

# 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(65) 12045-12220 (2025)



### Cover

See Thomas Theis, Brojo K. S. Dhali *et al.*, pp. 12115–12118. Image reproduced by permission of Thomas Theis and Brojo K. S. Dhali from *Chem. Commun.*, 2025, **61**, 12115. Cover image enhanced using Adobe Firefly.



### Inside cover

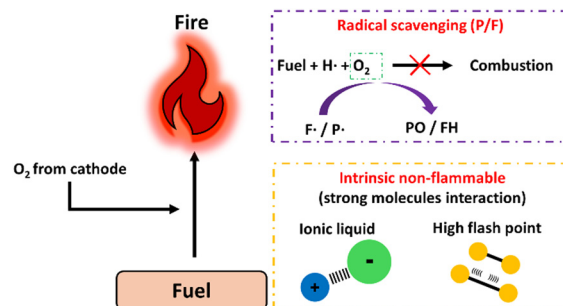
See Anna Skrzyńska, Łukasz Albrecht *et al.*, pp. 12119–12122. Image reproduced by permission of Anna Skrzyńska from *Chem. Commun.*, 2025, **61**, 12119.

## HIGHLIGHTS

12056

### Innovations in non-flammable and flame-retardant electrolytes for safer lithium-ion batteries

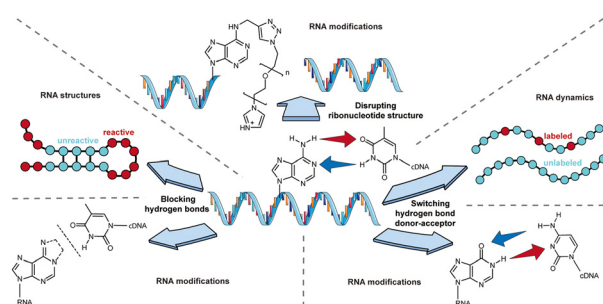
Won-Jang Cho, Yoo Jeong Huh, Soyeon Choi, Uddhav Kulkarni, Kiran P. Shejale and Gi-Ra Yi\*



12069

### Chemical decoding strategies for detecting RNA modifications, dynamics and structures

Xiao Shu\* and Wenping Li



# Environmental Science: Atmospheres

GOLD  
OPEN  
ACCESS

Connecting communities  
and inspiring new ideas

[rsc.li/submittoEA](https://rsc.li/submittoEA)

Fundamental questions  
Elemental answers

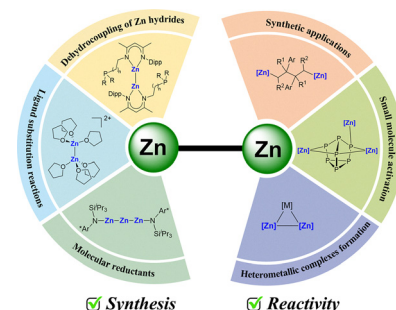


## FEATURE ARTICLES

12085

## Recent advances in zinc–zinc bonded complexes: synthesis and reactivity

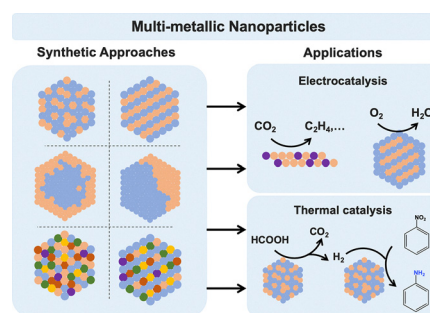
Shengjie Jiang, Shuilian Xu and Xin Xu\*



12097

## Multi-metallic nanoparticles: synthesis and their catalytic applications

Yuliang Chen, Ahsan Zohaib, Haobo Sun and Shouheng Sun\*

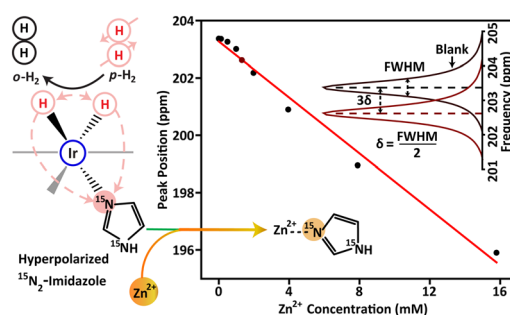


## COMMUNICATIONS

12115

SABRE-SHEATH hyperpolarized  $^{15}\text{N}_2$ -imidazole for  $\text{Zn}^{2+}$  sensing

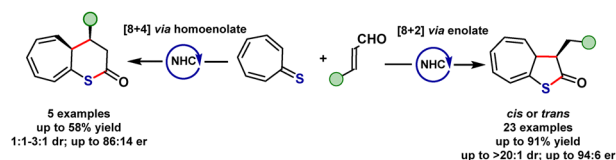
Brojo Kishor Shachib Dhali, Abubakar Abdurraheem, Mustapha Abdulmojeed, Anna Samoilenko, Megan Pike, Rielly J. Harrison, Franziska Theiss, Boyd M. Goodson, Eduard Y. Chekmenev\* and Thomas Theis\*



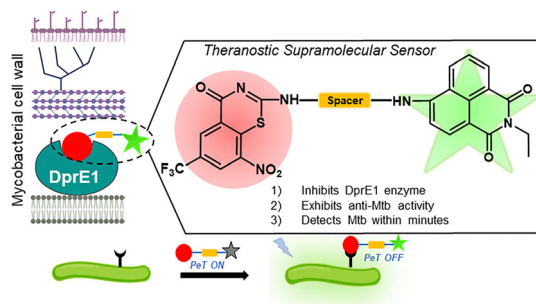
12119

Divergent hetero-[8+n] higher order cycloadditions of trophothione and enals catalyzed by *N*-heterocyclic carbenes

Joanna Dybowska, Artur Przydacz, Weronika Olczyk, Lesław Sieroń, Anna Skrzyńska\* and Łukasz Albrecht\*



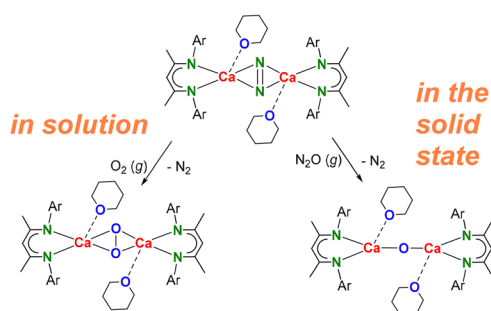
12123



### A dual-function probe for inhibition and rapid detection of *Mycobacterium tuberculosis*

Sonal Chhabra\* and Raman Parkesh\*

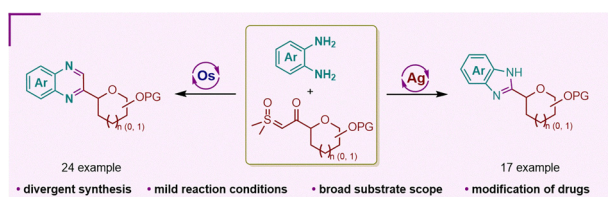
12127



### Low-coordinate calcium peroxide and oxide complexes

Stefan Thum, Marcel A. Schmidt, Jens Langer and Sjoerd Harder\*

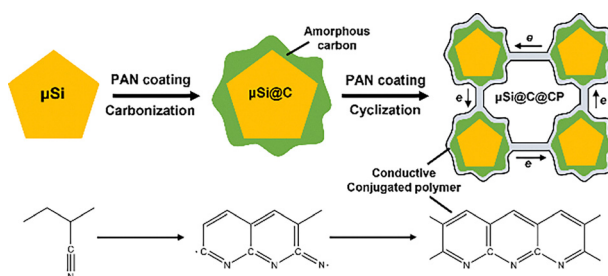
12131



### Switchable synthesis of benzimidazole/quinoxaline C-glycosides with *o*-phenylenediamines and sulfoxonium ylide glyco-reagents

Deng-Yin Liu, Xin-Yue Hu, Cong-Zhen Zhang, Miao-Miao Wen, Xiao-Xi Ren and Xu-Ge Liu\*

12135



### A conjugated conductive polymer coating towards a robust micro-Si anode for lithium storage

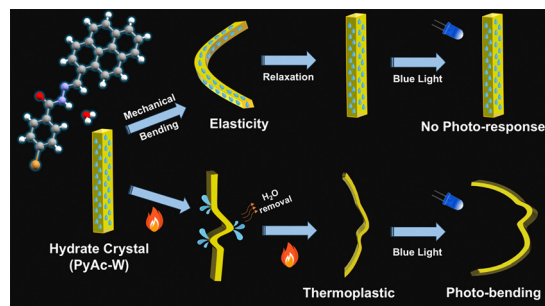
Chao Song, Jiecheng Huang and Zhiyu Wang\*



12139

### Water-driven modulation of multiresponsive properties in acylhydrazone-based crystals

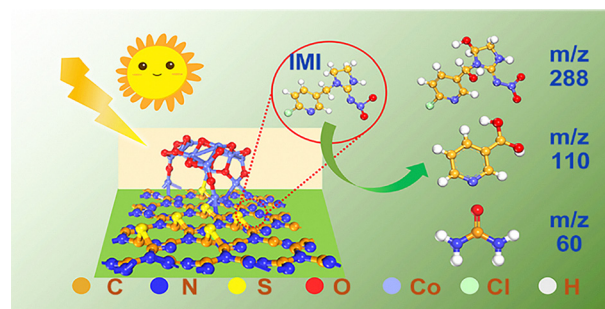
Deepak Manoharan, Aritra Bhowmik,  
Manish Kumar Mishra\* and Soumyajit Ghosh\*



12143

### Bulk-interface engineering of a $\text{CoO}_x/\text{SCN}$ heterostructure for synergistically enhanced photocatalytic degradation of the imidacloprid insecticide

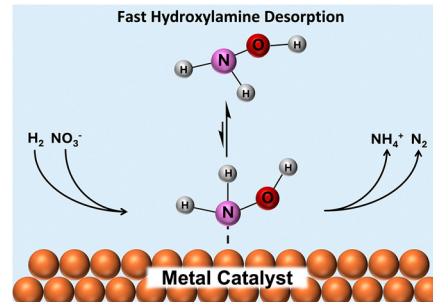
Guangxue Pan, Yan Zhang, Mengmeng Liu, Zhuwei Cao,  
Yi Zheng and Sheng Ye\*



12147

### Hydroxylamine: an overseen intermediate that brings into question nitrogen selectivity in metal-catalyzed nitrate and nitrite reduction

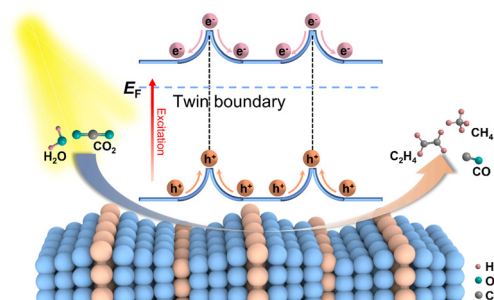
Janek Betting, Leon Lefferts\* and Jimmy Faria Albanese\*



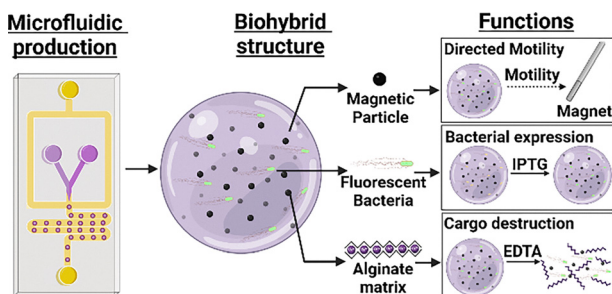
12151

### Engineering twin $\text{Cu}_{0.3}\text{Zn}_{0.7}\text{S}$ for $\text{CO}_2$ photocatalytic reduction to ethylene

Hang Zhao, Hao Song, Zhefei Pan, Xun Zhu,  
Dingding Ye, Yang Yang, Hong Wang, Qiang Liao and  
Rong Chen\*



12155



## Microfluidic generation of bacterial biohybrids for magnetic guidance and content release

Nina O'Toole, Matthew E. Allen, Claudia Contini\* and Yuval Elani\*

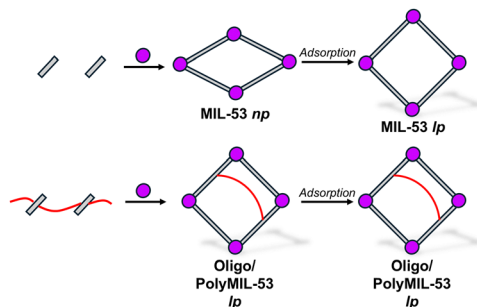
12159



## Esterification of carboxylic acids using carbon disulfide (CS<sub>2</sub>) as a coupling agent

A. Ziyaei Halimehjani\* and Z. Marjani

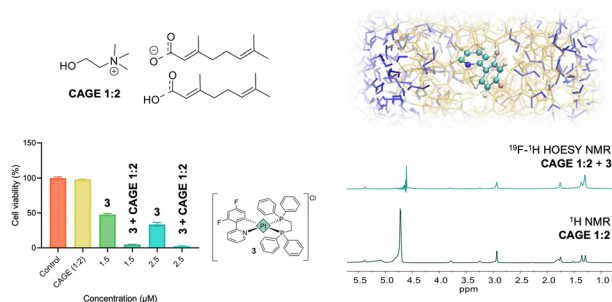
12163



## Permanently porous oligoMOFs and polyMOFs of MIL-53

Debobroto Sensharma and Seth M. Cohen\*

12167



## Choline–geranate (CAGE) ionic liquids potentiate the anticancer activity of platinum-based drugs

Marta Costa Verdugo, Giulia Sierri, Laura Hernandez-Fernandez, Elena Formoso, José I. Miranda, Francesco Saverio Sica, Alejandro H. Orrego, Alba González, Elixabete Rezabal, Francesca Re and Luca Salassa\*

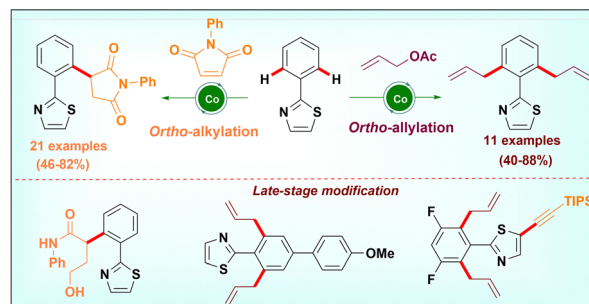


## COMMUNICATIONS

12171

**Cobalt(III)-catalyzed C–H functionalization of 2-arylthiazoles with maleimides or allyl acetate**

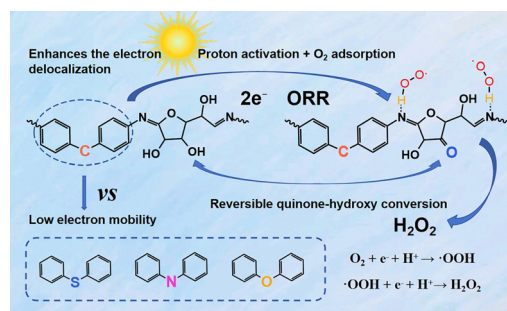
Pengfei Zhou, Guibin Wan, Zhihan Yuan, Aoran Guan, Zongwu Wei, Taoyuan Liang, Jun Jiang\* and Zhuan Zhang\*



12175

**Chain-section engineering enables electron delocalization for efficient photocatalytic H<sub>2</sub>O<sub>2</sub> synthesis in D-glucuronolactone-derived polymers**

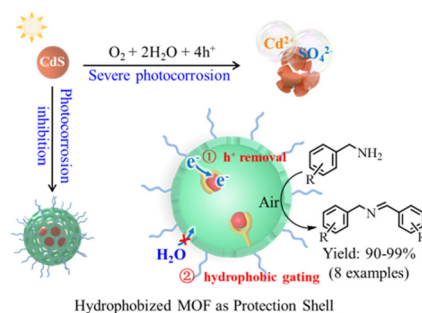
Yu Liu, Jiawei Lu, Shichen Cui, Haijiao Xie, Jianning He\* and Qingyao Wu\*



12179

**A hydrophobized metal–organic framework as a protection shell to stabilize CdS quantum dots for sunlight-driven aerobic oxidation**

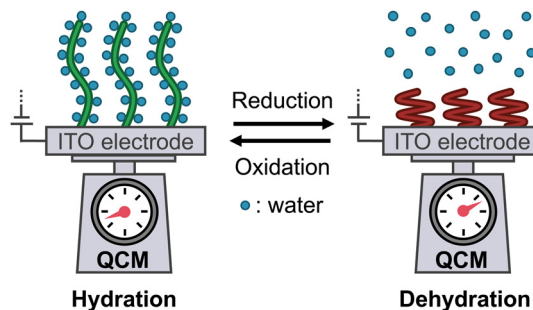
Zewei Liu, Zepeng Yu, Shu Li, Jun Pang, Yuzhu Wang, Zhiqiang Wu, Sijie Liu and Rong Tan\*



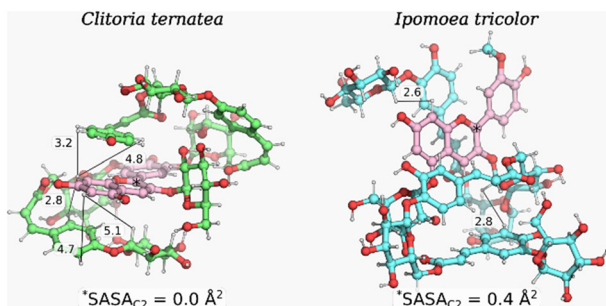
12183

**Redox-associated phase transition of a marginally stable synthetic polymer**

Takafumi Enomoto,\* Keita Terui, Shunsuke Yagi, Aya M. Akimoto and Ryo Yoshida\*



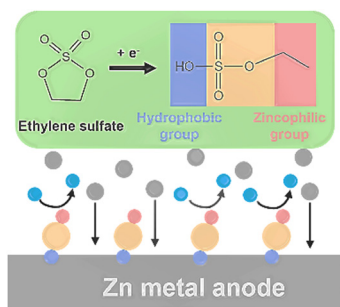
12187



### Achieving a dramatic blue colour stability in anthocyanins bearing acylated sugars in position 3',5'

Joana Oliveira,\* João T. S. Coimbra, Victor Freitas, Peiqing Yang, Nuno Basilio and Fernando Pina\*

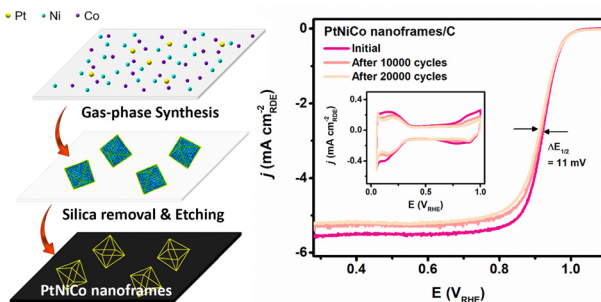
12191



### In situ formation of zincophilic–hydrophobic layers using self-assembling additives for stabilizing zinc metal anodes

Zhengquan Xiao, Zihan Xu, En Gao and Shilin Wu\*

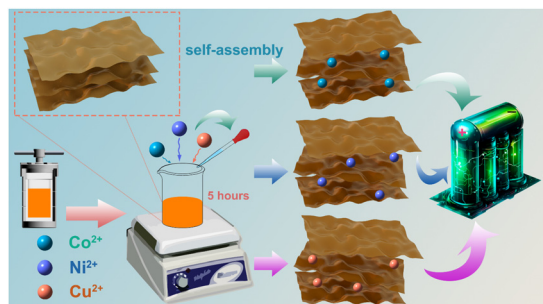
12195



### Synthesis and characterization of ultra-small octahedral PtNiCo skeletons with high activity for the oxygen reduction reaction

Minseok Ko, Mrinal Kanti Kabiraz, Yuseong Heo, Daehee Yang, Yeongseop Lee, Sang Hoon Joo, Young-Min Kim, Sang-Il Choi\* and Won Seok Seo\*

12199



### Divalent transition metal ion intercalated hydrated V<sub>2</sub>O<sub>5</sub> nanosheet cathodes for ultra-long cycling aqueous zinc-ion batteries

Jie Bai, Wenting Ji, Mengda Xue, De Li,\* Huayu Wang and Lingyun Chen\*

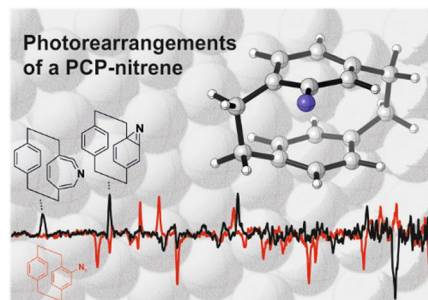


## COMMUNICATIONS

12203

## Photochemical rearrangements of a [2.2]paracyclophane-based nitrene studied by vibrational CD spectroscopy

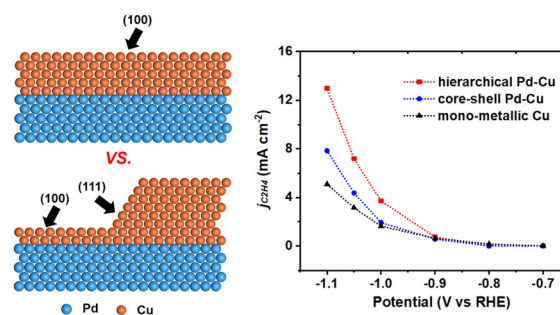
Frederike Beyer and Christian Merten\*



12207

Architecture engineering and lattice modulation of exposed Cu (100)/(111) surfaces for efficient electrochemical CO<sub>2</sub> reduction

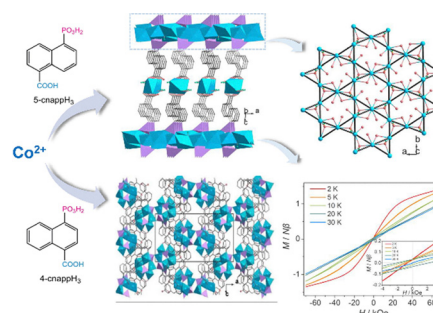
Zhen He, Hanwen Cheng, Hao Liu, Tengfei Xiong, Chengming Wang,\* Xiaobin Liao\* and Lingwen Liao\*



12211

Metal-organic framework containing Co<sub>3</sub>(μ<sub>3</sub>-OH)-based kagomé layers showing long-range weak ferromagnetic ordering

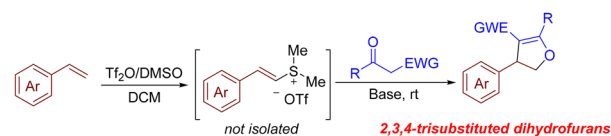
Yan Xu, Qian-Qian Su, Bei Liu, Wen-Tao Sun, Song-Song Bao, Su-Zhi Li and Li-Min Zheng\*



12215

## Sulfonium triggered one-pot synthesis of dihydrofurans via [3+2] annulation of alkenes and active methylene compounds

Li Yang, Jin-Long Wang, Jia Shu, Xiang-Qin Xu, Shan-Shan Tang and Long-Yong Xie\*



- Transition-metal-, & strong oxidant-free
- Readily available substrates
- Mild reaction conditions
- Tf<sub>2</sub>O/DMSO as an efficient activating system
- One-pot reaction
- Regioselective 2,3,4-trisubstituted dihydrofuran products

