

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.

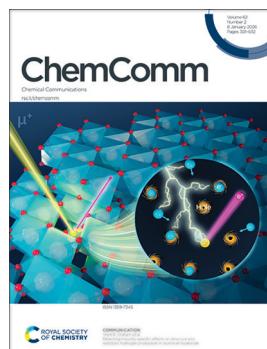
### IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 62(2) 301–632 (2026)



#### Cover

See Bhawani Narayan,  
pp. 379–388.  
Image reproduced  
by permission of  
Bhawani Narayan from  
*Chem. Commun.*,  
2026, **62**, 379.



#### Inside cover

See Trent R. Graham  
*et al.*, pp. 470–473.  
Image reproduced  
by permission of  
Battelle Memorial Institute  
from *Chem. Commun.*,  
2026, **62**, 470.  
Cover image created by  
Nathan Johnson.

### PROFILE

317

Contributors to the Pioneering Investigators collection 2025: part 3

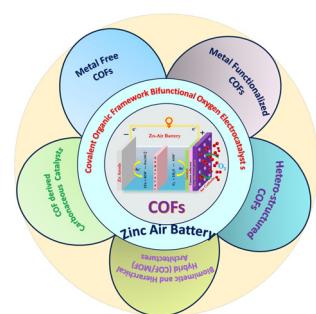


### HIGHLIGHTS

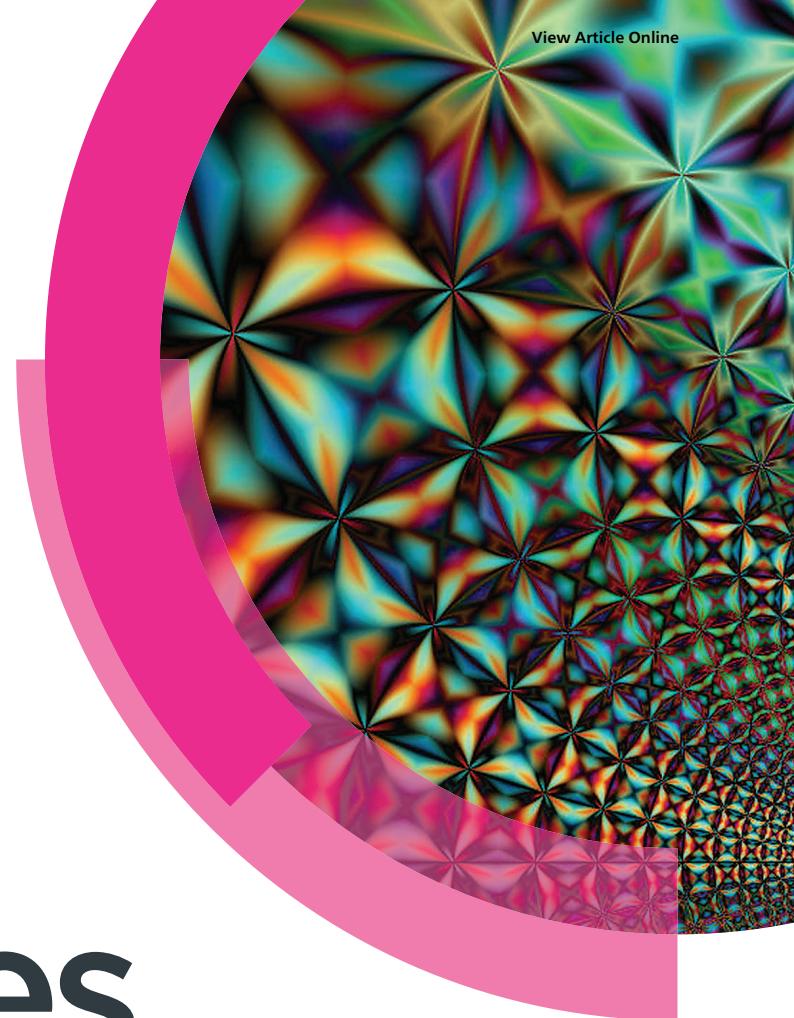
322

Recent progress in covalent organic frameworks for bifunctional oxygen electrocatalysis in rechargeable zinc–air batteries

Greesh Kumar, Manisha Das and Ramendra Sundar Dey\*



# RSC Advances



**At the heart of open access for  
the global chemistry community**

**Editor-in-chief**

**Russell J Cox**

Leibniz Universität Hannover, Germany

**We stand for:**



**Breadth** We publish work in all areas of chemistry and reach a global readership



**Quality** Research to advance the chemical sciences undergoes rigorous peer review for a trusted, society-run journal



**Affordability** Low APCs, discounts and waivers make publishing open access achievable and sustainable



**Community** Led by active researchers, we publish quality work from scientists at every career stage, and all countries

**Submit your work now**

[rsc.li/rsc-advances](http://rsc.li/rsc-advances)

@RSC\_Adv

## HIGHLIGHTS

341

## Emerging tungsten-based materials for rechargeable metal-ion batteries: progress and perspectives

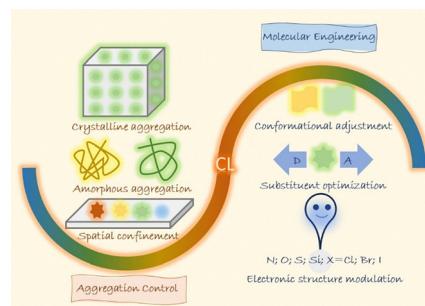
Chengcheng Xiao, Tianrui Liu, Linghao Sun and Lingyun Chen\*



365

## Strategies for tailoring clusteroluminescence: from aggregation control to molecular engineering

Riliga Wu, Tongyue Wu, Weijiang Guan\* and Chao Lu\*

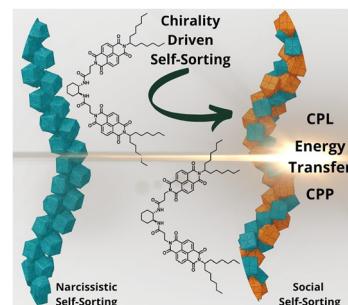


## FEATURE ARTICLES

379

## Chirality driven self-sorting in supramolecular assemblies of $\pi$ -conjugated systems

Bhawani Narayan



389

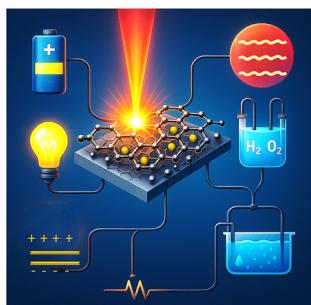
## Carbene transfer reactions enabled by heterogeneous metal catalysis

Luan Lu and Jie Zhao\*



## FEATURE ARTICLES

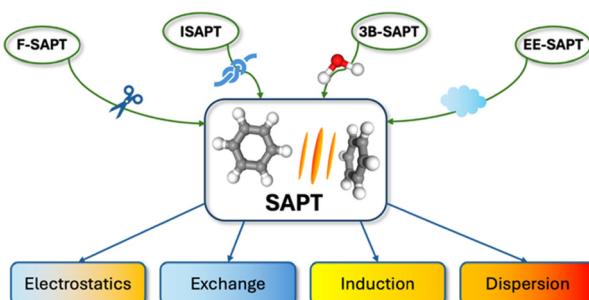
398



## From synthesis to applications: evolution of metal-embedded laser-induced graphene (M-LIG)

Asmita Dutta, Tomer Zidki\* and Arie Borenstein\*

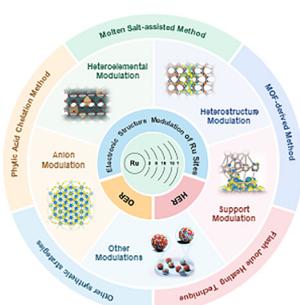
419



## Understanding nonbonded interactions between molecular fragments

Konrad Patkowski

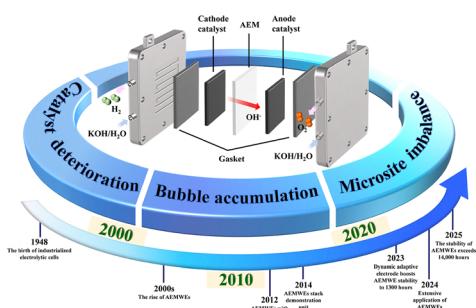
433



## Electronic structure modulation of Ru sites toward efficient water splitting

Jixiang Jiao and Shichun Mu\*

447



## Innovative perspectives on strategies for enhancing the stability of anion exchange membrane electrolyzers

Zihe Liu, Yunchao Lei, Zichao Ji, Xinyuan Hu, Di Tian, Anlei Zhang\* and Longlu Wang\*

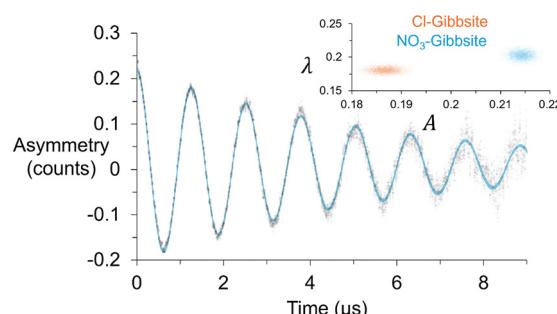


## COMMUNICATIONS

470

**Detecting impurity-specific effects on structure and radiolytic hydrogen production in aluminum hydroxide**

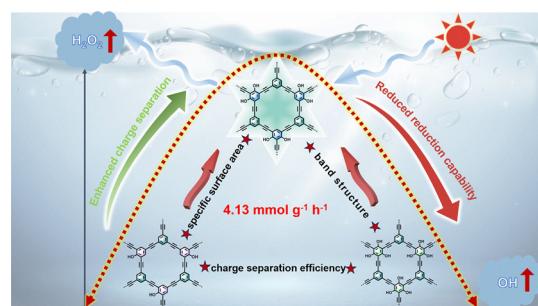
Trent R. Graham,\* Khashayar Ghandi, Micah Prange, Gregory Schenter, Larry M. Anovitz, Jay A. LaVerne and Carolyn I. Pearce



474

**Precise molecular engineering in hydroxyl-containing conjugated microporous polymers for optimized hydrogen peroxide production**

Daming Gao, Deli Kong, Wei Zhang,\* Peng Wang,\* Xiaobo Luo, Shiyuan Zhou\* and Peiyang Gu



479

**Biochar-supported Cu catalyst for low-temperature base-free oxidative *N*-formylation of amines with paraformaldehyde in green solvent**

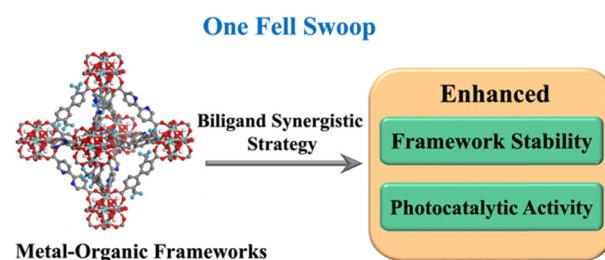
Haihua Yin, Zhenjie Wang, Hangkong Yuan\* and Xingchao Dai\*



484

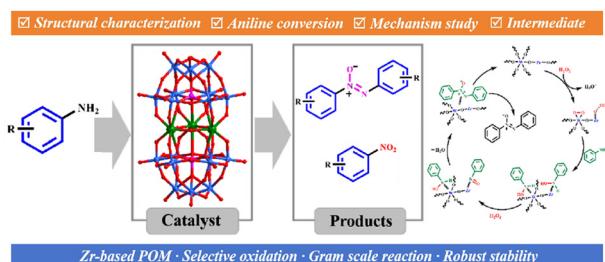
**Biligand synergistic MOFs with dual enhancements in stability and charge transfer for efficient CO<sub>2</sub> photoreduction**

Jiayin Tao, Yujun Ouyang, Kai Zhang, Keke Wang,\* Bolin Zhou, Xiahe Chen, Yi Zhang, Junze Zhao, Qin Wang, Yun-Fang Yang, Jiexiang Xia,\* Huaming Li and Yuanbin She\*

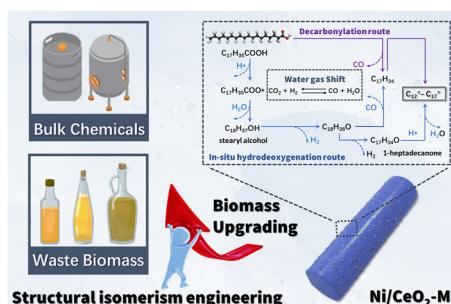


## COMMUNICATIONS

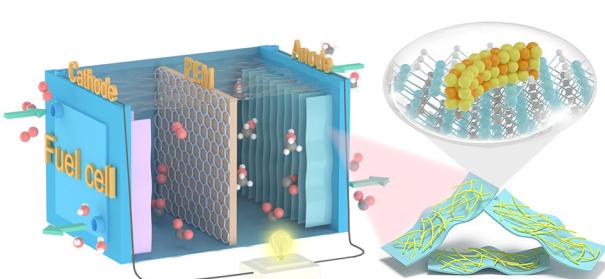
489



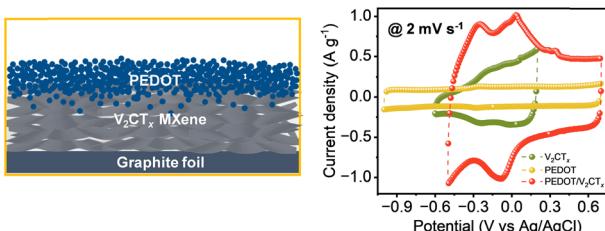
493



497



502



**Stable Zr-based polyoxometalate as a green catalyst for selective oxidation of aniline**

Zhijie Liang, Yiqing Yao, Yuyang Ding, Haifeng Wang,\* Huafeng Li\* and Gang Feng\*

**Structural isomerism in Ce-MOFs directs Ni/CeO<sub>2</sub> catalyst design for selective fatty acid deoxygenation to linear  $\alpha$ -olefins**

Jian Tian, Jiasen Li, Mingke Zhang, Youting Wang, Gen Li, Bin Chen and Guowu Zhan\*

**Bimetallic PtRu alloy nanowires confined on MXene nanosheets for highly efficient methanol electrooxidation**

Jiawei Yang, Quanguo Jiang,\* Chi Zhang, Jian Zhang, Lu Yang, Haiyan He and Huajie Huang\*

**Extrinsic pseudocapacitance of a vanadium carbide MXene-poly(3,4-ethylenedioxothiophene) heterostructure**

Suman Yadav and Narendra Kurra\*

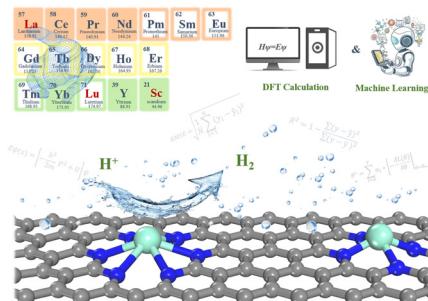


## COMMUNICATIONS

506

## Machine learning high-throughput screening of rare earth SACs with different coordination environments for the HER

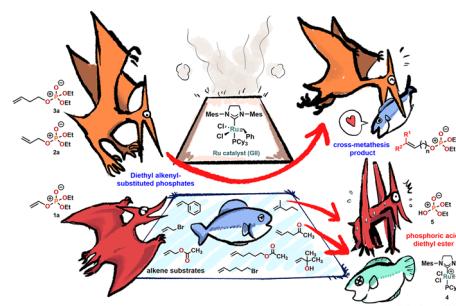
Meiling Liu, Qiming Fu, Wei Zhong, Shaik Gouse Peera\* and Chao Liu\*



510

## Chain-length-dependent reactivity of alkenyl phosphates in ruthenium-catalyzed cross-metathesis

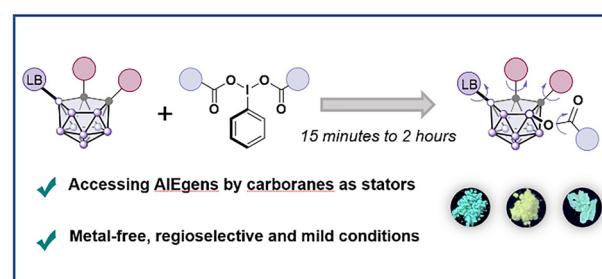
Apicha Pontavatchai, Kevin Schwedtmann, Philipp Royla, Kai Schwedtmann, Tossapol Khamnaen, Uwe Schwarzenbolz, Thomas Henle, Ekasith Somsook\* and Jan J. Weigand\*



515

## Metal-free regioselective B–O coupling in carboranes for constructing aggregation-induced emission luminogens

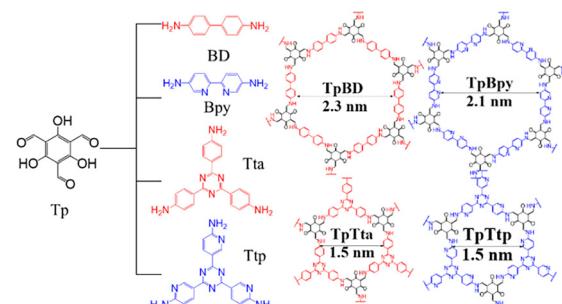
Xinrui Li, Ningning Zhou, Deshuang Tu\*, Chang-sheng Lu\* and Hong Yan\*



520

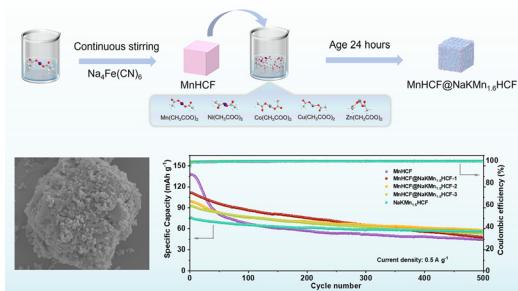
## Water-assisted SO<sub>2</sub> capture in pyridine-functionalized COFs

Zhenling Tang, Guang-Rui Si, Qiang Chen,\* Jia-Ao Lv, Shengjun Wang, Xue-Feng Bai, Lin-Hua Xie, Kecheng Wang\* and Jian-Rong Li



## COMMUNICATIONS

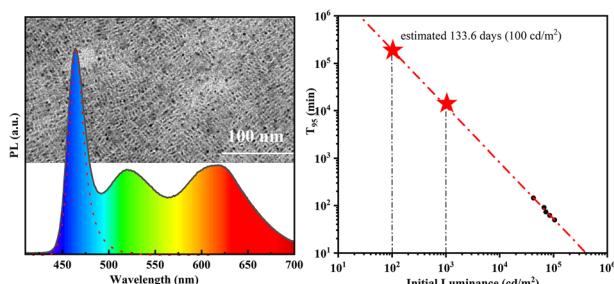
524



**A high-entropy Prussian Blue shell enabling the high-rate and long-term cycling stability of the Mn-PBA cathode for sodium-ion batteries**

Yuxin Li, Beibei Kuang, Ziwen Zhu, Peng Liu, Zilin Yang,\* Wenting Li and Zheng Liu\*

529



**High-quality deep-blue  $\text{CsPbBr}_3$  quantum rods toward stable white light-emitting diodes**

Wei Shen,\* Wei Zhao, Zhongyi Yang, Yue Qiu, Meng Nan, Erdong Zhang, Shuang Lu, Ting Zhi, Pengfei Xia and Shufen Chen\*

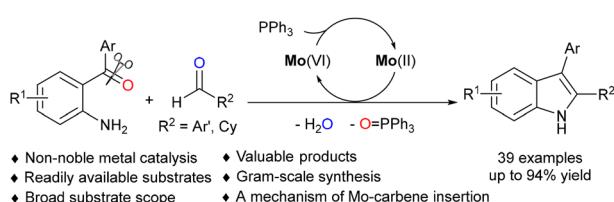
534



**Nickel-catalyzed dehydrogenative Zn–Zn coupling to a Zn(II) dimer and its reactivity**

Sagrika Rajput, Smrutirani Padhan, Nithya M. Thilakan, Sayantan Mukhopadhyay and Sharanappa Nembenna\*

539



**Molybdenum-catalyzed synthesis of 2,3-disubstituted indoles via imine condensation and  $\text{C}(\text{sp}^2)-\text{H}$  insertion**

Haoke Chu,\* Xiuxin Lv, Yitong Luo, Meiyi Liu, Rong-Hui Huang,\* Xiao-Qing Feng and Fen-Er Chen\*



## COMMUNICATIONS

543

**Synergy of a 2D/2D  $\text{Ti}_3\text{C}_2\text{T}_x$  MXene–graphene oxide heterostructure for enhanced hydrogen storage**

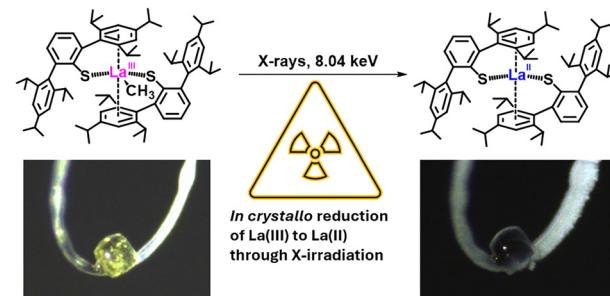
Shankar Ghotia, Seemita Banerjee, Asheesh Kumar and Pradip Kumar\*



547

***In crystallo* homolytic cleavage of a terminal lanthanum(III)–methyl bond by Cu K $\alpha$  X-radiation forms a La(II) complex**

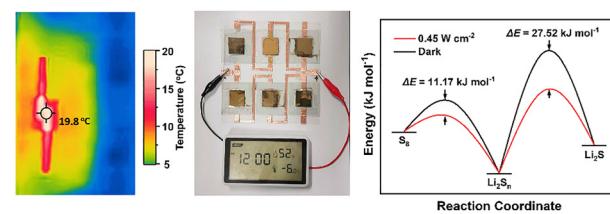
Cary R. Stennett, Makayla R. Luevano, Joseph W. Ziller and William J. Evans\*



551

**Boosting Li–S redox chemistry by the plasmonic effect of MXene**

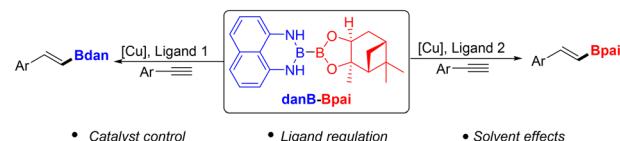
Yu Liu, Xingyu Wang, Xiangyu Meng and Zhiyu Wang\*



556

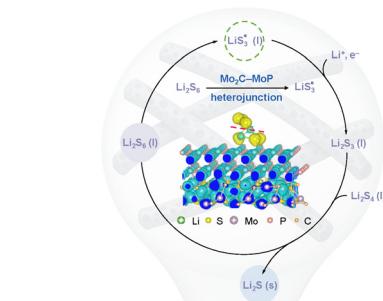
**Cu-catalyzed selective coupling of alkynes with danB–Bpai**

Qi Li, Dezhao Zhang, Tanyu Song, Xiaodong Tang, Jun-An Ma and Chun Zhang\*



## COMMUNICATIONS

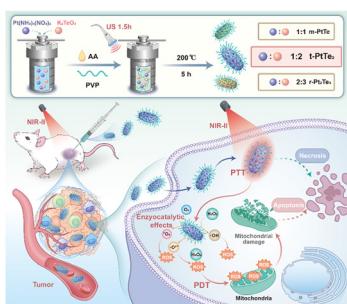
560



## A Mo<sub>2</sub>C–MoP heterostructure enabled catalytic route for high-performance lithium–sulfur batteries

Baijing Wu, Xiaoxia Tang, Yujiao Xiang, Hongrui Wang, Cheng Tong,\* Minhua Shao, Cunpu Li\* and Zidong Wei

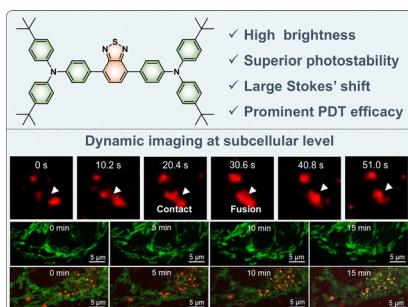
564



## NIR-II photozymes with stoichiometric chemistry-regulated enzyocatalytic activities for multi-modal nanocatalytic therapy

Zhengzheng Lin, Ziyang Song, He Shen, Yi Shen,\* Liang Chen\* and Yu Chen\*

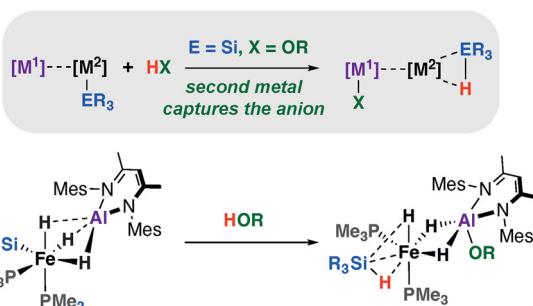
568



## Red/NIR-emissive AIE nanoprobe to track subcellular dynamics in a photodynamic therapy process

Yu Zhou, Yalei Jiang, Lanqiong Zhang, Yukang Li, Ying Hao, Pei Zhou, Zhi Wang, Youming Zhang, Jen-Shyang Ni, Yanzi Xu,\* Lingjie Meng\* and Dongfeng Dang\*

572



## A heterometallic $\sigma$ -silane adduct from cooperative reactivity of an iron–aluminium complex

Benedek Stadler and Mark R. Crimmin\*

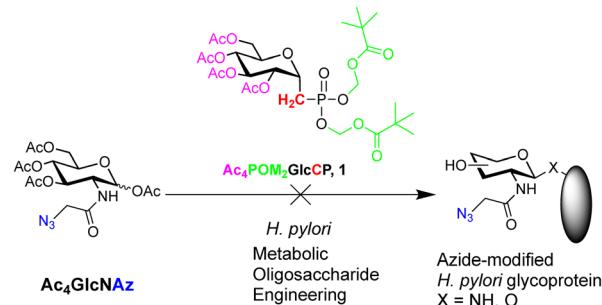


## COMMUNICATIONS

576

**Inhibition of glycoprotein biosynthesis in the pathogenic bacterium *Helicobacter pylori* by masked carbohydrate phosphonates**

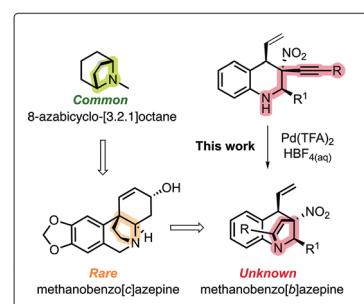
Ebrahim Soleimani, Aniqa Chowdhury, Jian-She Zhu, Elisa Ospanow, Karen D. Moulton, Danielle H. Dube\* and David L. Jakeman\*



580

**Palladium(II)-catalysed intramolecular hydroamination of 3-alkynyltetrahydroquinolines to methanobenzo[*b*]azepines**

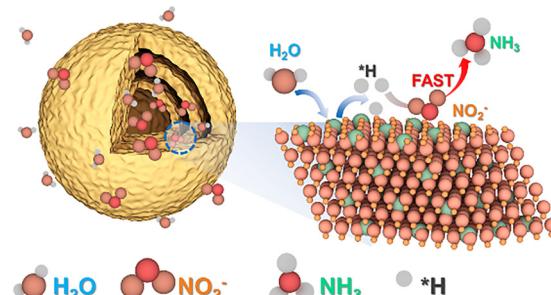
Chi-Bong Eric Chao, Lloyd R. Kellermann, Christopher Richardson, Andrew J. Tague,\* Stephen G. Pyne\* and Christopher J. T. Hyland\*



584

**Boosting nitrite conversion to ammonia by rational design of a Cu<sub>2</sub>O-based electrocatalyst**

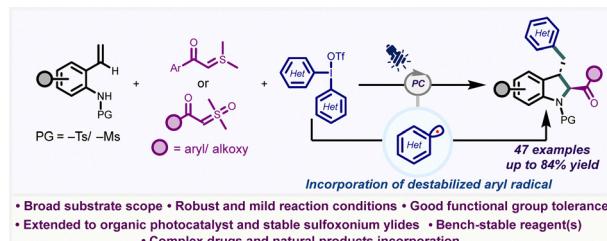
Yu Zhang, Encong Zhang, Jiahui Huang, Qingquan Chen, Jianyu Chen, Zhen Shen,\* Li Shi,\* Yanwen Ma and Jin Zhao\*



589

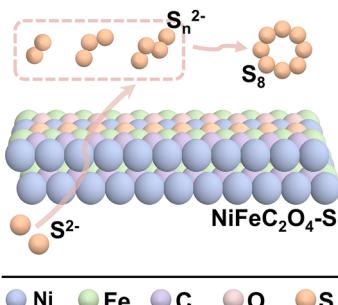
**Photoredox-catalyzed multicomponent transformation towards functionalized *trans*-2,3-disubstituted indolines**

M. Siva Prasad, Sneha Chandra, Prahallas Meher and Sandip Murarka\*



## COMMUNICATIONS

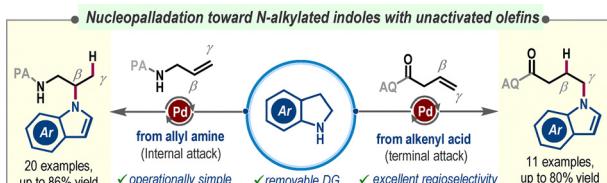
594



**Employing oxalate to protect metal active sites for efficient sulfion oxidation coupled with hydrogen production**

Yang Nie, Xinzhen Liu, Jingyu Li, Ruonan Wang\* and Bohua Dong\*

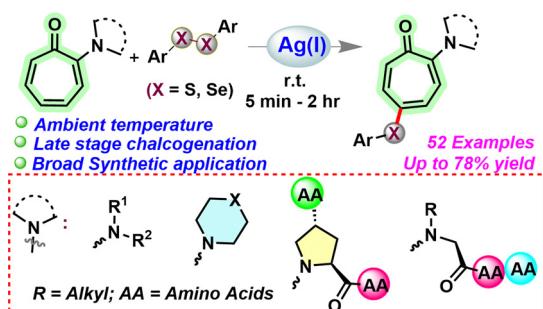
599



**Nucleopalladation strategy towards regioselective *N*-alkylation of indoles with unactivated olefins**

Shib Nath Saha, Niloy Ballav, Nitya Gupta and Mahiuddin Baidya\*

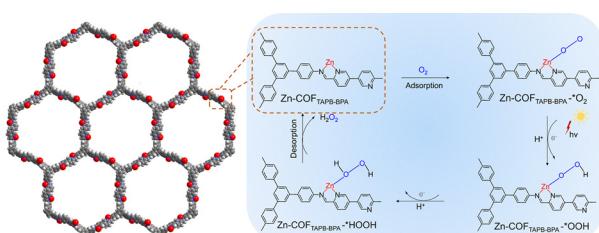
603



**Ag(I)-mediated mono-selective C(sp<sup>2</sup>)–H chalcogenation of  $\alpha$ -aminotropones and their peptides at room temperature**

Malobika Kar and Nagendra K. Sharma\*

608



**Atomic zinc active sites on imine-pyridine based covalent organic frameworks for enhancing photocatalytic H<sub>2</sub>O<sub>2</sub> production**

Ruolan Huang, Xuan-He Liu\* and Bing Sun\*



## COMMUNICATIONS

612

**Ru-catalyzed C–H annulation: accessing quinazolinone–BCP hybrids from stable precursors**

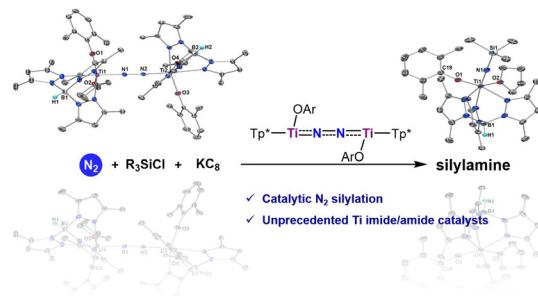
Yu-Yong Luan, Jin-Ye Li, Xue-Yuan Liu\* and Yong-Min Liang\*



616

**Catalytic dinitrogen silylation by tris(pyrazolyl)borate-supported titanium complexes**

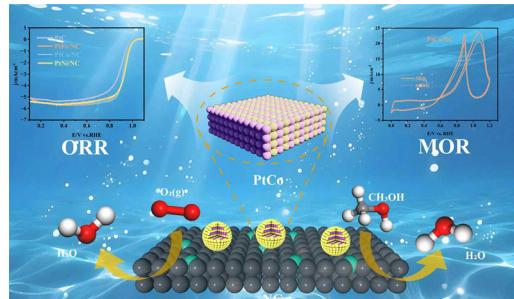
Chenrui Liu, Ling-Ya Peng, Yumeng Chen, Jingyi An, Zhaoxin Li, Wenshuang Huang, Ganglong Cui\* and Shaowei Hu\*



620

**Atomically ordered PtM intermetallics on nitrogen-doped carbon for high-efficiency bifunctional electrocatalysis**

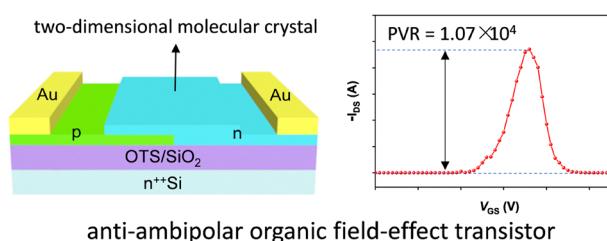
Yang Han, Qingmei Wang,\* Fengqin Zhang, Qingsong Hua\* and Shun Lu\*



625

**High peak-to-valley ratio in anti-ambipolar organic transistors enabled by two-dimensional molecular crystal heterojunctions**

Jiarong Yao, Xianfeng Shen, Xianshuo Wu, Hai Xie\* and Rongjin Li\*



## EXPRESSION OF CONCERN

629

**Expression of concern: Photo-triggered C-arylation of active-methylene compounds with diazonium salts via an electron donor–acceptor (EDA) complex**

Shikha Pandey, Arsala Kamal, Ambuj Kumar Kushwaha, Himanshu Kumar Singh, Suresh Kumar Maury and Sundaram Singh\*

## CORRECTION

630

**Correction: Photoswitchable inhibitors: temporally regulated inhibition of the IDO1 enzyme using photoactive merocyanine derivatives**

Niku Moni Das, Sayantani Biswas, Suravi Chauhan, Adyasa Sahoo, Debdas Dhabal and Debasis Manna\*