

## IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 61(12) 2363-2590 (2025)



### Cover

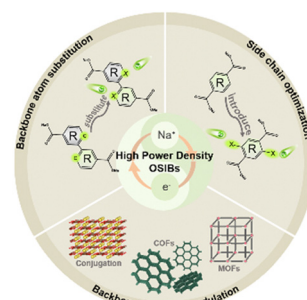
See Lin Dong *et al.*,  
pp. 2424-2449.  
Image reproduced  
by permission of  
Lin Dong from  
*Chem. Commun.*,  
2025, 61, 2424.

## HIGHLIGHTS

2375

### Organic molecular design for high-power density sodium-ion batteries

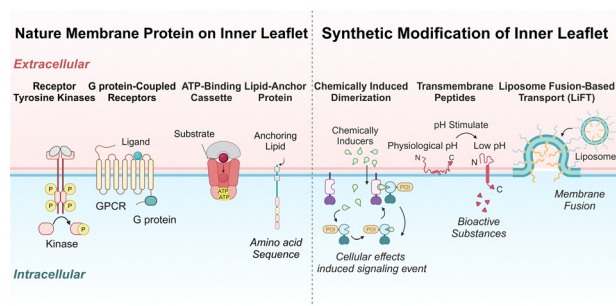
Ying Qi, Huaping Zhao and Yong Lei\*



2387

### Chemistries on the inner leaflet of the cell membrane

Wenxue Xie, Yuhan Kong, Cong Ren, Yujian Wen, Maben Ying and Hang Xing\*



# 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)

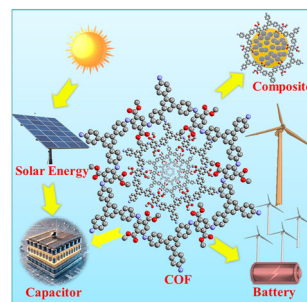


## HIGHLIGHTS

2403

### Covalent organic frameworks and their composites as enhanced energy storage materials

Divya Divya, Harshit Mishra and Ritambhara Jangir\*

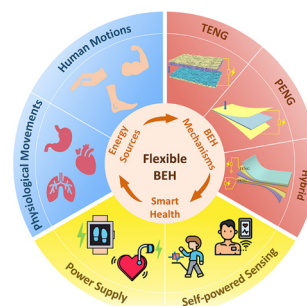


## FEATURE ARTICLES

2424

### Advancements in flexible biomechanical energy harvesting for smart health applications

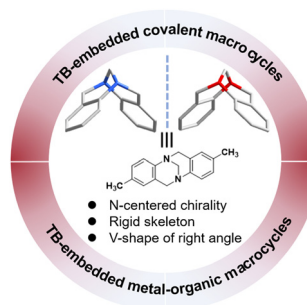
Yuxiao Wang, Mengdie Sun, Sun Hwa Kwon and Lin Dong\*



2450

### Tröger's base-embedded macrocycles with chirality

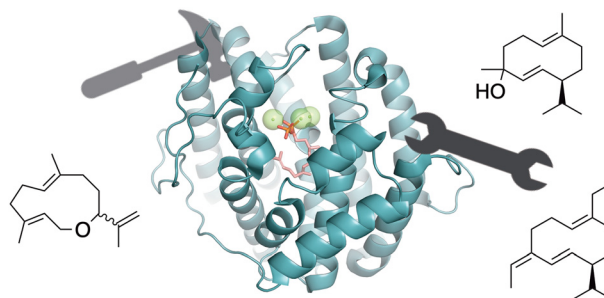
Conghao Shi, Guangzhou Xu, Heng Qiu, Yumei Li, Xiancai Lu, Juli Jiang\* and Leyong Wang



2468

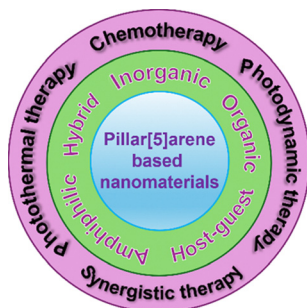
### Engineering terpene synthases and their substrates for the biocatalytic production of terpene natural products and analogues

Luke Alan Johnson and Rudolf Konrad Allemann\*



## FEATURE ARTICLES

2484

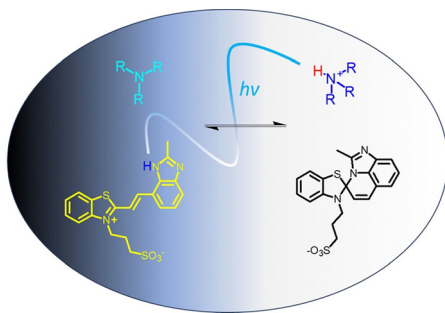


### Recent developments in pillar[5]arene-based nanomaterials for cancer therapy

Yu Dai, Wenqiang Yu, Yushan Cheng, Yao Zhou, Jiaye Zou, Yujia Meng, Feiyu Chen, Yihan Qian and Yong Yao\*

## COMMUNICATIONS

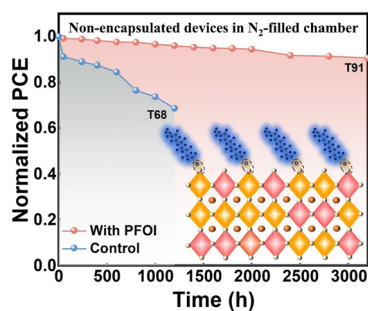
2496



### A novel metastable-state photoacid for reversible protonation of strong bases

Melyse Laud, Pavithra Liyanage and Yi Liao\*

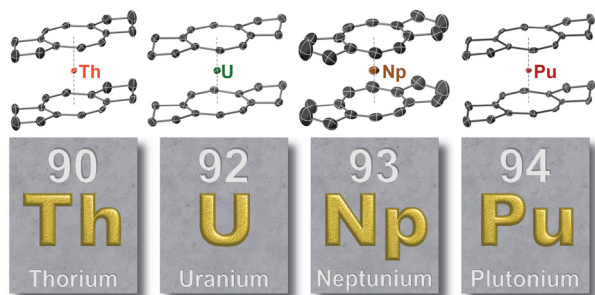
2500



### Halogen-bond-mediated inhibition of ion migration for stable Sn–Pb perovskite solar cells

Shuming Zhang, Jiahui Cheng, Huijie Cao, Mingjun Ma, Cheng Li, Xiuyan Song\* and Zhongmin Zhou\*

2504



### Synthesis and characterization of isostructural annulated actinocenes

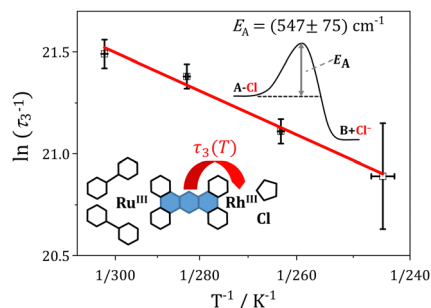
Dominic R. Russo, Jacob A. Branson, Sheridon N. Kelly, Asmita Sen, S. Olivia Gunther, Appie Peterson, Patrick W. Smith, Erik T. Ouellette, John Arnold, Jochen Autschbach\* and Stefan G. Minasian\*



2508

### Ligand labilization gates intramolecular electron transfer in molecular photocatalyst

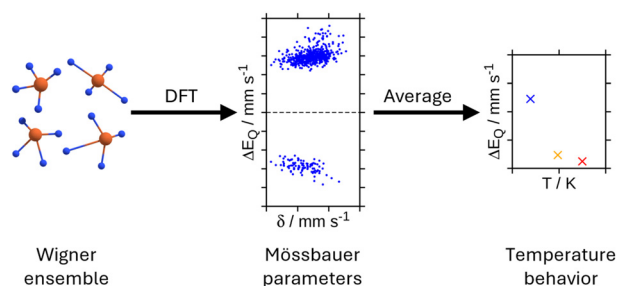
Louis Blechschmidt, Linda Zedler, Alexander K. Mengele, Sven Rau and Benjamin Dietzek-Ivanšić\*



2512

### The temperature dependence of Mössbauer quadrupole splitting values: a quantum chemical analysis

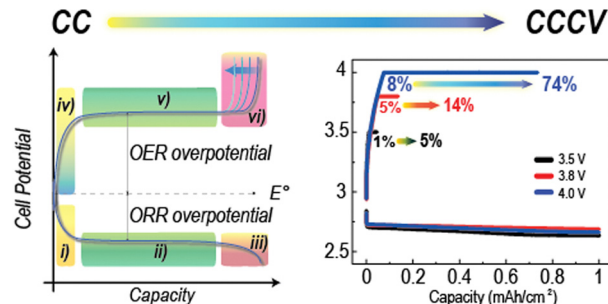
Niklas von Rhein and Vera Krewald\*



2516

### Exploration of potential-limited protocols to prevent inefficiencies in Li-O<sub>2</sub> batteries during charge

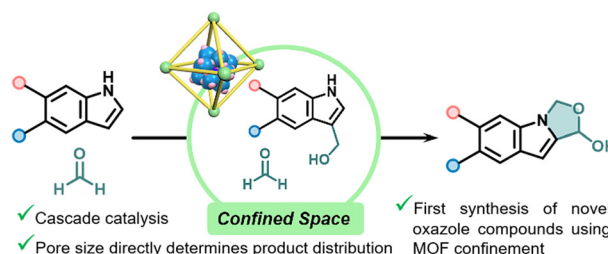
Zoé Lacour, Youngjin Ham, Laurence Brazel, Clare P. Grey\* and Israel Temprano\*



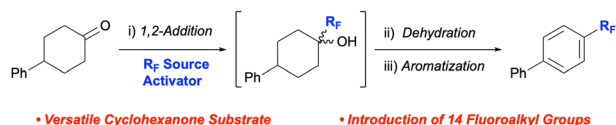
2520

### MOF confinement enables selective synthesis of novel oxazoles from indole and formaldehyde

Deng-Yue Zheng, Jinping Gao, Yue Diao, Mian Li and Xiao-Chun Huang\*



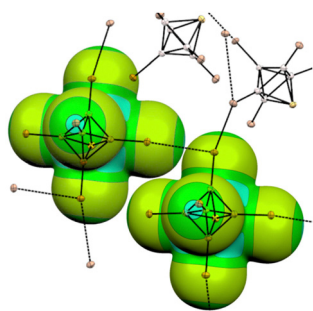
2524



### A deoxyfluoroalkylation–aromatization strategy to access fluoroalkyl arenes

Pankaj Bhattarai, Suvajit Koley, Krttika Goel and Ryan A. Altman\*

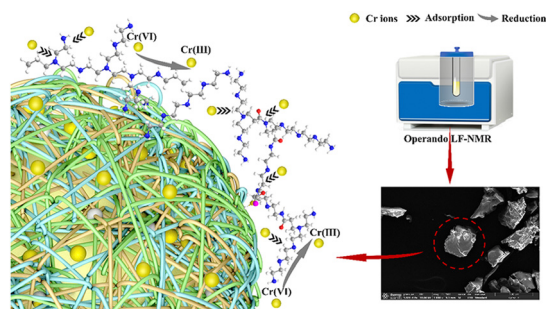
2528



### The synthesis and structural aspects of the perbromo-functionalised thiaboranes *closo*-SB<sub>n</sub>Br<sub>n</sub> (*n* = 5, 9, 11): the solid-state structure of the octahedral *closo*-SB<sub>5</sub>Br<sub>5</sub>, governed by strong dihalogen contacts

Willi Keller,\* Joachim Ballmann, Jindřich Fanfrlík and Drahomír Hnyk\*

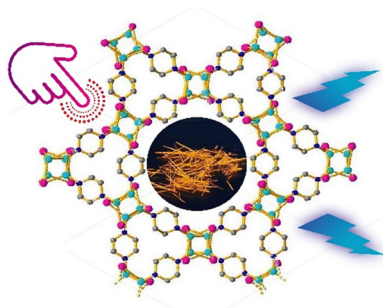
2532



### Monitoring technology for Cr(vi) adsorption and reduction by *operando* NMR spectroscopy

Hang Zhou, Xiao-Meng You, Xue-Lu Wang\* and Ye-Feng Yao\*

2536



### Inducing piezoelectric behavior in a copper iodide cubane cluster-based metal–organic framework *via* linker engineering

Sankalpa N. Panda, Prabhanjan Pradhan, Satyapriya Nath, Jeebanjyoti Mohapatra, Biplab K. Patra\* and Bishnu P. Biswal\*

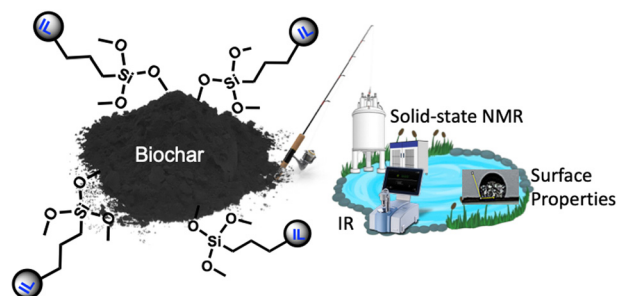


## COMMUNICATIONS

2540

**Biochar boost: revolutionizing functionalization of a difficult material**

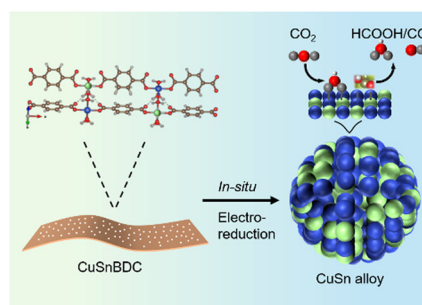
Sara M. K. Cheema,\* Celine M. Schneider, Jean-François Morin, Pascale Chevallier, T. Jane Stockmann, Francesca M. Kerton and Stephanie L. MacQuarrie



2544

**In situ formed CuSn alloy from multivariate metal–organic frameworks for tunable CO<sub>2</sub> electroreduction**

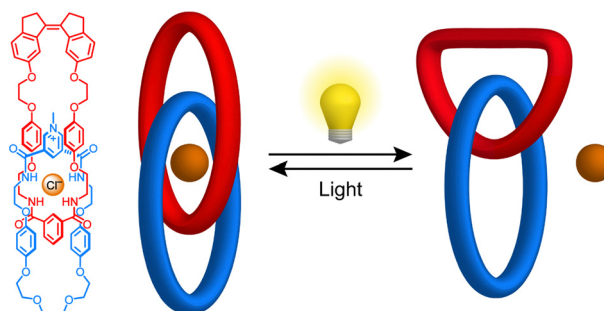
Xuheng Li, Chen Qin, Chunli Wang, Fuping Pan\* and Kai-Jie Chen\*



2548

**A photoswitchable [2]catenane receptor**

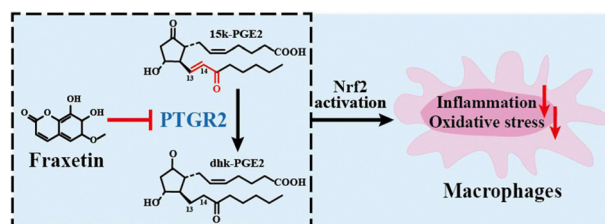
Jorn de Jong, Maxime A. Siegler and Sander J. Wezenberg\*



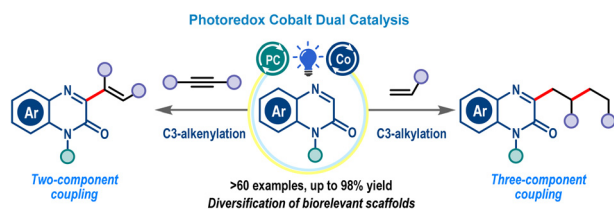
2552

**Chemical proteomic profiling reveals prostaglandin termination enzyme PTGR2 as a key molecular target of natural coumarin fraxetin**

Songyao Kang, Zhiwei Cai, Yuqing Wang, Qing Yin, Ang Dai, Zhou Zhang, Juan Shi, Jie Lian, Shuo Song, Yu Fu, Fangrui Zhong, Yangyang Bian, Fangyuan Zhao,\* Jianhua Liu\* and Weining Zhao\*



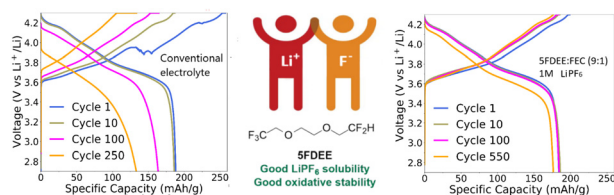
2556



### Photoredox cobalt dual catalysis toward C3-functionalization of quinoxalinones with alkenes and alkynes

Karunamayee Mondal, Mahima Paliana, Karthikeyan Jayabalan and Mahiuddin Baidya\*

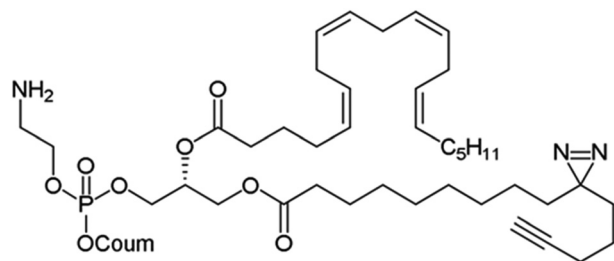
2560



### Terminally fluorinated ether as a solvent for high-performance lithium metal battery electrolyte

Alexander A. Hizbullin, Irina V. Kutovaya, Gayane A. Kirakosyan, Dmitry A. Cheshkov, Victoria A. Nikitina, Stanislav S. Fedotov and Olga I. Shmatova\*

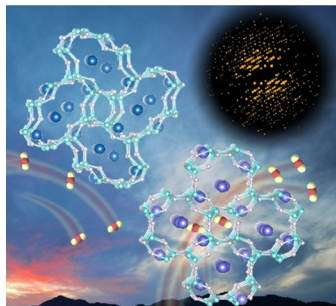
2564



### Trifunctional lipid derivatives: PE's mitochondrial interactome

Alix Thomas, Rainer Müller, Scotland Farley, Ana Kojic, Frank Stein, Per Haberkant and Carsten Schultz\*

2568



### Revealing the CO<sub>2</sub> adsorption blocking mechanism in flexible low-silica small-pore zeolites via three-dimensional electron diffraction

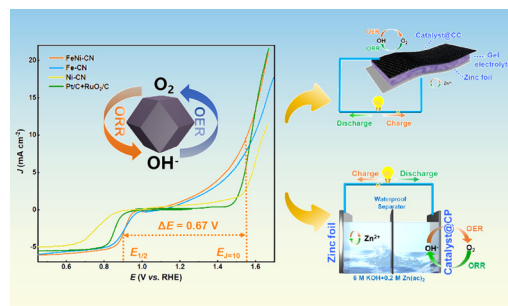
Jian Guo, Chenyang Nie, Shitai Li, Nana Yan,\* Peng Guo\* and Zhongmin Liu



2572

### Optimizing the electronic synergy of atomically dispersed dual-metal sites for high-efficiency oxygen evolution/reduction reaction

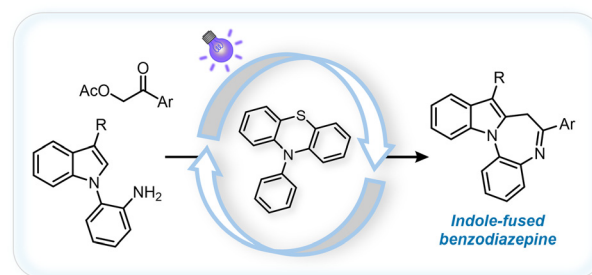
Yue Wang, Xueting Feng, Ziang Shang, Xintong Li, Chao Ma, Guanzhen Chen, Ying Zhao, Shaoheng Wu\* and Yunhu Han\*



2576

### Synthesis of indole-fused benzodiazepine derivatives by photocatalyzed cascade reaction

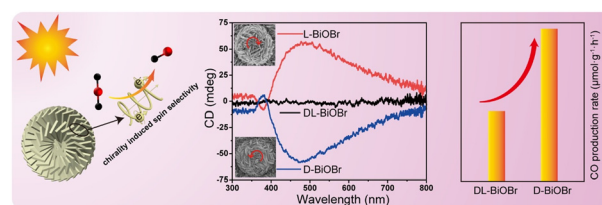
Tatsushi Oishi, Tatsuhiro Uchikura and Takahiko Akiyama\*



2580

### Enhancement of photocatalytic CO<sub>2</sub> reduction in BiOBr through chirality-induced electron spin polarization regulation

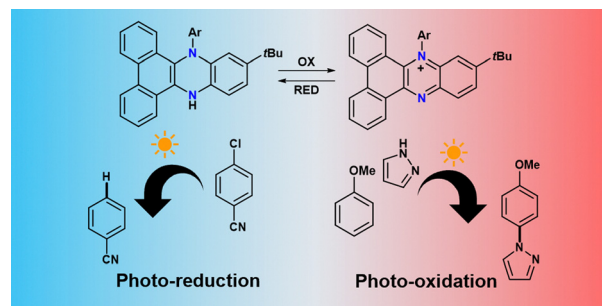
Yong Pu, Tianyue Wang, Chang Lin, Dun Wang, Zhongxin Liu, Yue Tian\* and Jieqiong Wang\*



2584

### N-Monoarylated dihydrophenazines in reduced and oxidized states as efficient organo-photocatalysts

Maurizio Prato\* and Jacopo Dosso\*



## CORRECTION

2588

**Correction: C–H functionalization of tetramethylsilane employing a borylnitrene**

Matthias Müller, Cäcilia Maichle-Mössmer and Holger F. Bettinger\*

