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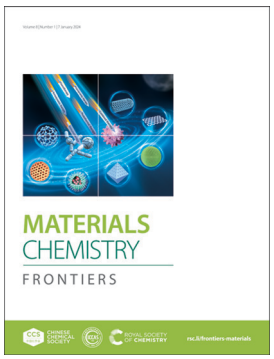

Cover
See Xuan Li, Ken Cham-Fai Leung *et al.*, pp. 9–40. Image reproduced by permission of Ken C.-F. Leung and Xuan Li *et al.* from *Mater. Chem. Front.*, 2024, **8**, 9.

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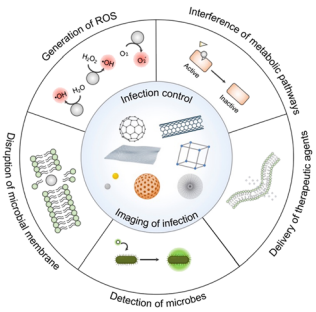
Nano-based theranostic approaches for infection control: current status and perspectives

Regina Huang, Qin Hu, Chung-Nga Ko, Fung Kit Tang, Shouhu Xuan, Hai Ming Wong, Lijian Jin, Xuan Li* and Ken Cham-Fai Leung*



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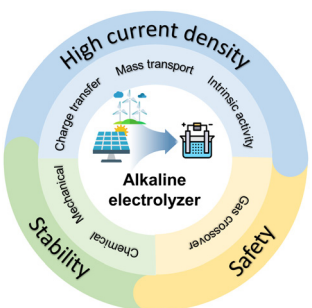
Critical challenges and opportunities for the commercialization of alkaline electrolysis: high current density, stability, and safety

Jiseok Kwon, Seunggun Choi, Chanjin Park, Hyuksu Han* and Taeseup Song*



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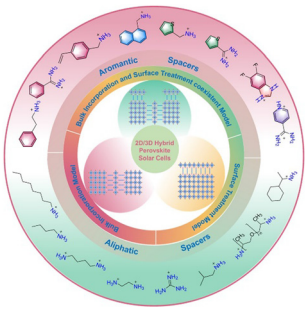
The role of organic spacers in 2D/3D hybrid perovskite solar cells

Yu Zou, Yuping Gao and Yongsheng Liu*



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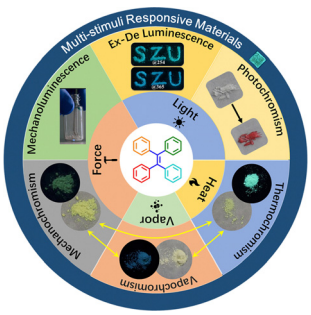
Colorful variation of tetraphenylethene derivatives in the solid state

Guangxi Huang, Xinxiang Du, Heng Bo and Bing Shi Li*



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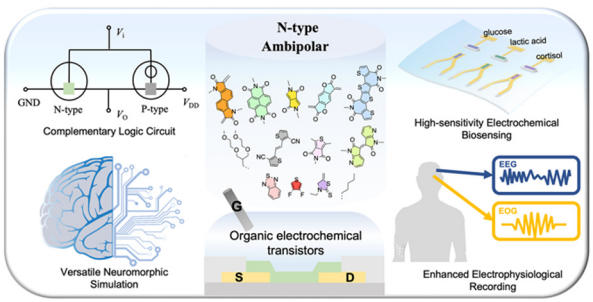
Materials design and applications of n-type and ambipolar organic electrochemical transistors

Yuqiu Lei, Peiyun Li, Yuting Zheng and Ting Lei*



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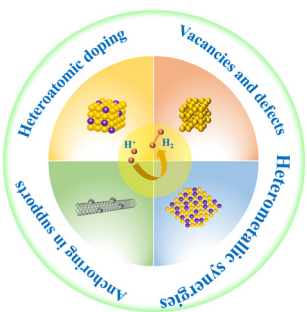
Sub-nanometric materials for hydrogen evolution reaction

Yaodong Yu, Ruixin Liu, Yuyao Sun, Ziyi Liu, Xinrong Shi, Jianping Lai* and Lei Wang*



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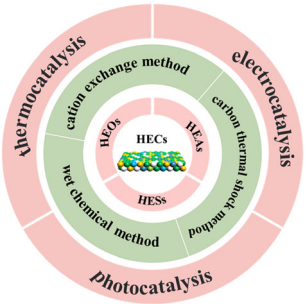

High-entropy catalysts: new opportunities toward excellent catalytic activities

Zhonglian Shi, Li Wang, Yingping Huang, Xin Ying Kong* and Liqun Ye*

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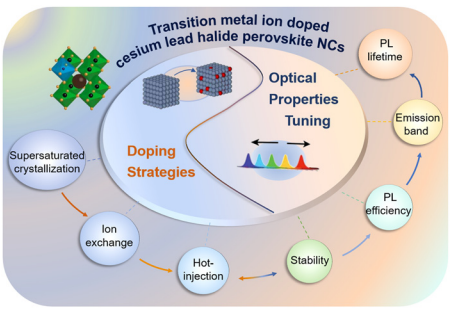

Transition metal ion-doped cesium lead halide perovskite nanocrystals: doping strategies and luminescence design

Yunqin Zhang, Datao Tu,* Luping Wang, Chenliang Li, Yuhan Liu and Xueyuan Chen*

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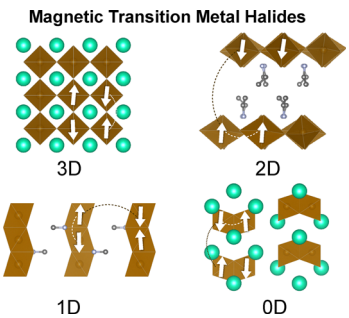

Magnetic hybrid transition metal halides

Zhongwei Chen, Jie Xue, Zhiyu Wang and Haipeng Lu*

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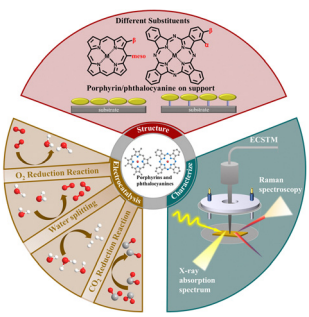

Metal porphyrins and metal phthalocyanines as designable molecular model electrocatalysts

Ya-Chen Feng, Xiang Wang* and Dong Wang*

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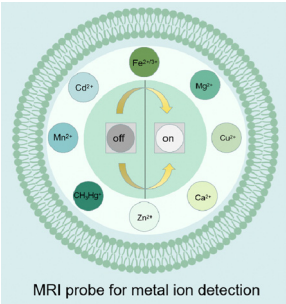
Recent progress on MRI probes for metal ion detection and biological applications

Zhiming Deng, Dingyou Lu, Sulai Liu,* Xianzheng Tan* and Guosheng Song*



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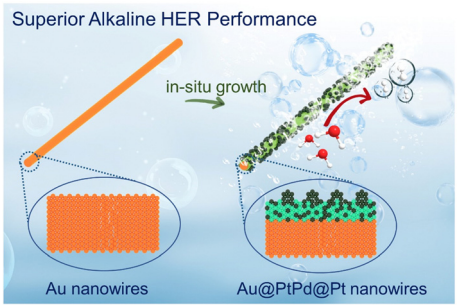
Ultrathin core–shell–satellite structured Au@PtPd@Pt nanowires for superior electrocatalytic hydrogen evolution

Caikang Wang, Xian Jiang,* Qicheng Liu, Jiaqian Ding, Juan Zhou,* Yawen Tang, Gengtao Fu and Jong-Min Lee*



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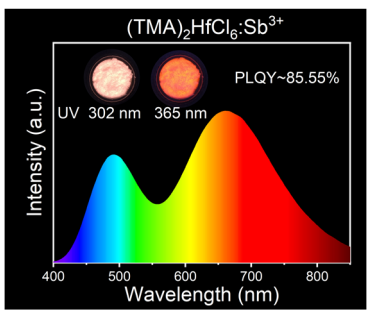
Excitation-dependent efficient photoluminescence in an organic–inorganic $(C_4H_{12}N)_2HfCl_6$ perovskite induced by antimony doping

Jingheng Nie, Xiangyan Yun, Zexiang Liu, Hailin Zhou, Hanlin Hu, Haizhe Zhong, Yumeng Shi* and Henan Li*



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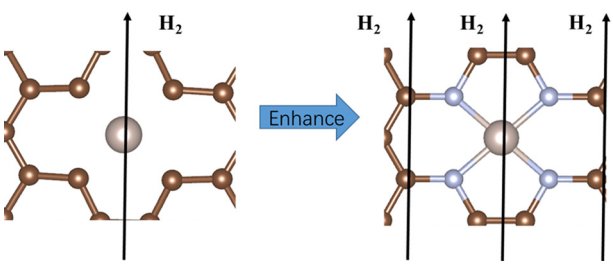
Nitrogen-coordinated ruthenium on porous carbon enhanced hydrogen evolution reactions

Xin Chen, Kang Wang and Xianran Xing*



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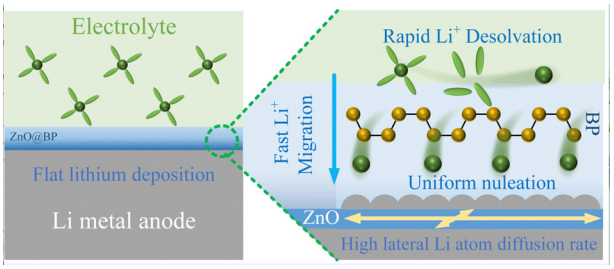

Activating the electrode–electrolyte interface *via* a ZnO@black phosphorus modulation layer for dendrite-free Li metal anodes

Pengwei Li, Guodong Zhang, LiangPing Xiao, Kai Chen, Xingyun Li,* Bin Han, Jiebin Qiu, Qingchi Xu* and Jun Xu*

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