

# ChemComm

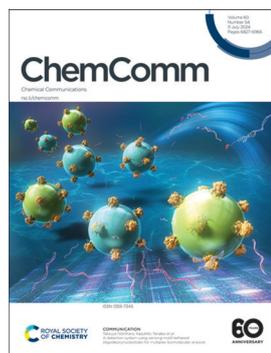
Chemical Communications

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 60(54) 6827-6966 (2024)



### Cover

See Tatsuya Nishihara, Kazuhito Tanabe *et al.*, pp. 6059–6062.  
This image was made by the Science Graphics Co., Ltd. Image reproduced by permission of Tatsuya Nishihara from *Chem. Commun.*, 2024, 60, 6059.



### Inside cover

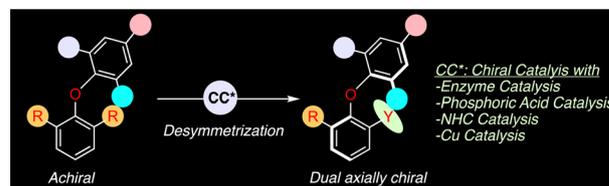
See Nadia C. Mösch-Zanetti *et al.*, pp. 6873–6876.  
Image reproduced by permission of Nadia C. Mösch-Zanetti from *Chem. Commun.*, 2024, 60, 6873.

## HIGHLIGHTS

6837

### Evolution in the asymmetric synthesis of biaryl ethers and related atropisomers

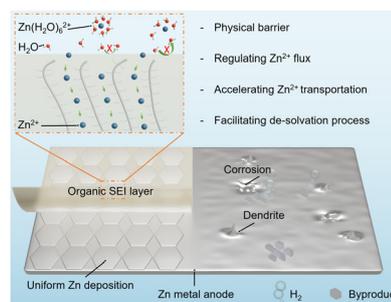
Namrata Kotwal and Pankaj Chauhan\*



6847

### Organic solid–electrolyte interface layers for Zn metal anodes

Ze He, Wei Huang, Fangyu Xiong, Shuangshuang Tan, Tianhao Wu, Rui Wang, Caterina Ducati,\* Michael De Volder\* and Qinyou An\*



# Advance your career in science

with professional recognition that showcases  
your **experience, expertise and dedication**

## Stand out from the crowd

Prove your commitment  
to attaining excellence in  
your field

## Gain the recognition you deserve

Achieve a professional  
qualification that inspires  
confidence and trust

## Unlock your career potential

Apply for our professional  
registers (RSci, RSciTech)  
or chartered status  
(CChem, CSci, CEnv)

## Apply now

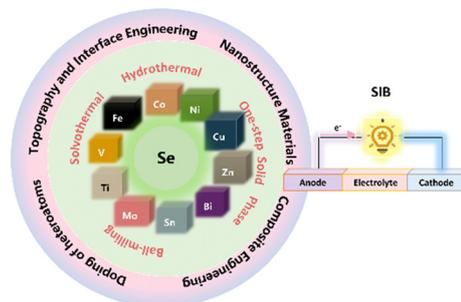
[rsc.li/professional-development](https://rsc.li/professional-development)



## FEATURE ARTICLE

6860

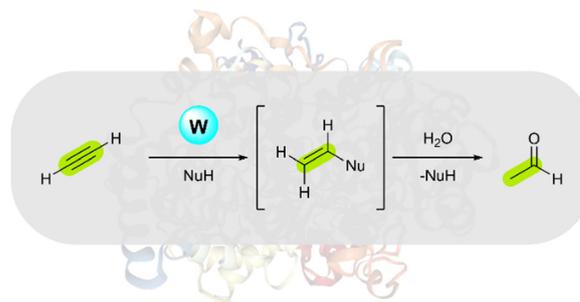
## Towards metal selenides: a promising anode for sodium-ion batteries

Mingjie Liu, Junling Xu, Lianyi Shao, Xiaoyan Shi,\*  
Chunsheng Li\* and Zhipeng Sun\*

## COMMUNICATIONS

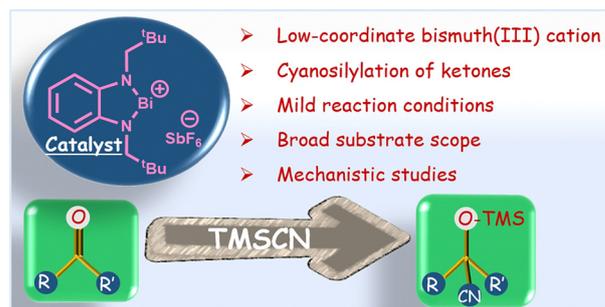
6873

## Vinyl-pyrazole as a biomimetic acetaldehyde surrogate

Lorenz Steiner, Miljan Z. Ćorović, Antoine Dupé and  
Nadia C. Mösch-Zanetti\*

6877

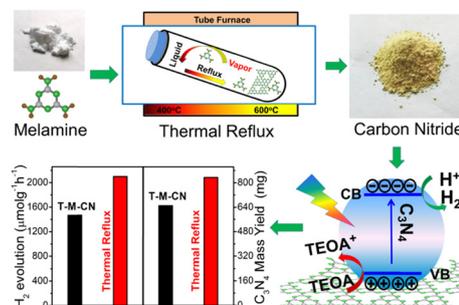
## Synthesis and catalytic application of a donor-free bismuthenium cation

Nilanjana Sen, Pallavi Sarkar, Yadram Meena,  
Srinu Tothadi, Swapan K. Pati\* and Shabana Khan\*

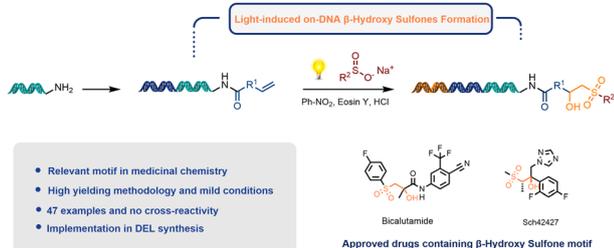
6881

Thermal reflux to synthesise C<sub>3</sub>N<sub>4</sub> nanostructures with high yield and enhanced photocatalytic activity in hydrogen evolution

Yihang He, Mingliang Wu and Kunquan Hong\*



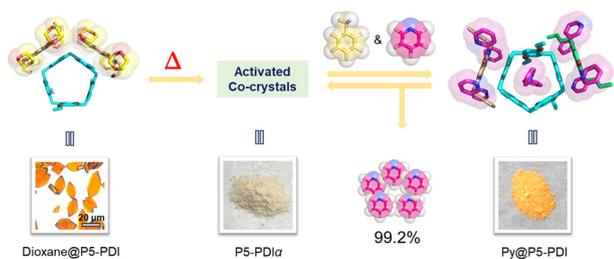
6885



### Light-induced $\beta$ -hydroxy sulfone synthesis in DNA-encoded libraries

Lijun Xue, Jiaqing Yu, Ying Zhong, Junyun Chen, Chao Li, Kexin Yang, Nicolas Duchemin\* and Yun Jin Hu\*

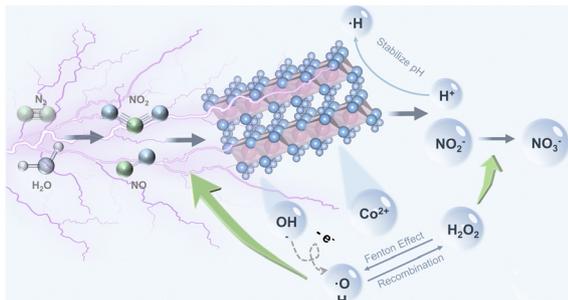
6889



### Vapo-chromic separation of toluene and pyridine azeotropes using adaptive macrocycle co-crystals

Bin Li,\* Yun Wang, Yuan Wang, Yue Liu, Lu Wang, Zhi-Yuan Zhang and Chunju Li\*

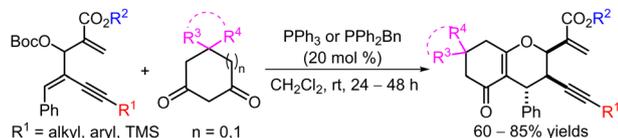
6893



### Solution plasma-cobalt hydroxide-enabled nitrogen fixation

Yangwenting Ou, Jinglun Du, Changhua Wang,\* Qi Wu, Shuang Liang, He Ma and Xintong Zhang\*

6897



### Phosphine-catalyzed (3+3) annulation of cinnamaldehyde-derived Morita–Baylis–Hillman carbonates with dinucleophiles

Yue Ren, Wangyu Shi, Yi Tang and Hongchao Guo\*

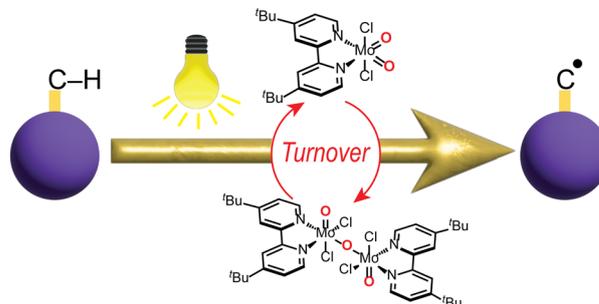


## COMMUNICATIONS

6901

**Direct photocatalytic C–H functionalization mediated by a molybdenum dioxo complex**

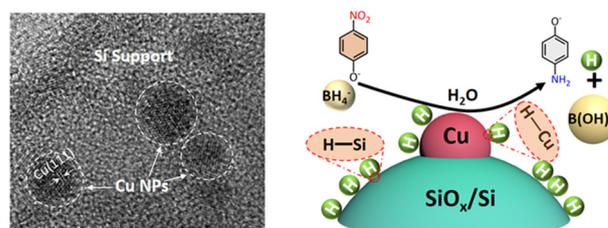
Courtney L. Baumberger, Victoria Z. Valley and Matthew B. Chambers\*



6905

**Facile synthesis of Cu-based catalysts from Cu<sub>3</sub>Si and their catalysis properties study**

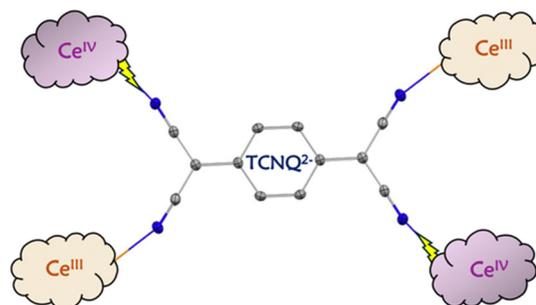
Yonghui Li, Xianhui Liu, Guangfu Zu, Zhiwei Yang, Xiao Huang and Shaozhou Li\*



6909

**Assembly of a trapped valent Ce<sup>III/IV</sup>–TCNQ complex through metal–ligand redox cooperativity**

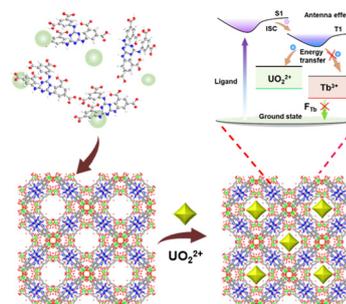
Himanshu Gupta, Brett D. Vincenzini, Alexandra M. Bacon and Eric J. Schelter\*



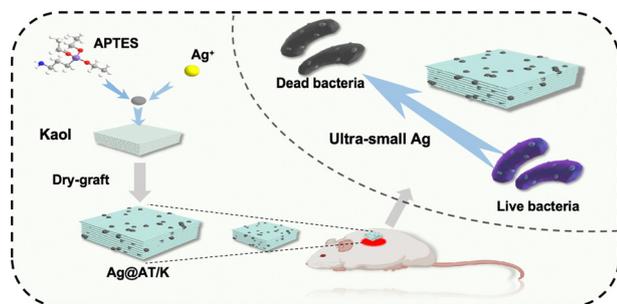
6913

**Site-recognition boosted the sensing performance of terbium-based organic frameworks for UO<sub>2</sub><sup>2+</sup> detection**

Kexuan Li, Yuan-Jun Tong, Qian Liu, Shiyu Peng, Xinying Gong, Dongmei Wang and Zhengjun Gong\*



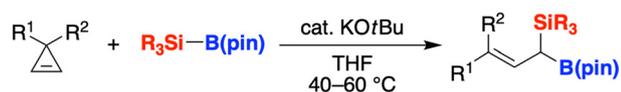
6917



### Kaolinite-mediated synthesis of ultra-small silver nanoparticles with high antimicrobial activity

Menghan Qu, Menghan Yu,\* Tianqi Liao and Huaming Yang\*

6921

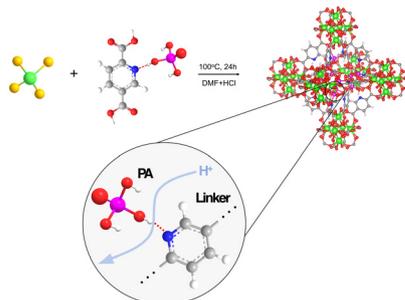


*efficient preparation of dimetalloids  
simultaneous introduction of Si and B functionalities  
mild reaction conditions*

### Synthesis of (1-silyl)allylboronates by KOtBu-catalyzed ring-opening *gem*-silylborylation of cyclopropenes

Ikuya Fujii, Haruka Hirata, Hirokazu Moniwa and Ryo Shintani\*

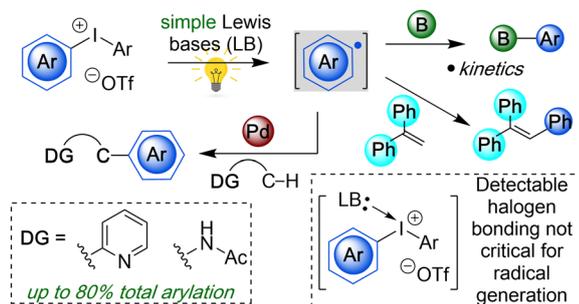
6925



### Bottom-up synthesis of ion-pair-bridged metal-organic framework for H<sup>+</sup> conduction

Keiichiro Maegawa,\* Hayata Okamoto, Kazuhiro Hikima, Go Kawamura, Atsushi Nagai and Atsunori Matsuda\*

6929



### Exogenous photocatalyst-free aryl radical generation from diaryliodonium salts and use in metal-catalyzed C-H arylation

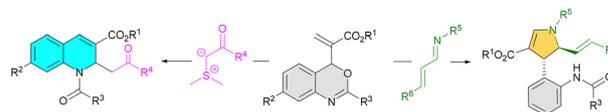
Jonathan Galicia, Nicholas R. McDonald, Christopher W. Bennett, Jiajun He, Mark D. Glossbrenner and Erik A. Romero\*



6933

### Catalyst-free reaction of 2-(4*H*-benzo[*d*][1,3]oxazin-4-yl)acrylates: synthesis of 1,2-dihydroquinolines and 2,3-dihydropyrroles

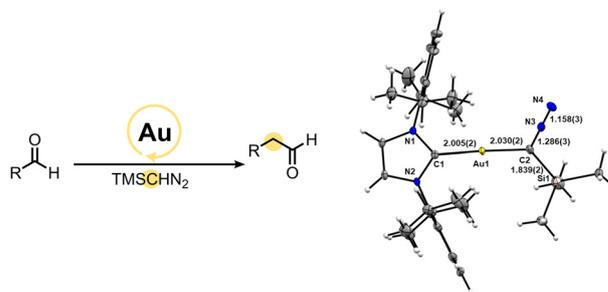
Tao Wang, Zhongyue Lu and Pengfei Li\*



6937

### Gold(i)-catalyzed homologation of aryl aldehydes with trimethylsilyldiazomethane

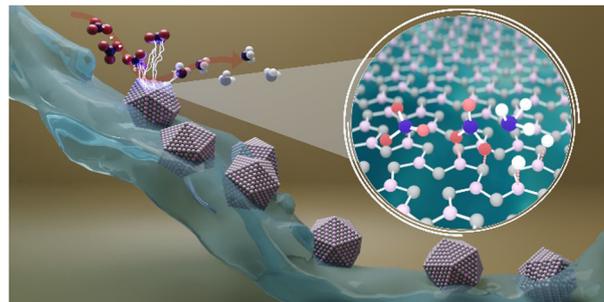
Abolghasem 'Gus' Bakhoda



6941

### Ni<sub>2</sub>P active site ensembles tune electrocatalytic nitrate reduction selectivity

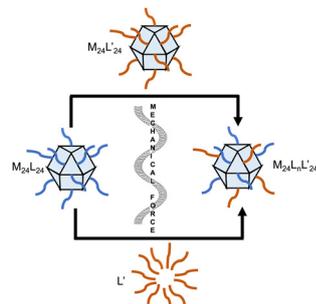
Emily Nishiwaki, Peter S. Rice, Ding-Yuan Kuo, Florence Y. Dou, Anthony Pyka, Bryce Reid, Hao A. Nguyen, Eric M. Stuve, Simone Rauegi and Brandi M. Cossairt\*



6945

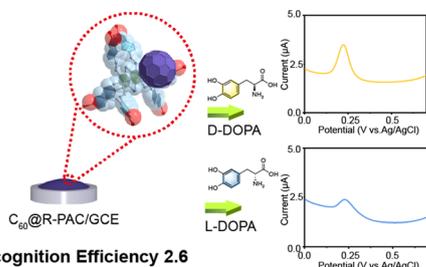
### Solvent-free mechanochemistry for the preparation of mixed-ligand cuboctahedral porous coordination cages

Jahidul Hoq and Eric D. Bloch\*



6949

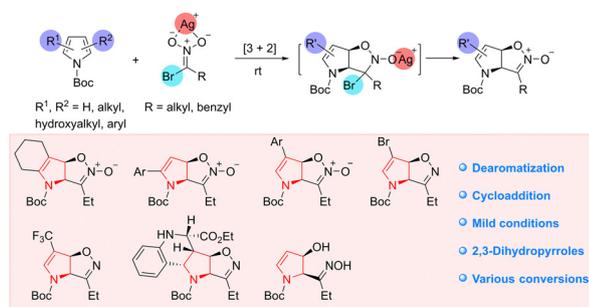
## Electrochemical Sensor



## A porous aromatic cage-based electrochemical sensor for enantioselective recognition of DOPA

Junning Kou, Ziyu Zhu, Jianzhu Jiang, Li Chen, Kunhao Zhang,\* Guogang Shan,\* Xinlong Wang,\* Zhongmin Su and Chunyi Sun\*

6953



## Dearomative pyrrole (3+2) reaction with geminal bromonitroalkane: synthesis of 2,3-dihydropyrroles

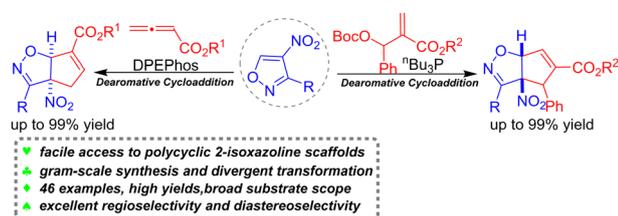
Lin Shi, Lidong Liu, Xingyu Lei, Yihan Wang, Yeguang Fang\* and Peng Jiao\*

6957

Carbazole-embedded *p*-benzporphyrinoid: synthesis, structure and a reversible chemodosimeter for mercury(II) ions

Athira Naniyil, Naveen Koroth Valappil, Alex P. Andrews and Sabapathi Gokulnath\*

6961



## Phosphine-catalyzed dearomative [3+2] cycloaddition of 4-nitroisoxazoles with allenates or Morita–Baylis–Hillman carbonates

Yongjun He, Tian-Juan He, Xiufang Cheng, Yibo Wei, Huamin Wang\* and Ying-Wu Lin\*

