

# ChemComm

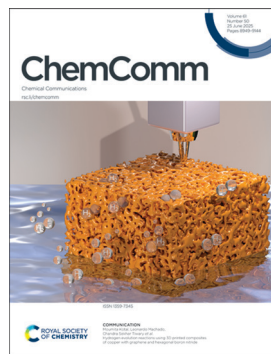
Chemical Communications

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(50) 8949-9144 (2025)



### Cover

See Moumita Kotal, Leonardo Machado, Chandra Sekhar Tiwary *et al.*, pp. 9039–9042. Image reproduced by permission of Chandra Sekhar Tiwary from *Chem. Commun.*, 2025, 61, 9039.



### Inside cover

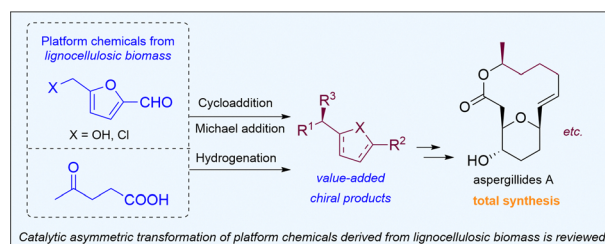
See Annamalai Pratheepkumar *et al.*, pp. 9043–9046. Image reproduced by permission of Annamalai Pratheepkumar from *Chem. Commun.*, 2025, 61, 9043.

## HIGHLIGHTS

8960

### Catalytic asymmetric transformation of platform chemicals derived from lignocellulosic biomass

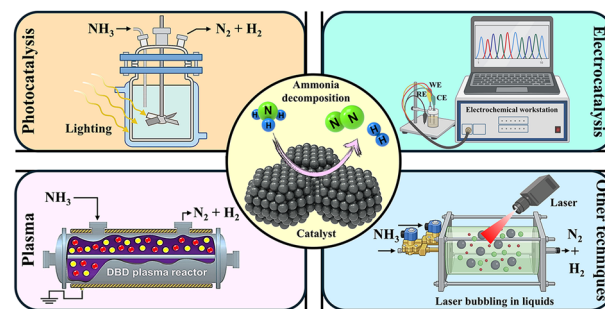
Qingqin Huang, Yu-Ping Tang, Zhao-Fei Zhang, Zhen Wang\* and Lei Dai\*



8969

### Recent progress in the decomposition of ammonia as a potential hydrogen-carrier using green technologies

Seyed Majid Ghoreishian, Mohammad Norouzi and Jochen Lauterbach\*



# Environmental Science: Atmospheres

GOLD  
OPEN  
ACCESS

Connecting communities  
and inspiring new ideas



Open Access Article. Published on 17 June 2025. Downloaded on 18/06/2025 10:42:48.  
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

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

Fundamental questions  
Elemental answers

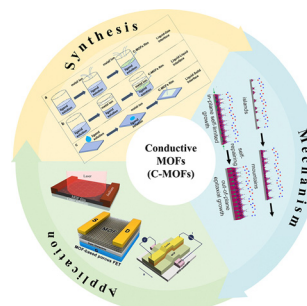


## FEATURE ARTICLES

8984

## Interface-assisted preparation of conductive MOF membrane/films

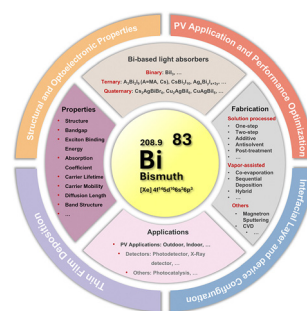
Yuxin Zhang, Jing Zhang, Fang Wang, Gang Xu\* and Rui Zheng\*



9005

## Fabrication strategies for lead-free bismuth-based perovskite solar cells: a review

Jian Kang, Liang Tao, Shuting Ma, Qi Zhang, Shan Chen\* and Huajie Yin\*

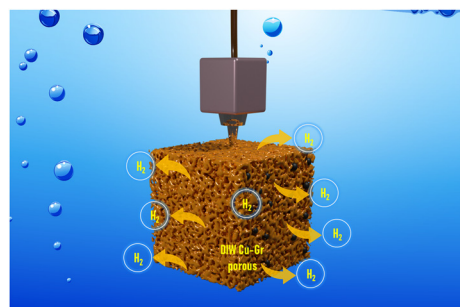


## COMMUNICATIONS

9039

## Hydrogen evolution reactions using 3D printed composites of copper with graphene and hexagonal boron nitride

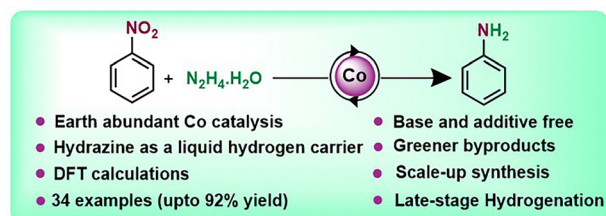
Rakesh Das, Raphael Benjamim, Moumita Kotal,\* Leonardo Machado,\* Douglas S. Galvao and Chandra Sekhar Tiwary\*



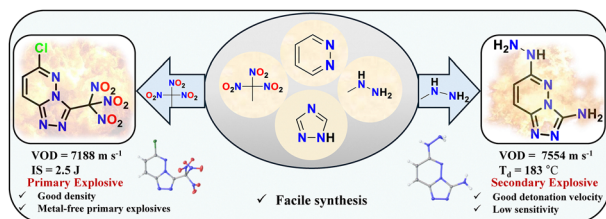
9043

## Engaging hydrazine hydrate as a hydrogen source for cobalt(II)-catalysed transfer hydrogenation of nitroaromatics

Ravichandran Manikandan, Ramasamy Shanmugam and Annamalai Pratheepkumar\*



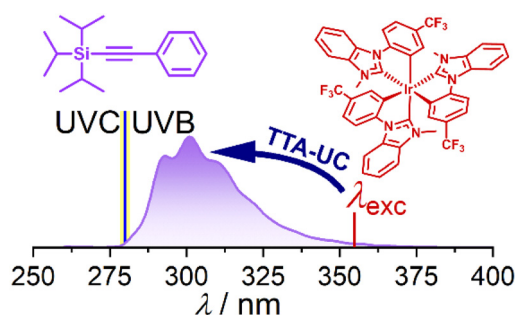
9047



### Trinitromethyl- and nitramino-substituted triazolo-pyridazines: synthesis and energetic performance

Sagar Nehe, Abhishek Kumar Yadav, Vikas D. Ghule and Srinivas Dharavath\*

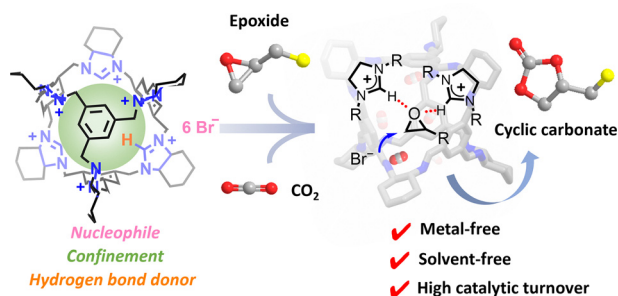
9051



### Pushing the limit of triplet–triplet annihilation photon upconversion towards the UVC range

Till J. B. Zähringer, Corinna Heusel, Matthias Schmitz, Frank Glorius and Christoph Kerzig\*

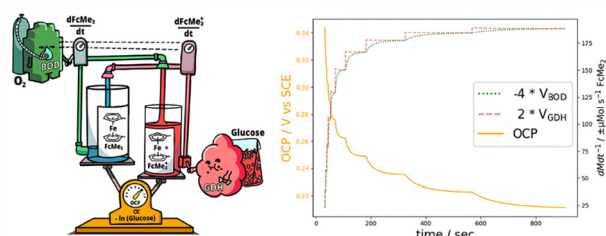
9055



### Conversion of CO<sub>2</sub> into cyclic carbonates using an ionic porous organic cage

Qianqian Mao, Jinjin Zhang and Ming Liu\*

9059



### Unveiling pseudocapacitance: a kinetic treatment of the pseudocapacitive biosensor

Rokas Gerulskis, Egor Baiarashov, Maryam Karimi, Wassim El Housseini and Shelley D. Minteer\*

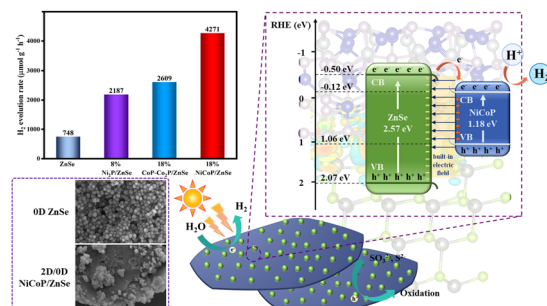


## COMMUNICATIONS

9063

## Engineering NiCoP nanosheet/ZnSe nanoparticle heterostructures for enhanced photocatalytic hydrogen production

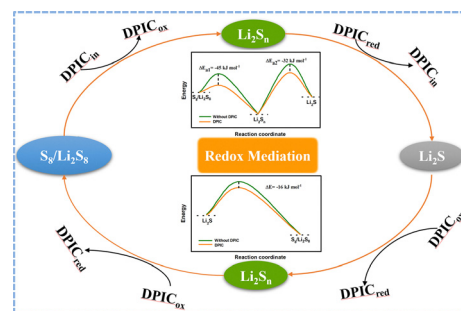
Qingru Zeng, Yachao Tan, Xiangbiao Yin, Guang Gao, Chao He, Yuezhou Wei and Deqian Zeng\*



9067

## 2,4-Difluorophenyl isothiocyanate as a redox mediator in the electrolyte for kinetically favorable Li-S batteries

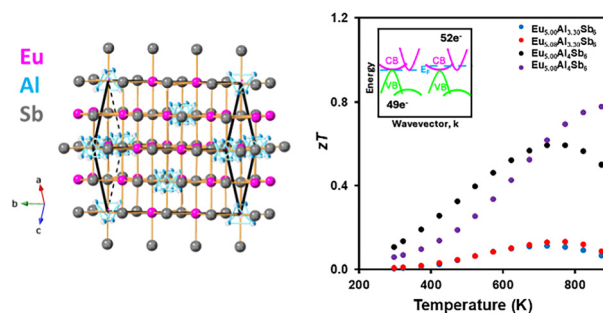
Hai Lu,\* Yanyan Zhao, Jinhaochong Wang, Meng Liu, Shiqiang Yang, Yihang Su and Yan Yuan\*



9071

The power of aluminum: optimizing thermoelectric properties of the intermetallic,  $\text{Eu}_{5+x}\text{Al}_{3+y}\text{Sb}_6$ 

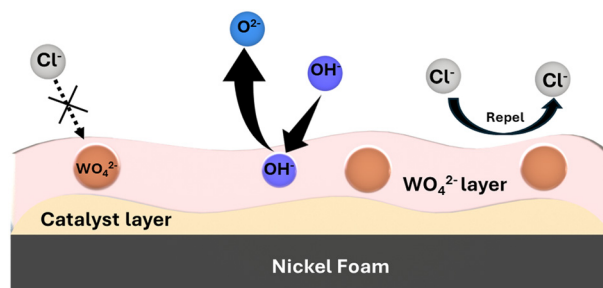
Luis Garay, Leah Borgsmiller, G. Jeffrey Snyder and Susan M. Kauzlarich\*



9075

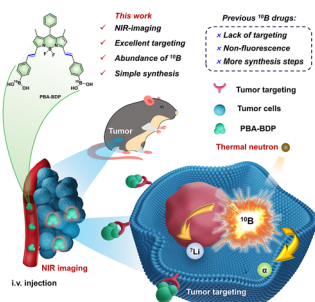
## Anionic insertion-prompted corrosion resistance in a metal-organic framework anode for seawater oxidation

Ashish Gaur, Jatin Sharma, Hae In Lee, Dong-Ha Lim\* and HyukSu Han\*



## COMMUNICATIONS

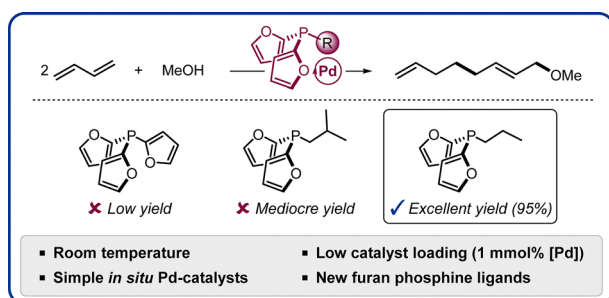
9079



### Near-infrared $^{10}\text{B}$ -BODIPY for precise guidance of tracer imaging and treatment in boron neutron capture therapy

Wenyong Huang, Yong Pan, Tianyuan Zhong, Shasha He,\* Yanxin Qi\* and Yubin Huang\*

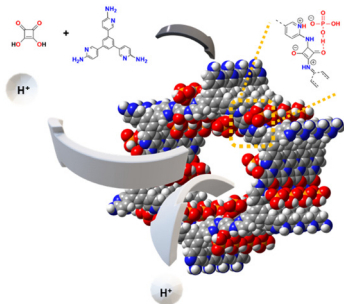
9083



### Development of highly efficient and selective palladium catalysts for telomerization of 1,3-butadiene with alcohols

Edson Leonardo Scarpa de Souza, Sebastian Ahrens, Anke Spannenberg, Helfried Neumann, Kathrin Junge, Carlos Roque Duarte Correia, Ralf Jackstell\* and Matthias Beller\*

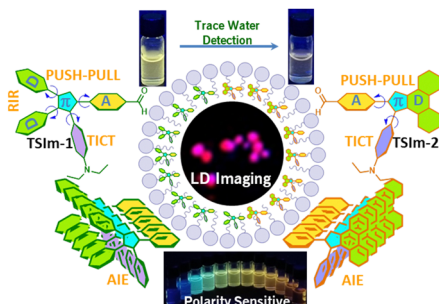
9087



### Phosphoric acid-merged squaraine conjugated mesoporous polymer with high proton conductivity

Sandhya Sharma, Keiichiro Maegawa, Hassan Alipour, Yaroslav Korol, Marek Potrzebowski and Atsushi Nagai\*

9091



### Tetrasubstituted imidazole-based multifunctional fluorophores: trace water detection and lipid droplet (LD) imaging studies

Mohammad Masood Zafar, Rashmi Yadav, Alok Singh, Nidhi Tyagi,\* Animesh Samanta\* and Rakesh K. Mishra\*

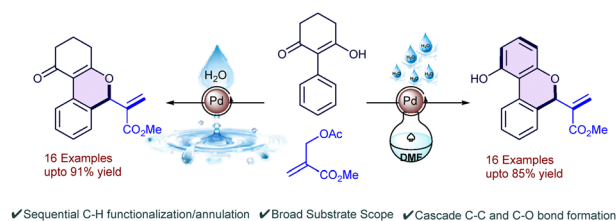


## COMMUNICATIONS

9095

### Cascade C–H functionalization/annulation of 2-aryl-1,3-dicarbonyls with Morita–Baylis–Hillman adducts: access to $\alpha$ -iso-/benzochromenyl acrylates

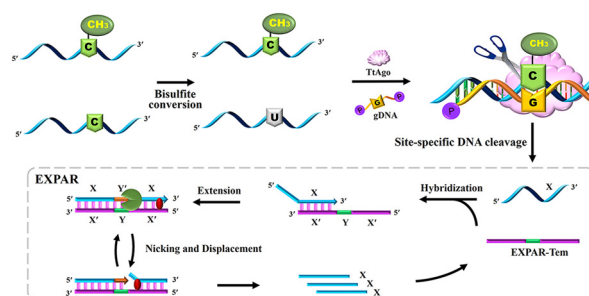
Sajal Roy, Sharajit Saha, Hemanga Bhattacharyya and Tharmalingam Punniyamurthy\*



9099

### A *Thermus thermophilus* Argonaute (TtAgo) cleavage-aided isothermal amplification strategy (TAC-IAS) for precise detection of locus-specific DNA methylation

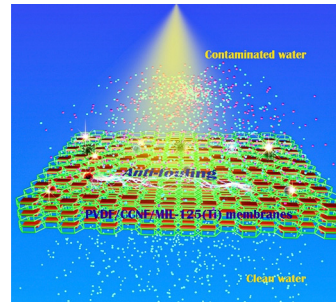
Fangfang Sun, Bingjie Han, Yi Zhao, Xing Chen, Hui Tian,\* Chenghui Liu and Yuanyuan Sun\*



9103

### Multifunctional antifouling sustainable membranes integrating MIL-125(Ti) and carboxylated cellulose nanofibers for self-cleaning and dye degradation

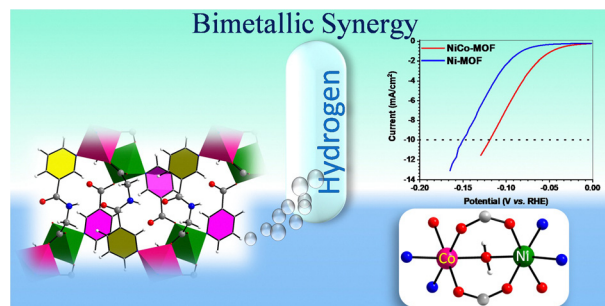
Shuping Wu,\* Lijuan Cui, Weijian Shi, Xiaokun Shi and Chao Xu



9107

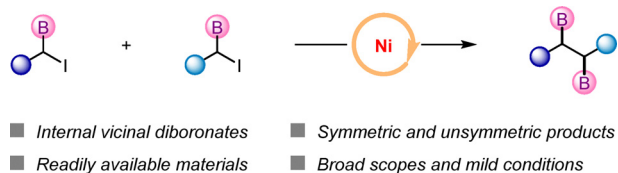
### Unlocking enhanced hydrogen evolution with a bimetal–organic framework: a synergistic approach

Chhatan Das, Pappu Naskar, Anjan Banerjee,\* Sourav Laha,\* Moumita Mukherjee, Ayan Datta\* and Partha Mahata\*



## COMMUNICATIONS

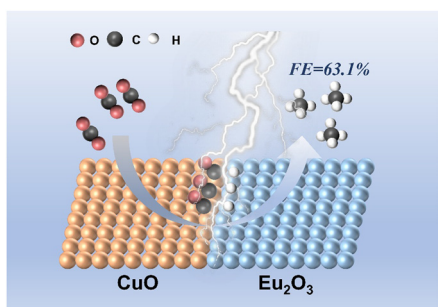
9111



### Nickel-catalyzed reductive coupling of $\alpha$ -haloboronates to access internal vicinal bis(boronate) esters

Huiyuan Wang, Shanya Lu, Dong Wang and Tao XU\*

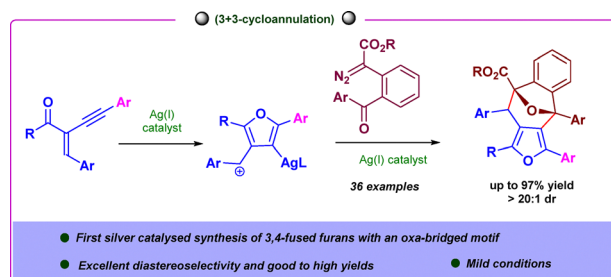
9115



### Constructing heterogeneous asymmetric sites for highly-selective methane production from $\text{CO}_2$ electroreduction

Yan Huang, Wen-Chuan Lai\* and Zhi-Yuan Gu

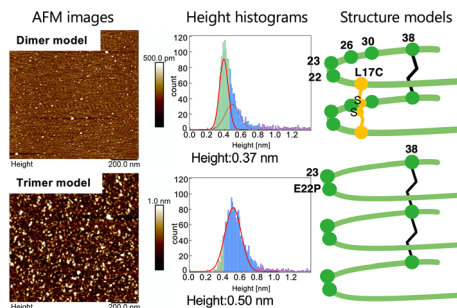
9119



### Highly regio- and diastereoselective (3+3)-cycloannulation of carbonyl ylides and 2-(1-alkynyl)-2-alken-1-ones enabled by silver catalysis

Jyotish Barman and Subhas Chandra Pan\*

9123



### Sizes of amyloid- $\beta$ oligomers predicted using atomic force microscopy and two-point crosslinked dimers as standards

Chikara Harada, Atsuya Matsui, Yumi Irie, Ayumi Uchino, Ayaka Chikugo, Kotaro Fujii, Katsuma Hosoi, Akio Nakanishi, Yusuke Kageyama, Nobuyasu Naruse,\* Chihiro Tsukano, Kazuhiro Irie\* and Yutaka Mera

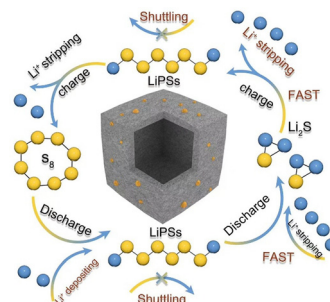


## COMMUNICATIONS

9127

### Ultrafine cobalt nanoparticle-decorated carbon submicron-cubes enhance polysulfide trapping and redox kinetics in lithium–sulfur batteries

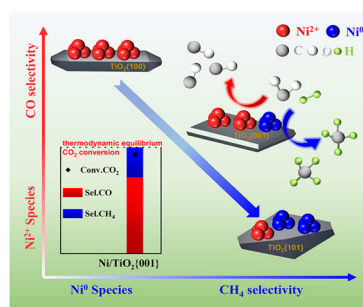
Zheng Huang, Qijun Han, Jishu Han, Lei Wang and Qingliang Lv\*



9131

### Morphology-dependent Ni/TiO<sub>2</sub> catalysts for CO<sub>2</sub> hydrogenation

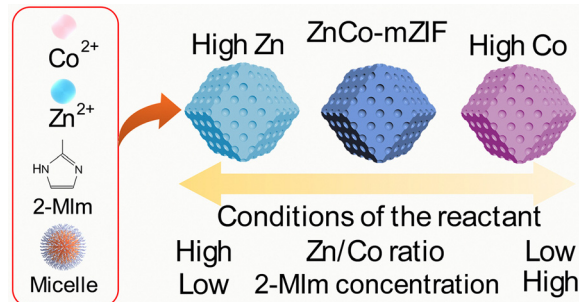
Bo Wang, Bo Peng, Aiping Jia, Yunshang Zhang, Shangcong Sun, Jieqiong Ding, Weixin Huang and Kun Qian\*



9135

### Soft-templated synthesis of hierarchical micro- and mesoporous Zn/Co bimetallic zeolitic imidazolate frameworks

Keisuke Shirasaki, Yingji Zhao,\* Yusuke Asakura and Yusuke Yamauchi\*



9139

### Enhanced redox cycling of Fe<sub>3</sub>O<sub>4</sub> by Cr-doping over oxygen electrode for rechargeable zinc–air batteries

Jiao Peng, Shan Ji,\* Wenlong Yang,\* Hui Wang, Xuyun Wang, Vladimir Linkov, Rongfang Wang and Xianguo Ma\*

