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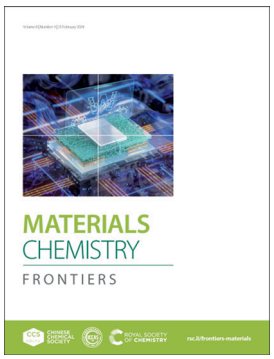

Cover
See Yang Wang *et al.*, pp. 1101–1111. Image reproduced by permission of Yang Wang from *Mater. Chem. Front.*, 2024, **8**, 1101.

REVIEWS

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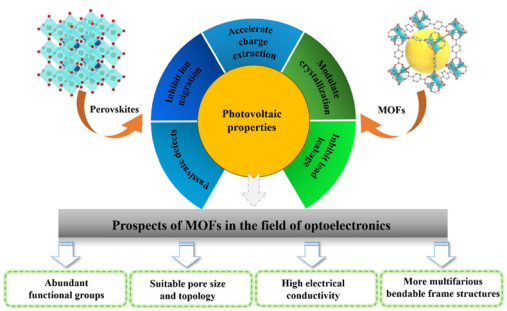
Applications of multifunctional metal–organic frameworks in perovskite photovoltaics: roles, advantages and prospects

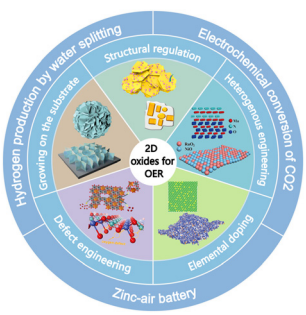
Ming-Wu Liu, Gengling Liu, Yu-Fen Wang,* Bing-Xin Lei* and Wu-Qiang Wu*



880

Two dimensional oxides for oxygen evolution reactions and related device applications

Ying Li, Yonggui Deng, Dongqing Liu, Qianqian Ji* and Xingke Cai*



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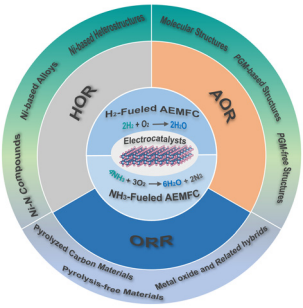
REVIEWS

903

Recent advances in metal-based electrocatalysts: from fundamentals and structural regulations to applications in anion-exchange membrane fuel cells

Ali Han and Gang Liu*



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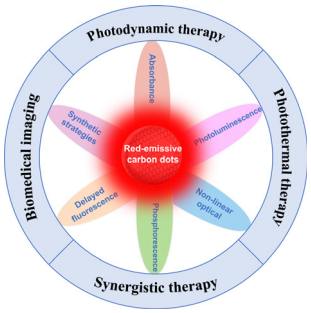
Recent advances in red-emissive carbon dots and their biomedical applications

Weixia Qin, Meiyan Wang, Yan Li, Longchuang Li, Khurram Abbas, Zijian Li, Antonio Claudio Tedesco and Hong Bi*



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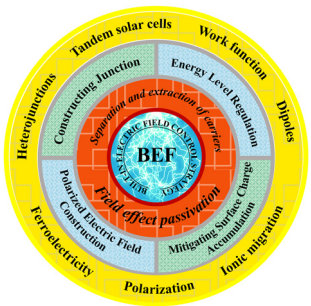
Reinforcing built-in electric field to enable efficient carrier extraction for high-performance perovskite solar cells

Jiahui Cheng, Huijie Cao, Shuming Zhang, Fang Yue* and Zhongmin Zhou*



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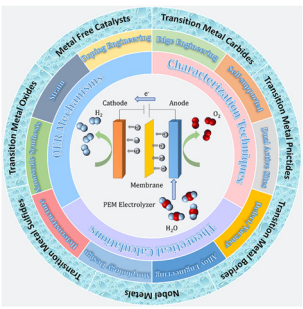
Recent progress and perspective for oxygen evolution reaction under acidic environments

Lianhua Chen, Yuting Liu, Hang Cong, Qingmei Ge, Wenfeng Zhao, Nan Jiang* and Qian Zhang*



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REVIEWS

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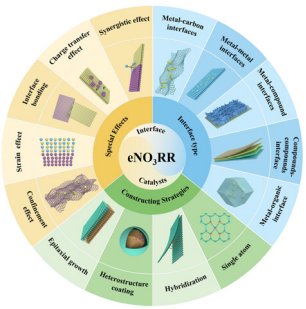

Engineering interfacial architectures toward nitrate electrocatalysis and nitrogen neutral cycle

Lin Gu, Hongxia Luo, Yingbing Zhang, Yuting Cong, Min Kuang* and Jianping Yang*

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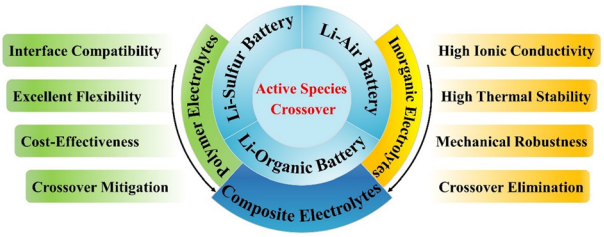

Solid-state electrolytes for inhibiting active species crossover in lithium metal batteries: a review

Chaoqiang Tan, Ziren Long, Shichao Zhang, Wei Zhong, Hao Cheng and Yingying Lu*

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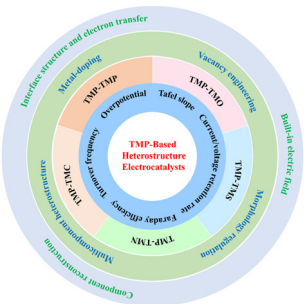

Recent advances in transition metal phosphide-based heterostructure electrocatalysts for the oxygen evolution reaction

Wangzhi Wu, Shuiping Luo, Yujin Huang, Huibing He, Pei Kang Shen and Jinliang Zhu*

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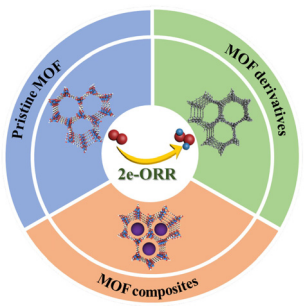

Metal–organic frameworks for electrocatalytic hydrogen peroxide production

Xinchan Zhang, Chaoqi Zhang, Chengzhong Yu* and Chao Liu*

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RESEARCH ARTICLES

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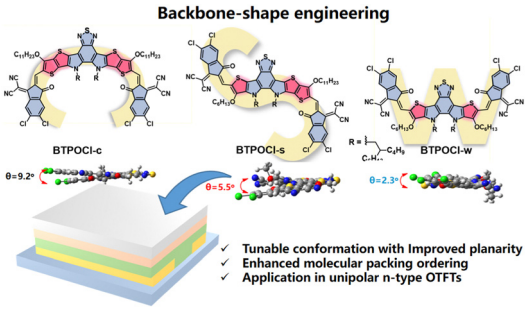
Backbone-shape engineering of fused-ring electron-deficient molecular semiconductors for unipolar n-type organic transistors: synthesis, conformation changes, and structure–property correlations

Zekun Chen, Zeng Wu, Yuzhong Chen, Shuixin Zhang, Zhen Jiang, Wenhao Li, Yan Zhao, Yang Wang* and Yunqi Liu



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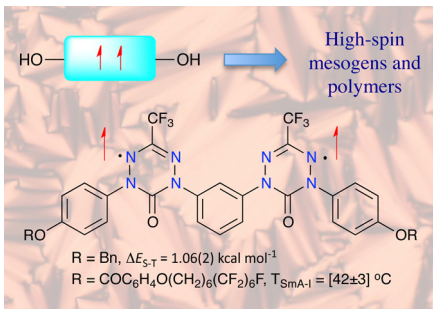
Mesogenic behavior of a 6-oxoverdazyl diradical: towards organic high-spin liquid crystals

Szymon Kapuściński, Jacek Szczytko, Damian Pociecha and Piotr Kaszyński*



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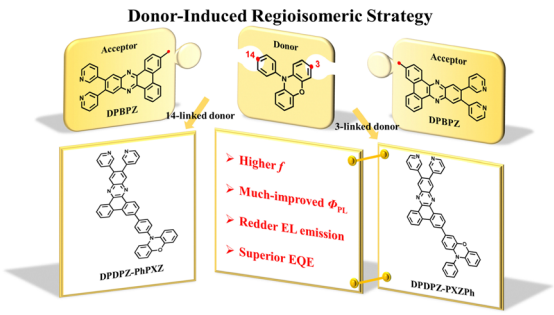
Multiplying the electroluminescence efficiencies of red TADF emitters *via* a regioisomeric approach of the donor unit

Xi Zhang, Hui Wang, Jia-Xiong Chen, Lu Zhou, Xiao-Yao Hao, Jia Yu, Kai Wang* and Xiao-Hong Zhang*



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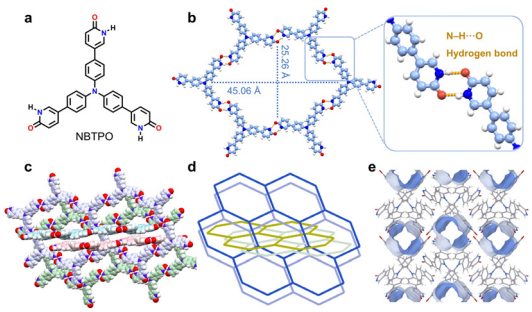
A stable pyridone-based hydrogen-bonded organic framework for electrochemical detection of dopamine

Yong-Min Liu, Bai-Tong Liu,* Yu-Lin Li, Jin-Lin Li, Tian-Fu Liu and Lei Cai*



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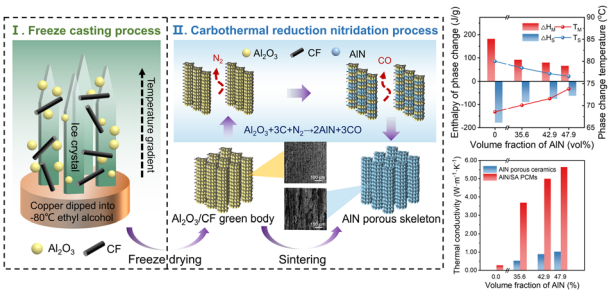

In situ construction of vertically aligned AlN skeletons for enhancing the thermal conductivity of stearic acid-based phase-change composites

Chang Yu, Pan Yang, Baokai Wang, Mengyi Li, Mengyang Niu, Kunjie Yuan, Weiwei Xuan, Qipeng Lu, Wenbin Cao and Qi Wang*

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