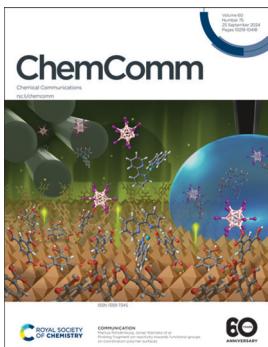


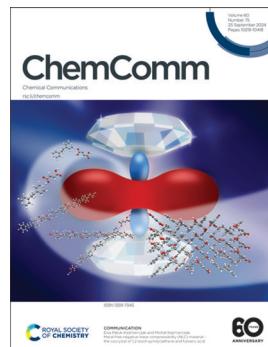
IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 60(75) 10219–10418 (2024)



Cover

**Cover**  
See Markus Rohdenburg,  
Jonas Warneke *et al.*,  
pp. 10306–10309.  
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*Chem. Commun.*,  
2024, 60, 10306



Inside cover

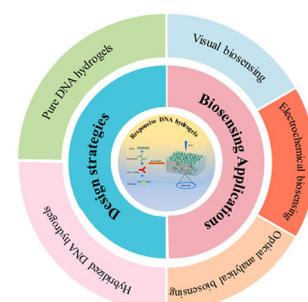
**Inside Cover**  
See Ewa Patyk-Każmierczak and Michał Kaźmierczak, pp. 10310–10313.  
Image reproduced by permission of Ewa Patyk-Każmierczak from *Chem. Commun.*, 2024, 60, 10310.

## HIGHLIGHTS

10231

# Responsive DNA hydrogels: design strategies and prospects for biosensing

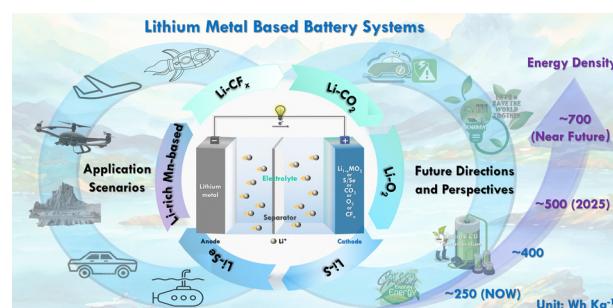
Fenglian Qi, Hanwen Li, Yonghao Wang and  
Caifeng Ding\*



10245

# Lithium metal based battery systems with ultra-high energy density beyond 500 W h kg<sup>-1</sup>

Chenyu Yang, Zhan Jiang, Xiangyue Chen, Wei Luo,  
Tengfei Zhou\* and Jianping Yang\*





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OF CHEMISTRY

# Environmental Science: Atmospheres

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Fundamental questions  
Elemental answers

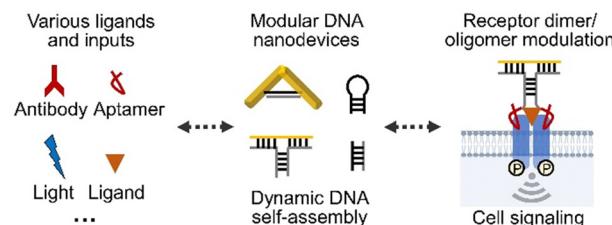


## FEATURE ARTICLES

10265

**DNA-modulated dimerization and oligomerization of cell membrane receptors**

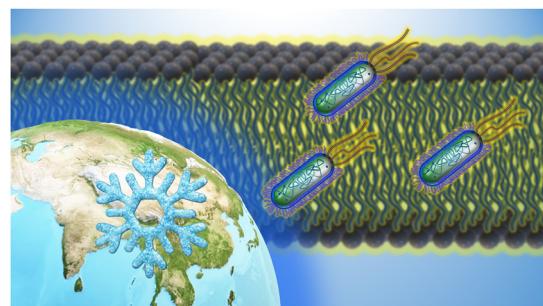
Ahsan Ausaf Ali and Mingxu You\*



10280

**Extreme makeover: the incredible cell membrane adaptations of extremophiles to harsh environments**

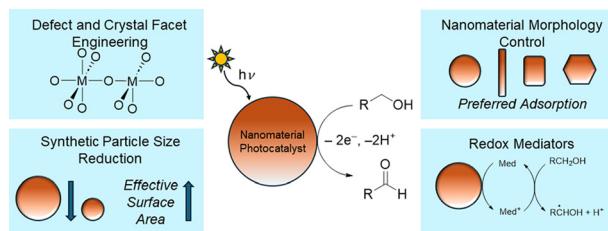
Archita Maiti, Shakkira Erimban and Snehasis Daschakraborty\*



10295

**Strategies in photochemical alcohol oxidation on noble-metal free nanomaterials as heterogeneous catalysts**

Siqi Li, Katherine H. Morrissey and Bart M. Bartlett\*

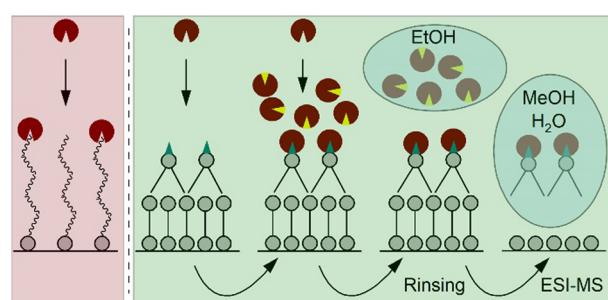


## COMMUNICATIONS

10306

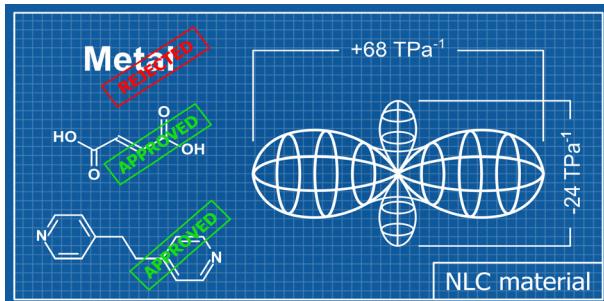
**Probing fragment ion reactivity towards functional groups on coordination polymer surfaces**

Markus Rohdenburg,\* Sebastian Kawa, Maegan Ha-Shan, Manuela Reichelt, Harald Knorke, Reinhard Denecke and Jonas Warneke\*



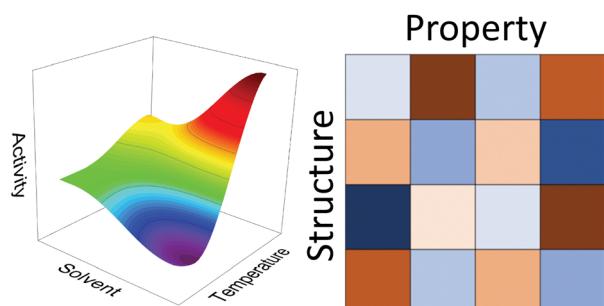
## COMMUNICATIONS

10310

**Metal-free negative linear compressibility (NLC) material – the cocrystal of 1,2-bis(4-pyridyl)ethane and fumaric acid**

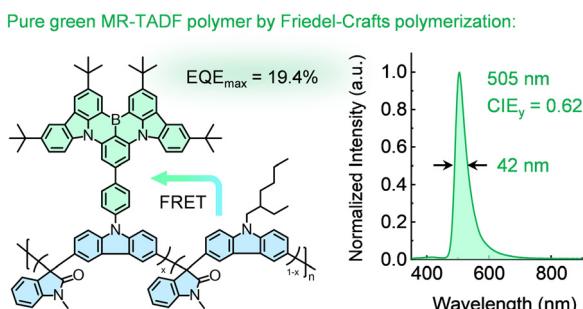
Ewa Patyk-Każmierczak\* and Michał Kaźmierczak

10314

**Rationalising catalytic performance using a unique correlation matrix**

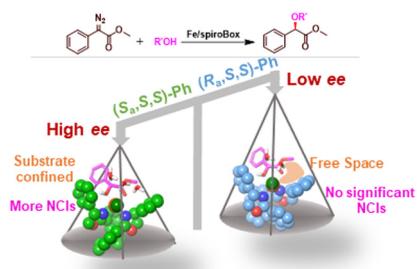
Maciej G. Walerowski, Stylianos Kyrimis, Victoria A. Hewitt, Lindsay-Marie Armstrong and Robert Raja\*

10318

**Multi-resonance thermally activated delayed fluorescence polymers for high-efficiency and narrowband solution-processed green OLEDs**

Ke Xu, Nengquan Li, Hong Lin, Zeyuan Ye, Pengcheng Jiang, Jingsheng Miao, Xaosong Cao\* and Chuluo Yang

10322

**Unveiling the importance of catalyst framework and non covalent interactions in an asymmetric Fe-catalyzed O–H insertion: insights from computational tools**

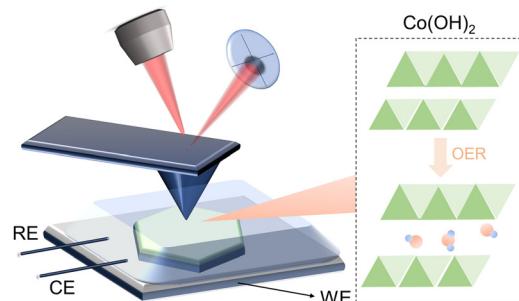
Reena Balhara and Garima Jindal\*

## COMMUNICATIONS

10326

**Probing the structural evolution of cobalt hydroxide in electrochemical water splitting**

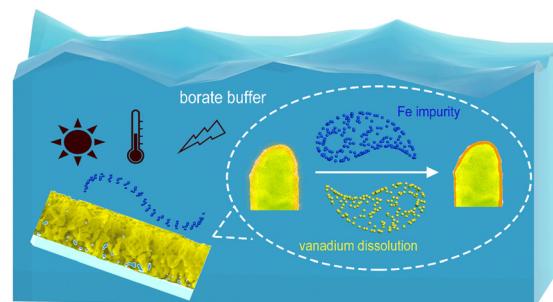
Chunlei Yang, Tingyu Lu and Liming Zhang\*



10330

**Boosting the photoelectrochemical performance of BiVO<sub>4</sub> by borate buffer activation: the role of trace iron impurities**

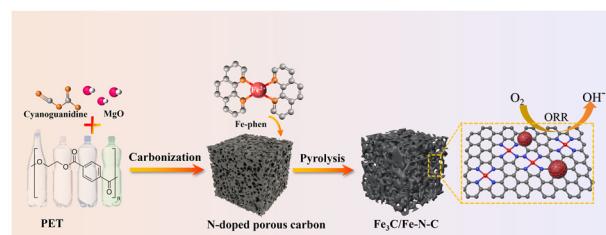
Xiaohu Cao, Xuemeng Yu, Xihan Chen\* and Ruquan Ye\*



10334

**Fe–N<sub>x</sub> sites coupled with Fe<sub>3</sub>C on porous carbon from plastic wastes for oxygen reduction reaction**

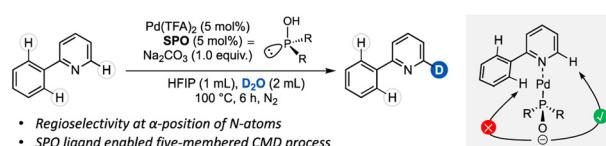
Xiaole Jiang, Rui Zhang, Qingqing Liao, Hanjun Zhang, Yaoyue Yang and Fan Zhang\*



10338

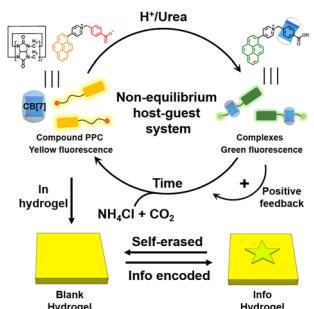
**Geometric constraints regulated regioselectivity: Pd-catalyzed  $\alpha$ - deuteration of pyridines with secondary phosphine oxide**

Chenxu Zheng, Jiben Xue, Zhi-Jiang Jiang,\* Jiawei Han, Jiaxin Wang, Jian-Fei Bai, Jia Chen and Zhanghua Gao\*



## COMMUNICATIONS

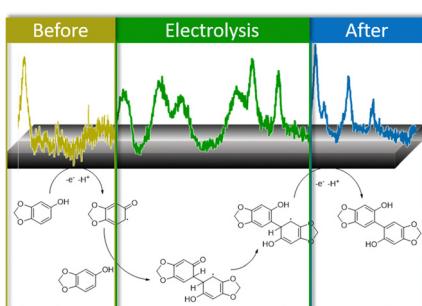
10342



**Transient cucurbit[7]uril-mediated host–guest complexes for time-dependent fluorescence and information-self-erasing hydrogel**

Qian Wang, Zhen Qi, Hanren Xu, Xianghao Li, Yifan Lei and Da-Hui Qu\*

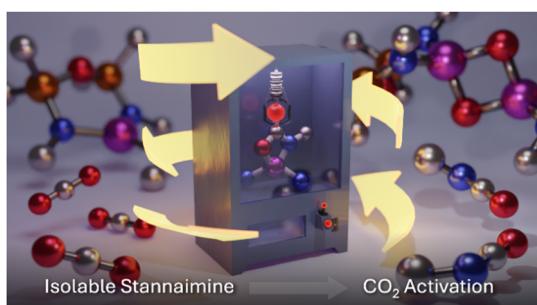
10346



**Solvent-dependent reaction mechanisms in the electrooxidative coupling of phenols: insights by *operando* Raman spectroelectrochemistry**

Christian Krumbiegel, Hoang Khoa Ly and Inez M. Weidinger\*

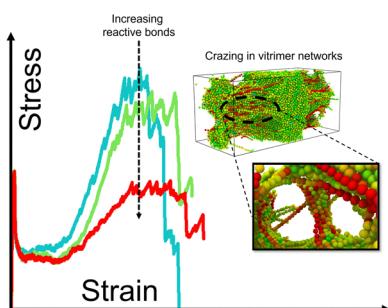
10350



**An isolable stannaine and its cycloaddition/metathesis reactions with carbon dioxide**

Matthew J. Evans, Joseph M. Parr, Dat T. Nguyen and Cameron Jones\*

10354



**Effect of dynamic bond concentration on the mechanical properties of vitrifiers**

Harsh Pandya and Fardin Khabaz\*

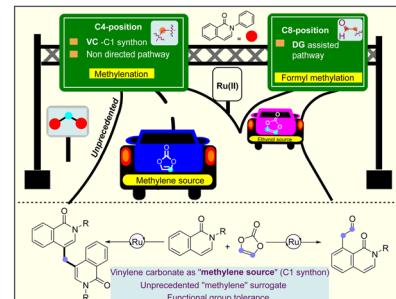


## COMMUNICATIONS

10358

**Engaging vinylene carbonate in ruthenium-catalyzed regioselective C-4 methylation and C-8 formylmethylation of isoquinolinones**

Dolly David Thalakkottukara and Thirumanavelan Gandhi\*



10362

**Construction of binary metal–organic cage-based materials via a “covalently linked plus cage encapsulated” strategy**

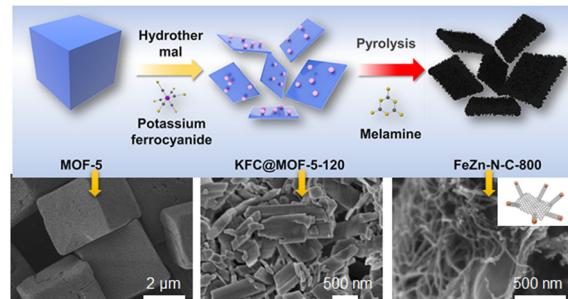
Pei Lai, Jia-Xuan Wu, Liang-Hua Wu, Lai-Yi Li, Song-Liang Cai and Sheng-Run Zheng\*



10366

**In situ green architecture of the 3D FeZn–N–C based electrocatalyst for efficient oxygen reduction**

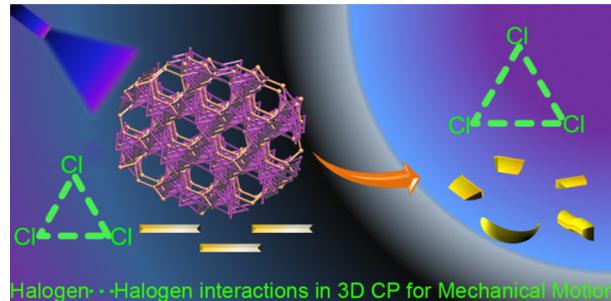
Kui Fu, Biao Ma, Jianling Liu, Meng Zhou, Yihai Xing, Xiangfeng Wei, Fancheng Meng and Jiehua Liu\*



10370

**Impact of halogen···halogen interaction on the mechanical motion of a 3D Pb(II) coordination polymer of elusive topology**

Samim Khan, Sanobar Naaz, Shamim Ahmad, Rosa M. Gomila, Anjana Chanthapally, Antonio Frontera\* and Mohammad Hedayetullah Mir\*



## COMMUNICATIONS

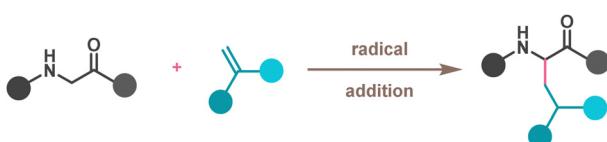
10374



### Keggin structure heteropolyacid-catalyzed phosphinylation of secondary propargyl alcohols with phosphine oxides to $\gamma$ -ketophosphine oxides

Yang Yang, Shuyan Liang, Hongfeng Zhuang, Feng Han,\* Wenxuan Zhang and Chengxia Miao\*

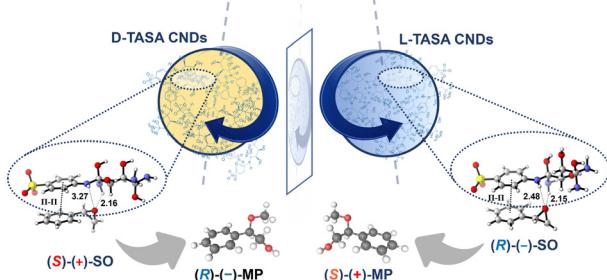
10378



### Radical-polar crossover reaction of glycine derivatives

Youwan Ye, Xin Zhang, Peng Kong, Yong Yuan, Xiaolong Zhao and Congde Huo\*

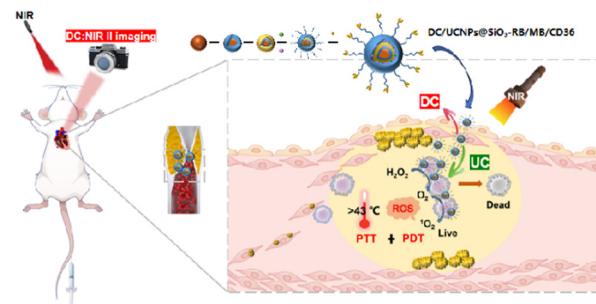
10382



### Tartaric acid-derived chiral carbon nanodots for catalytic enantioselective ring-opening reactions of styrene oxide

Xinyi Zhao, Yana Reva, Bikash Jana, Daniel Langford, Marina Kinzelmann, Zhipeng Zhang, Qi Liu,\* Thomas Drewello, Dirk M. Guldi\* and Xiaoqing Chen\*

10386



### Multi-effective nanoplatform with down/upconversion dual-mode emissions for NIR-II imaging and PDT/PTT synergistic therapy of early atherosclerosis

Wen Gao, Lijun Lv, Guanghan Li, Hongxiu Zhao, Jia Zhou,\* Yuan Cheng\* and Bo Tang\*

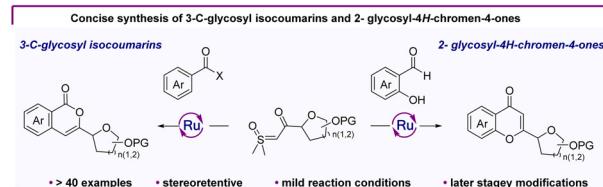


## COMMUNICATIONS

10390

**Concise synthesis of 3-C-glycosyl isocoumarins and 2-glycosyl-4H-chromen-4-ones**

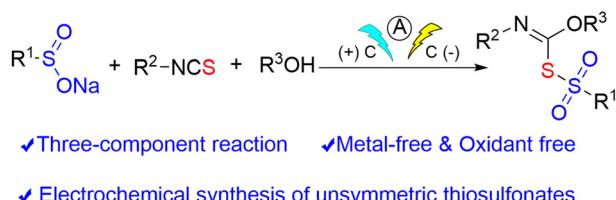
Deng-Yin Liu, Yu-Jun Ruan, Xiao-Li Wang, Xin-Yue Hu, Peng-Fei Wang, Miao-Miao Wen, Cong-Zhen Zhang, Yu-He Xiao and Xu-Ge Liu\*



10394

**Electrochemical promoted three-component reaction to unsymmetric thiosulfonates**

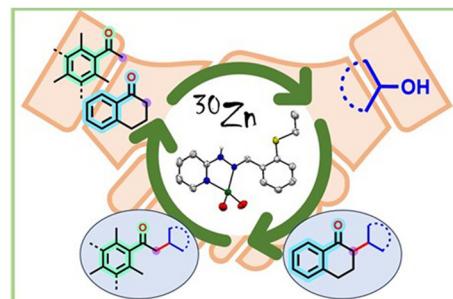
Hong-Min Lin, Sai-Yan Ren, Fei-Hu Cui,\* Ying-Ming Pan and Hai-Tao Tang\*



10398

**Redox-enabled cooperative catalysis by activating secondary alcohols using low-valent Zn complexes**

Arup Samanta, Amit Chaubey, Debjyoti Pal, Krishna Majhi and Dipankar Srimani\*



10402

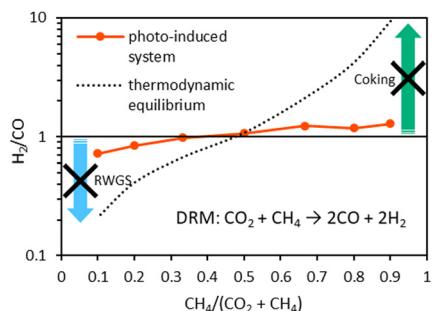
**Non-directed oxidative annulation of 2-arylindazoles with electron deficient olefins via visible light photocatalysis**

Krishna Kanta Das and Alakananda Hajra\*



## COMMUNICATIONS

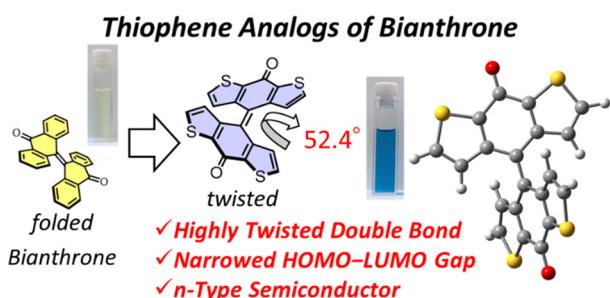
10406



**Sustaining syngas production at a near-unity  $\text{H}_2/\text{CO}$  ratio in the photo-induced dry reforming of methane independent of the reactant gas composition**

Hiroaki Kaneko, Yohei Cho, Tomotaka Sugimura, Ayako Hashimoto, Akira Yamaguchi and Masahiro Miyauchi\*

10410



**Twisted diphenoquinones fused with thiophene rings: thiophene analogs of bianthrone**

Yohei Adachi,\* Yuto Hattori, Tsubasa Mikie, Itaru Osaka and Joji Ohshita\*

## CORRECTION

10414

**Correction: Thorium amidates function as single-source molecular precursors for thorium dioxide**

Mark D. Straub, Erik T. Ouellette, Michael A. Boreen, Jacob A. Branson, Alex Ditter, A. L. David Kilcoyne, Trevor D. Lohrey, Matthew A. Marcus, Maria Paley, José Ramirez, David K. Shuh, Stefan G. Minasian\* and John Arnold\*