

Chem Soc Rev

Chemical Society Reviews

rsc.li/chem-soc-rev

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 0306-0012 CODEN CSRVBR 54(19) 8527-9118 (2025)



Cover

See Zhongwu Li and Aleksandr Noy, pp. 8582–8635. Image reproduced by permission of Lawrence Livermore National Laboratory and Sabina Hahn (Interval Studios) from *Chem. Soc. Rev.*, 2025, 54, 8582. Artwork by Sabina Hahn.



Inside cover

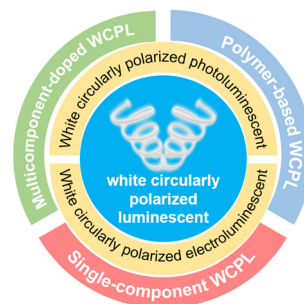
See Hai-Yan Lu, Chuan-Feng Chen *et al.*, pp. 8534–8554. Image reproduced by permission of Pei Zhao, Hai-Yan Lu and Chuan-Feng Chen from *Chem. Soc. Rev.*, 2025, 54, 8534.

TUTORIAL REVIEWS

8534

Recent advances in preparation and applications of white circularly polarized luminescent materials

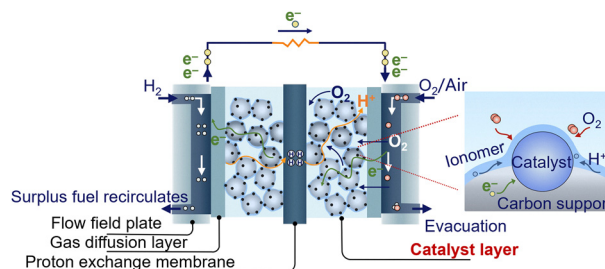
Pei Zhao, Hai-Yan Lu* and Chuan-Feng Chen*



8555

Three-phase microenvironment modification by optimizing ionomer towards high-performance proton exchange membrane fuel cells

Jie Li, Qianli Ma, Shuda Dong, Shuang Zhao, Bo Wang and Xiao Feng*



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



**SAVE
10%**

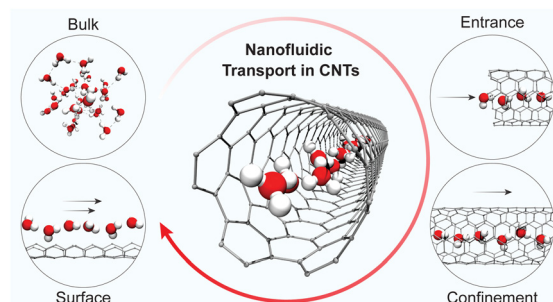


REVIEW ARTICLES

8582

Carbon nanotube nanofluidics

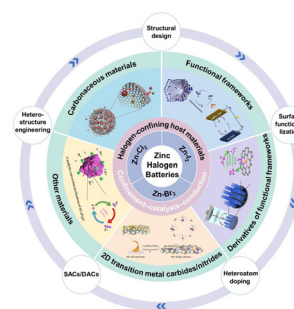
Zhongwu Li and Aleksandr Noy*



8636

Halogen-confining host materials for high-performance zinc-halogen batteries

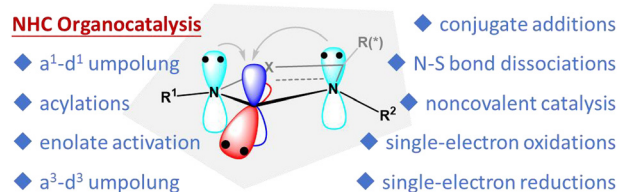
Shude Liu, Xue Peng, Yafei Chai, Ming Ma, Hulin Zhang, Jieming Chen, Ling Kang, Bin Ding,* Yusuke Yamauchi* and Seong Chan Jun*



8725

Advances in N-heterocyclic carbene organocatalysis from 2015 to 2024

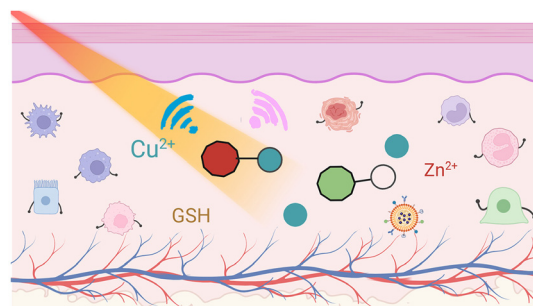
Dan Ling, Yusong Ran, Fachang Yang, Xiaoqun Yang, Xingxing Wu,* Shi-Chao Ren* and Zhichao Jin*



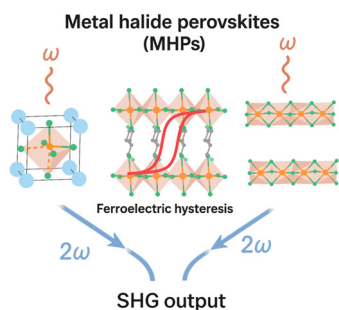
8809

Small-molecule photoacoustic probes for *in vivo* imaging

Xiaoqing Wang, Beibei Cui, Qian Sun, Hang Liu and Zhipeng Liu*



8845



Dynamic control of halide perovskite structures for tailored ferroelectric and second-order nonlinear optical functionalities

Zhu Guo, Jiawei Lin and Lingling Mao*

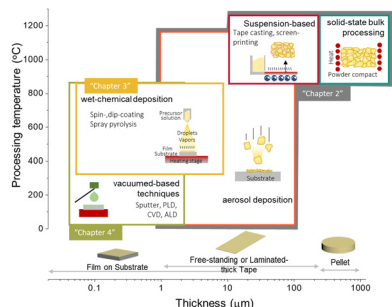
8888



Advances in applied supramolecular technologies 2021–2025

Dominick E. Balderston, Elba Feo, Anamaria Leonescu, Mackenzie Stevens, Alexander M. Wilmshurst, Philip A. Gale,* Cally J. E. Haynes,* George T. Williams* and Jennifer R. Hiscock*

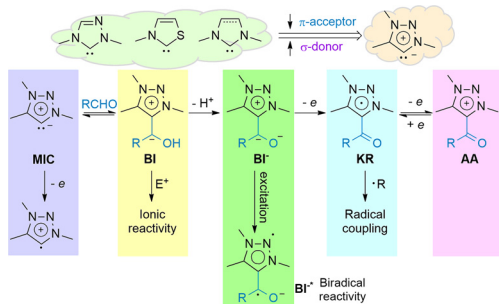
8925



Emerging processing guidelines for solid electrolytes in the era of oxide-based solid-state batteries

Moran Balaish,* Kun Joong Kim, Hyunwon Chu, Yuntong Zhu, Juan Carlos Gonzalez-Rosillo, Lingping Kong, Haemin Paik, Steffen Weinmann, Zachary D. Hood, Jesse Hinricher, Lincoln J. Miara and Jennifer L. M. Rupp*

9008



Organocatalysis promoted by 1,2,3-triazolylenes (MICs): carbenes which make a difference

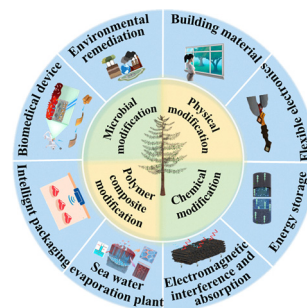
Fan Gao, Xiaoyu Yan* and Guy Bertrand*



9027

Physicochemical, polymeric and microbial modifications of wood toward advanced functional applications: a review

Changzhu Huang, Qin Qin, Yanbo Liu,* Gaigai Duan, Peng Xiao,* Yong Huang, Changtong Mei,* Xiaoshuai Han, Jingquan Han,* Shuijian He and Shaohua Jiang*



9092

Atom-precise coinage metal nanoclusters for near-infrared emission: excited-state dynamics and mechanisms

Ze-Yu Liu, Qing-Bin Nie, Bao-Liang Han, Rakesh Kumar Gupta, Guang-Lei Dong, Geng-Geng Luo,* Zhi-Lin Yang* and Di Sun*

