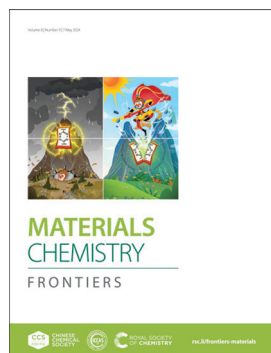


### IN THIS ISSUE

ISSN 2052-1537 CODEN MCFAC5 8(9) 2023-2182 (2024)



#### Cover

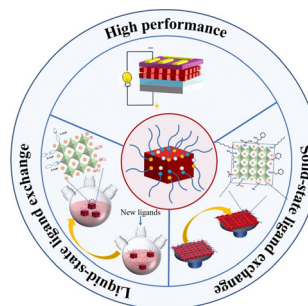
See Xiaogang Liu *et al.*,  
pp. 2135–2141.  
Image reproduced  
by permission of  
Xiaogang Liu from  
*Mater. Chem. Front.*,  
2024, 8, 2135.

### REVIEWS

2029

#### Surface engineering in CsPbX<sub>3</sub> quantum dots: from materials to solar cells

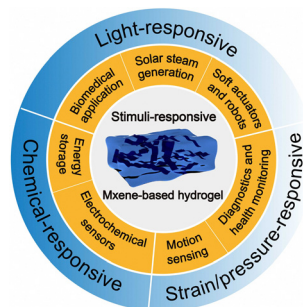
Yinyan Xu, Mei Lyu and Jun Zhu\*



2056

#### Stimuli-responsive Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXene-based hydrogels: preparation and applications

Qi Gao, Ping-Ping He, Xiaowen Wang, Xiaoxue Du and Weiwei Guo\*



# Royal Society of Chemistry approved training courses

Explore your options.  
Develop your skills.  
Discover learning  
that suits you.

**Courses in the classroom,  
the lab, or online**

Find something for every  
stage of your professional  
development. Search our  
database by:

- subject area
- location
- event type
- skill level

Members **get at least 10% off**

Visit [rsc.li/cpd-training](https://rsc.li/cpd-training)

**SAVE  
10%**

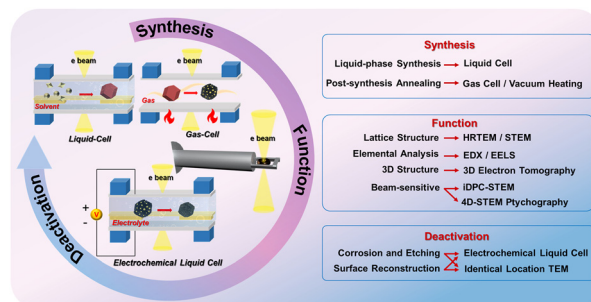


## REVIEWS

2078

## Emerging transmission electron microscopy solutions for electrocatalysts: from synthesis to deactivation

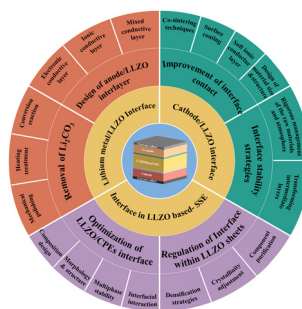
Le Wei, Zhanyong Xu, Xiaomei Wu, Xiaoxing Ke\* and Manling Sui\*



2109

## Optimization strategies for key interfaces of LLZO-based solid-state lithium metal batteries

Jiangwei Chu, Ziwei Li, Jin Wang, Gang Huang\* and Xinbo Zhang\*

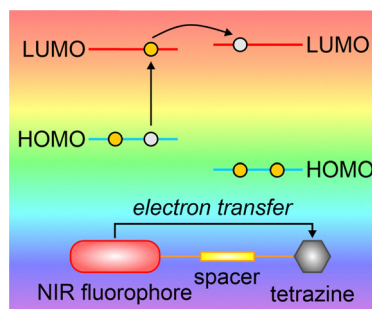


## RESEARCH ARTICLES

2135

## Photoinduced electron transfer endows fluorogenicity in tetrazine-based near-infrared labels

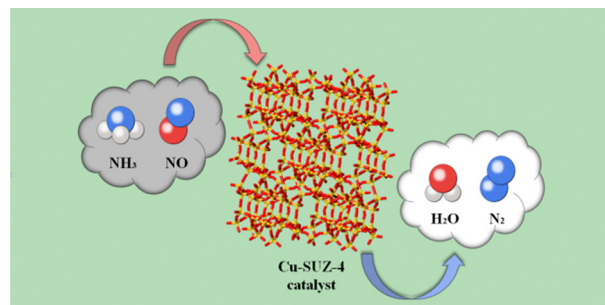
Tianruo Shen, Xin Li and Xiaogang Liu\*



2142

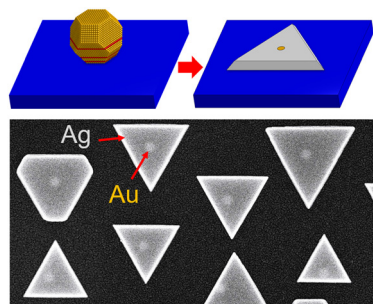
## Copper-exchanged SUZ-4 zeolite catalysts for selective catalytic reduction of NO<sub>x</sub>

Yang Bai, Dapeng Hao, Yingzhen Wei, Jinfeng Han, Dan Li, Mengyang Chen\* and Jihong Yu\*



## RESEARCH ARTICLES

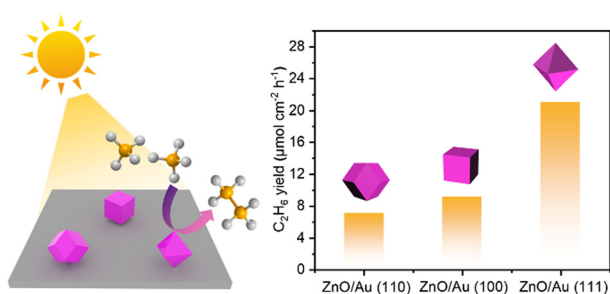
2149



### Large-area arrays of epitaxially aligned silver nanotriangles seeded by gold nanostructures

Zachary R. Lawson, Kaikui Xu, Christina Boukouvala, Robert A. Hughes, Matthew R. Rosenberger, Emilie Ringe and Svetlana Neretina\*

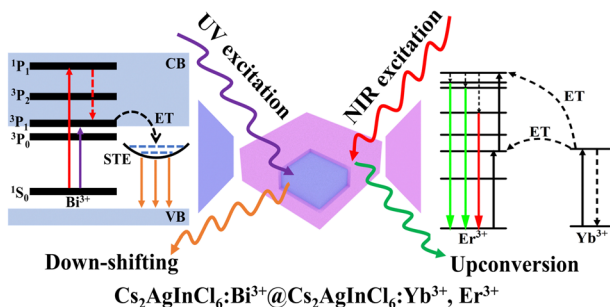
2161



### Understanding Au facet effects in photocatalytic nonoxidative coupling of methane

Zhuo Liu, Biyang Xu, Xuanzhao Lu, Pan Li, Jun-Jie Zhu and Wenlei Zhu\*

2173



### Simultaneously excited downshifting/upconversion luminescence from lanthanide-doped core-shell lead-free perovskite nanocrystals for encryption and data storage

Endian Cui, Gaoyuan Xing, Xiangyang Yuan, Yi Zhang, Flavia Artizzu, Xiaoling Liao, Jianfeng Tang, Yanan Zhao, Pengzhou Zhao, Kai Liu\* and Jing Liu\*

