Sundaram Chandrasekaran,\* Qingping Wang, Qiong Liu, Huihui Wang, Dingrong Qiu, Huidan Lu, Yongping Liu,\* Chris Bowen\* and Haitao Huang\*



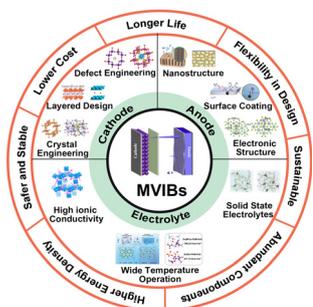
2344



### Models and simulations of structural DNA nanotechnology reveal fundamental principles of self-assembly

Alexander Cumberworth and Aleks Reinhardt\*

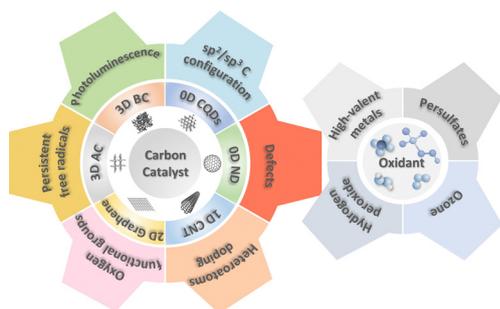
2369



### Enabling high-performance multivalent metal-ion batteries: current advances and future prospects

Asif Mahmood,\* Zhe Bai, Tan Wang, Yaojie Lei, Shijian Wang, Bing Sun, Hajra Khan, Karim Khan, Kening Sun\* and Guoxiu Wang\*

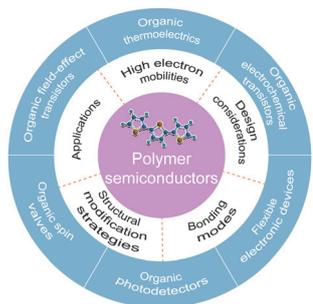
2436



### Carbonaceous materials in structural dimensions for advanced oxidation processes

Yunpeng Wang, Ya Liu, Huayang Zhang, Xiaoguang Duan, Jun Ma,\* Hongqi Sun, Wenjie Tian\* and Shaobin Wang\*

2483



### Recent developments in polymer semiconductors with excellent electron transport performances

Yunchao Zhang, Weifeng Zhang, Zhihui Chen, Liping Wang and Gui Yu\*

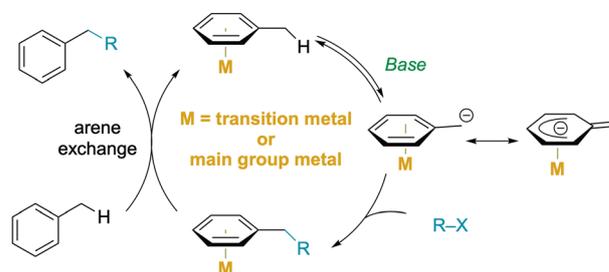


## REVIEW ARTICLES

2520

**C–H functionalization through benzylic deprotonation with  $\pi$ -coordination or cation– $\pi$ -interactions**

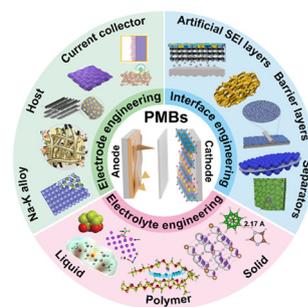
Hui Zhu(s), Yu Wu, Jianyou Mao, Jingkai Xu, Patrick J. Walsh\* and Hang Shi\*



2543

**Recent advances in potassium metal batteries: electrodes, interfaces and electrolytes**

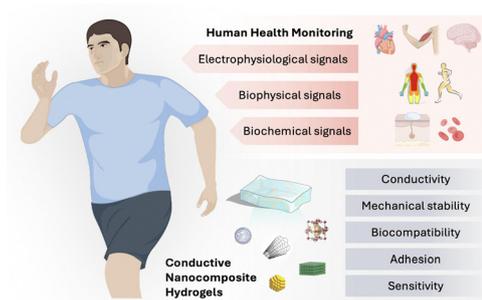
Jianlu Sun, Yichen Du, Yijiang Liu, Dongbo Yan, Xiaodong Li, Dong Ha Kim,\* Zhiqun Lin\* and Xiaosi Zhou\*



2595

**Advances in conducting nanocomposite hydrogels for wearable bionitoring**

Arpita Roy, Ronak Afshari, Saumya Jain, Yuting Zheng, Min-Hsuan Lin, Shea Zenkar, Junyi Yin, Jun Chen, Nicholas A. Peppas and Nasim Annabi\*



## CORRECTIONS

2653

**Correction: From photocatalysis to photon–phonon co-driven catalysis for methanol reforming to hydrogen and valuable by-products**

Hui Wang, Eleana Harkou, Achilleas Constantinou, Sultan M. Al-Salem, George Manos and Junwang Tang\*



## CORRECTIONS

2654

**Correction: Unified approaches in transition metal catalyzed C(sp<sup>3</sup>)-H functionalization: recent advances and mechanistic aspects**

Jagrit Grover, Amal Tom Sebastian, Siddhartha Maiti, Alex C. Bissember\* and Debabrata Maiti\*

