

ChemComm

Chemical Communications

rsc.li/chemcomm

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 1359-7345 CODEN CHCOFS 61(37) 6681-6840 (2025)



Cover

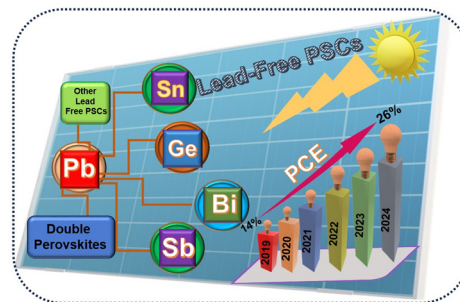
See Marius Haugland-Grange *et al.*, pp. 6755–6758.
Cover image prepared by ScienceBrush Design.
Image reproduced by permission of Marius Haugland-Grange from *Chem. Commun.*, 2025, **61**, 6755.

FEATURE ARTICLES

6691

Lead-free perovskites for solar cell applications: recent progress, ongoing challenges, and strategic approaches

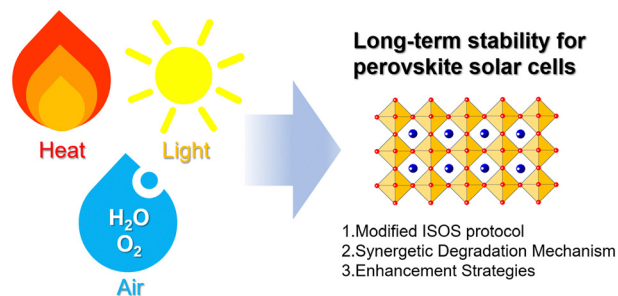
Imtiaz Ahmed, Kamal Prakash and Shaikh M. Mobin*



6722

Protocols for degradation assessment and stability enhancement in perovskite solar cells

Seok Joo Yang,* Sungwon Song, Chanui Park, Jinhyeok Choi, Eunho Lee and Min Kim*



**GOLD
OPEN
ACCESS**

EES Batteries

**Exceptional research on
batteries and energy storage**

Part of the EES family



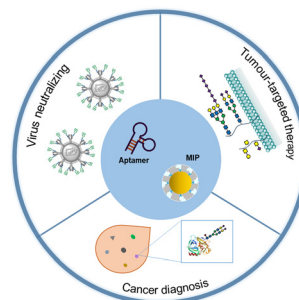
**Join
in** | Publish with us
rsc.li/EESBatteries

FEATURE ARTICLES

6739

Advances in glycan-specific biomimetic molecular recognition and its biomedical applications

Wei Li and Zhen Liu*

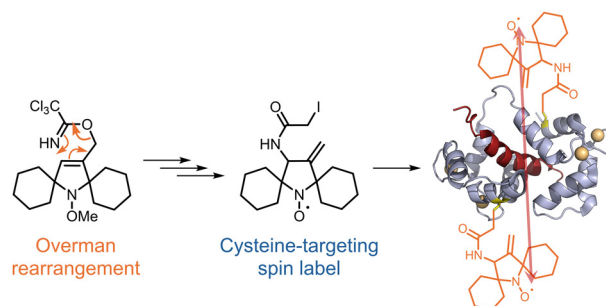


COMMUNICATIONS

6755

Sigmatropic rearrangement enables access to a highly stable spirocyclic nitroxide for protein spin labelling

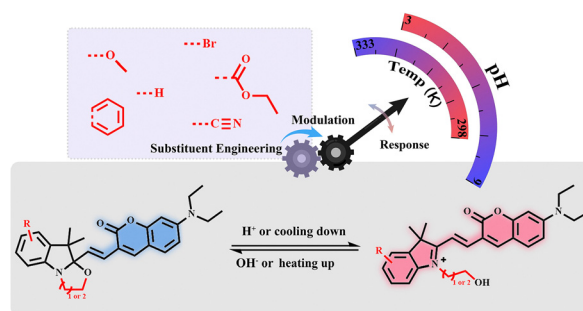
Mateusz P. Sowiński, Elena M. Mocanu, Hannah Ruskin-Dodd, Aidan P. McKay, David B. Cordes, Janet E. Lovett and Marius Haugland-Grange*



6759

Oxazine-based molecular switches with finely tunable pH and temperature sensitivity via substituent engineering

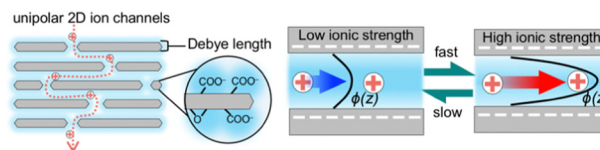
Chaofan Jin, Yuan Wang, Lu Wang, Xingjie Zan* and Sicheng Tang*



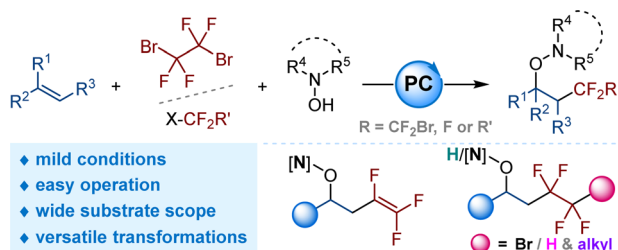
6763

Programmable cation migration in unipolar 2D ion channels via dynamic Debye length

Yi-Lu Zhang, Shizhe Feng,* Yumei Tan, Teng-Xuan Cao, Wangwang Ji, Rui Xie, Xiao-Jie Ju, Wei Wang, Da-Wei Pan, Zhuang Liu* and Liang-Yin Chu



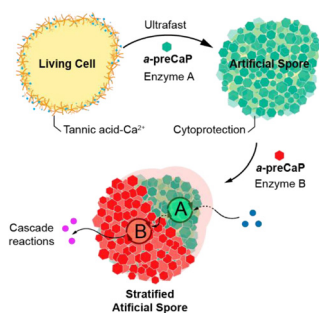
6767



Visible-light organophotoredox-catalyzed fluoroalkyl aminoxylation of unactivated and activated alkenes

Jianhua Ji, Kangjie Li, Xiangzhu Zhou, Chun Xu, Die Zhang and Wen Shao*

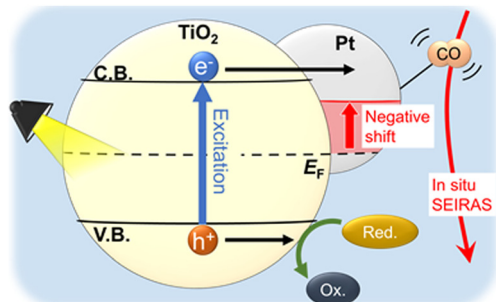
6771



Ultrafast, cyto-compatible mineralization of calcium phosphate in the formation of stratified nanoshells of artificial spores

Duc Tai Nguyen, Sang Yeong Han, Hyunwoo Choi, Nayoung Kim, Gulaim A. Seisenbaeva, Vadim G. Kessler and Insung S. Choi*

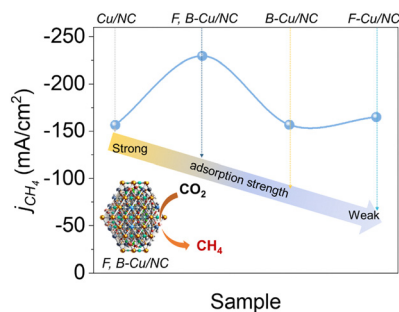
6775



In situ SEIRAS analysis of enhanced photocatalytic carrier transfer to a Pt cocatalyst induced by sacrificial reagents

Shu Ashimura, Ota Mori, Reiya Konaka, Takuya Iwai, Chechia Hu, Ke-Hsuan Wang, Chien-Hsiang Chang, Yuh-Lang Lee and Masaaki Yoshida*

6779



F and B co-modification activated Cu/NC catalyst for enhanced electrocatalytic CO_2 reduction to CH_4

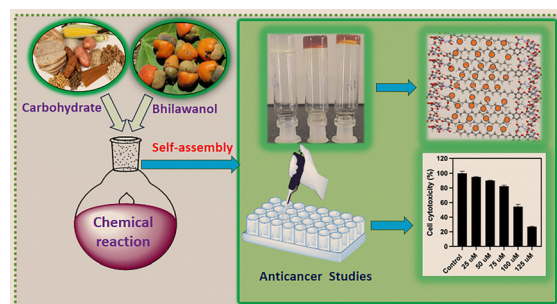
Tao Wang, Siyu Yi, Qiankang Zhang, Zhongqiu Wu, Jingman Yang, Mengxia Ji, Zhaolong Wang,* Hui Xu* and Xiaojie She*



6783

Easy access to a self-assembled glycolipid derived from bhilawanol: a promising anti-cancer drug

Tohira Banoo, Kajal Sandhu, S. Chockalingam and Subbiah Nagarajan*



6787

An acanthosphere-like PtRuRhPdAuIr high-entropy alloy as an efficient electrocatalyst for hydrogen evolution in both acidic and alkaline electrolytes

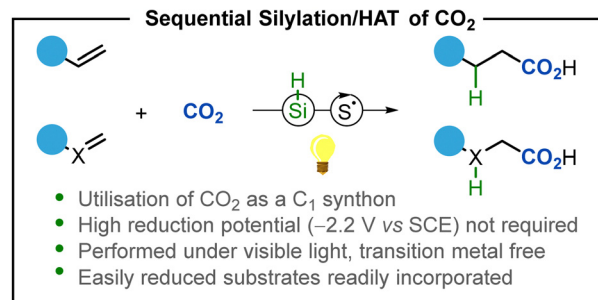
Cheng Chen, Wanwan Wu, Panyan Chen, Jiayin Guo, Heng Bian, Weiwei Li, Xinsheng Zhao* and Lu Wei*



6791

Photocatalytic reductive incorporation of carbon dioxide into double bonds

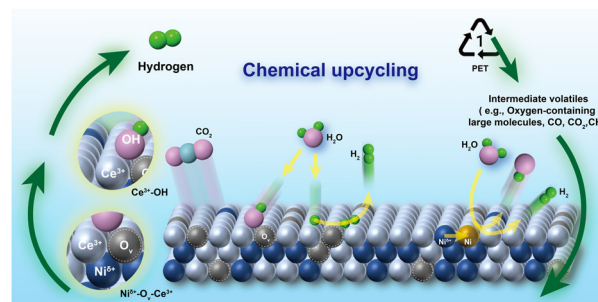
Mark J. Deeprase* and Thorsten Bach*



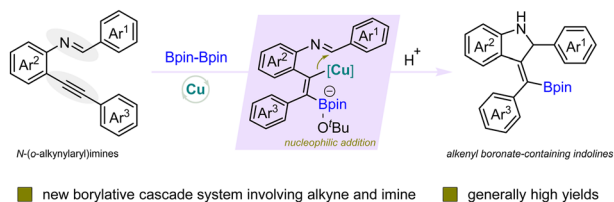
6795

A dual-active NiO–Ce_{1-x}Ni_xO₂ nanocomposite for catalytically upcycling PET into H₂

Jin Wang, Fangqi Liu, Chun Shan, Jiarui Zhu, Zengjian Guo, Xuesong Zhang* and Lujia Han



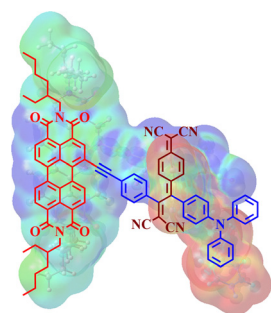
6799



Cu-catalyzed borylative cyclization of *N*-(*o*-alkynylaryl)imines

Tingting Zhang, Jinhai Gui, Yu Mo, Yuchuan Pu, Hongping Zhao, Yong Liu* and Chengyu He*

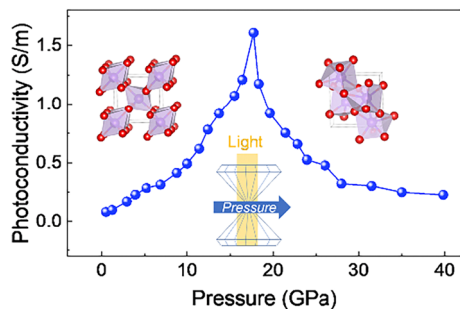
6803



Perylenediimide promoted charge transfer in tetracyano butadiene–triphenylamine (TCBD–TPA) and expanded-tetracyano butadiene–triphenylamine (DCNQ–TPA) push–pull conjugates

Mohd Wazid, Yogajivan Rout, Ajyal Z. Alsaleh, Ram R. Kaswan, Rajneesh Misra* and Francis D'Souza*

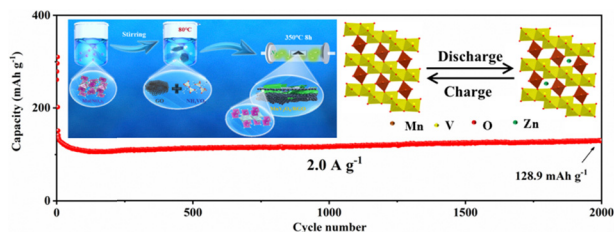
6807



The pressure-induced photoconductivity enhancement of black-TiO₂

Bingyan Liu, Tianfeng Duan, Songhao Guo, Kejun Bu, Jiabing Luo, Yiming Wang, Junxiu Liu, Wenge Yang, Jun Zhang* and Xujie Lü*

6811



Insights into the enhanced electrochemical performance and energy storage mechanism of a manganese vanadate cathode for rechargeable aqueous zinc ion batteries

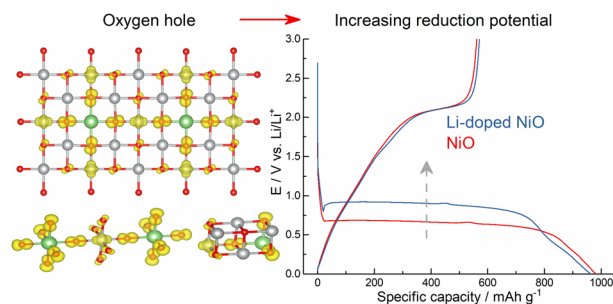
Hong Liu, Litao Han, Chen Lu,* Shi Tao, Fanjun Kong* and Bin Qian



6815

Oxygen hole states facilitated cleavage of Ni–O bonds in the rock-salt phase of a conversion-type anode

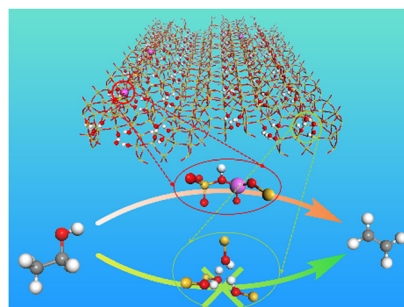
Shengnan Sun,* Jun Zhou, Debbie Hwee Leng Seng, Hui Ru Tan, Shibo Xi, Xiping Ni, Fengxia Wei, Poh Chong Lim, Ming Lin, Yi Ren, Shijie Wang* and Zhi Wei Seh*



6819

Is trace-level aluminum in zeolite matrix catalytically inert? A case study of alcohol dehydration in dealuminated beta zeolite

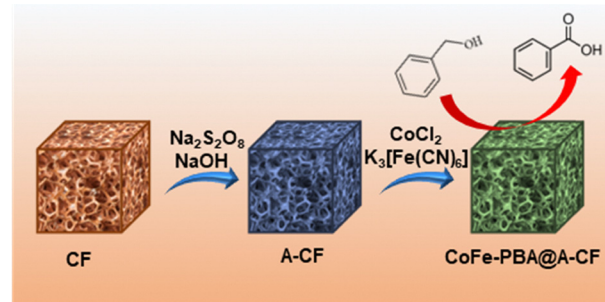
Haoxi Jiang, Jiahao Guan, Changdong Li, Lingtao Wang and Guochao Yang*



6823

Prussian blue analogue heterointerface on a pre-oxidized copper foam surface for enhanced anodic oxidation performance

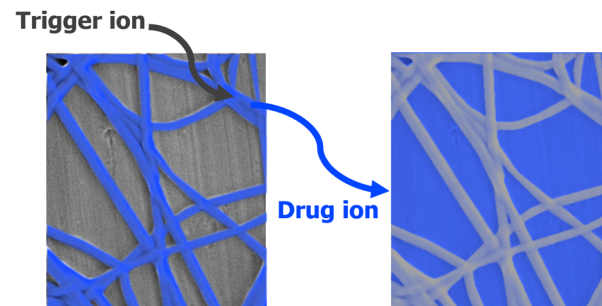
Ayusie Goyal, Shalini Verma, Labham Singh, Baghendra Singh* and Apparao Draksharapu*



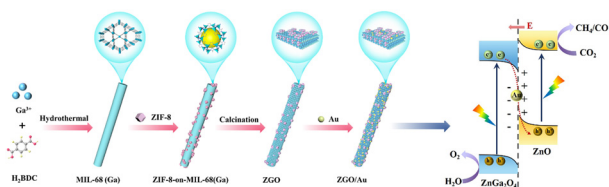
6827

Towards drug delivery systems triggered by ion-selective interactions

Dorota Buczyńska, Emilia Stelmach, Justyna Kalisz, Bohdan Paterczyk, Piotr Piątek, Krzysztof Maksymiuk and Agata Michalska*



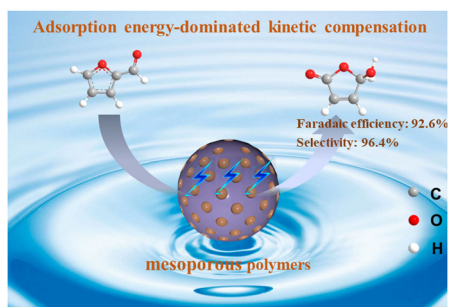
6831



Heterojunction constructed from ZIF-8-on-MIL-68(Ga) precursor for photocatalytic CO₂ reduction

Yu Ma, Qingqing Jiang,* Xingyu Li, Hao Yu, Xiaole Han, Yi Liu, Qin Li, Kangle Lv and Juncheng Hu*

6835



Mechanistic insights into biomass-based furfural electrooxidation to 5-hydroxy-2(5H)-furanone over mesoporous polymers

Weixia Zhu, Runlu Yang, Xin Wang, Keying Dai, Chang Su, Jiayi Duan, Chun Chang and Haoran Wu*

