

## IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 61(20) 3923-4080 (2025)



### Cover

See Mathias T. Nielsen, Martin Nielsen *et al.*, pp. 3986–3989. Image reproduced by permission of Martin Nielsen from *Chem. Commun.*, 2025, **61**, 3986. Ella Maru Studio is acknowledged for creation of the image.

## HIGHLIGHT

3934

### Chlorine-mediated methane activation: an efficient photocatalytic pathway to valuable chemicals

Marcos A. R. da Silva, Carla S. Cunha, Luana L. B. Silva, Isadora G. Farias and Ivo F. Teixeira\*

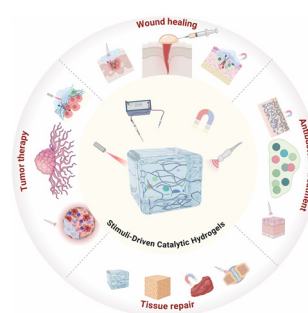


## FEATURE ARTICLES

3946

### External stimuli-driven catalytic hydrogels for biomedical applications

Jing Liao, Jijun Sun, Wencong Jia, Wenjin He, Huijing Wang, Weiyun Huang, Yanmei Wang, Meihua Yu,\* Yujie Xie\* and Yu Chen\*



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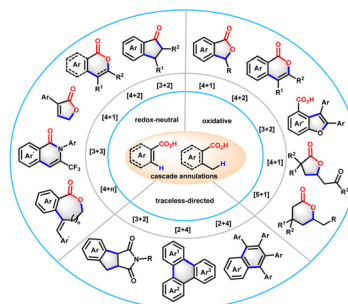


## FEATURE ARTICLES

3967

Recent advances in carboxyl-directed dimerizations and cascade annulations *via* C–H activations

Wan-Di Li, Juan Fan, Chao-Jun Li\* and Xian-Ying Shi\*

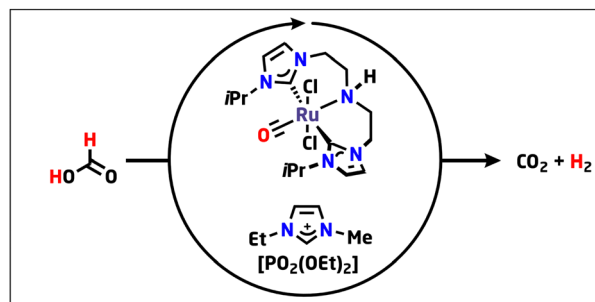


## COMMUNICATIONS

3986

## Formic acid dehydrogenation catalysed by a novel amino-di(N-heterocyclic carbene) based Ru-CNC pincer complex

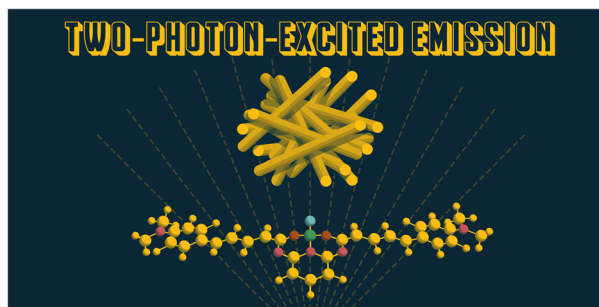
Patricia Aufricht, Valeria Nori, Brenda Rabell, Luca Piccirilli, Sakhitha Koranchalil, René W. Larsen, Mathias T. Nielsen\* and Martin Nielsen\*



3990

## A novel O,N,O-coordinated organofluoroboron probe for amyloid detection: insight from experiment and theory

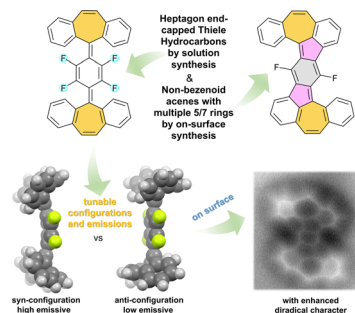
Agata Hajda, Elizaveta F. Petrusevich, Robert Zaleśny\*, Borys Ośmiatowski\* and Joanna Olesiak-Bańska\*



3994

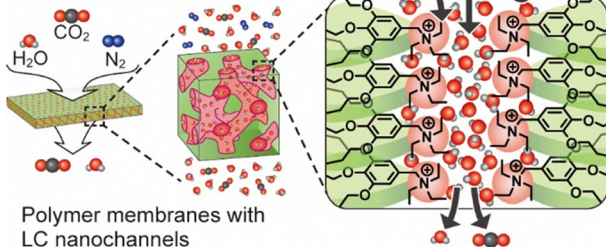
Heptene end-capped Thiele hydrocarbons with tunable configuration and emission and on-surface transformation *via* annulation

Yilin Shu, Jianmin Huang, Junfang Yang, Zhichun Shangguan, Junlong Ma, Cheng Li, Guanxin Zhang, Qian Peng, Xi-Sha Zhang\*, Qitang Fan, Bing Wang\* and Deqing Zhang\*



## COMMUNICATIONS

3998

CO<sub>2</sub> separation with LC nanochannels in humid conditionsLiquid-crystalline nanostructured membranes for CO<sub>2</sub> separation

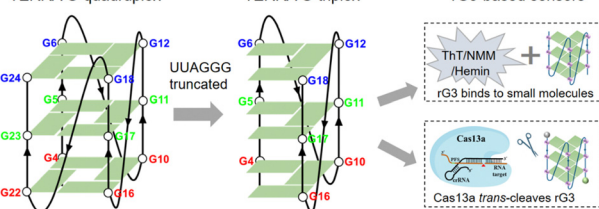
Takashi Kato,\* Kazushi Imamura, Takeshi Sakamoto and Yu Hoshino\*

4002

TERRA G-quadruplex

TERRA G-triplex

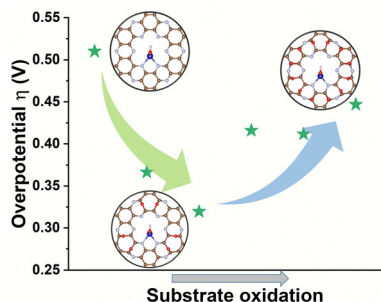
rG3-based sensors



## Unveiling a novel RNA G-triplex structure: its function and potential in CRISPR-based diagnostics

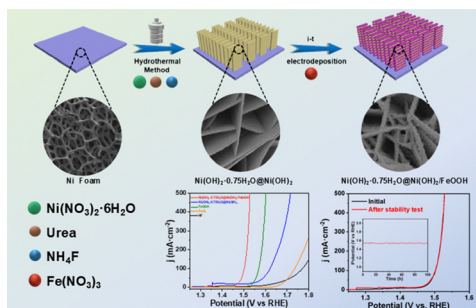
Tao Li, Runchen Li, Zheyu Li, Zhihao Li, Mengjun Wang, Xiaoling He, Guojun Zhang, Yuanqing Zhang,\* Yunhuang Yang\* and Ying Li\*

4006

A first-principles investigation of substrate oxidation effects on the catalytic activity of a Co single-atom supported on C<sub>2</sub>N for the oxygen evolution reaction

Yifei Rao, Li Sheng, Yanan Zhou\* and Wenhua Zhang\*

4010

Amorphous and outstandingly stable Ni(OH)<sub>2</sub>·0.75H<sub>2</sub>O@Ni(OH)<sub>2</sub>/FeOOH heterojunction nanosheets for efficient oxygen evolution performance

Tingyi Huang, Yawen Liu, Ziyu Zhao, Yuchan Liu, Rongkai Ye\* and Jianqiang Hu\*

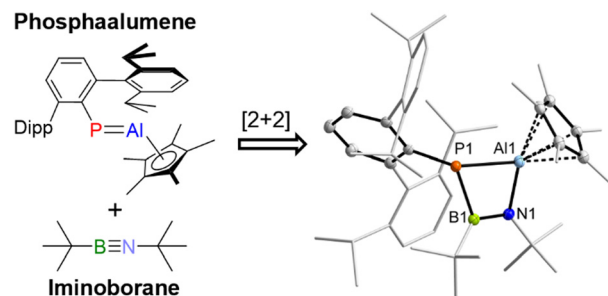


## COMMUNICATIONS

4014

## A BNAIP-heterocycle

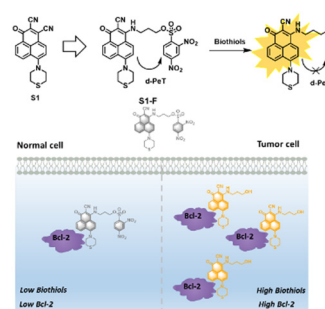
Tim Wellnitz, Leonie Wüst, Holger Braunschweig\* and Christian Hering-Junghans\*



4018

## Cancer-specific dual-factor cascade recognition fluorescent probe for imaging and tumor diagnosis

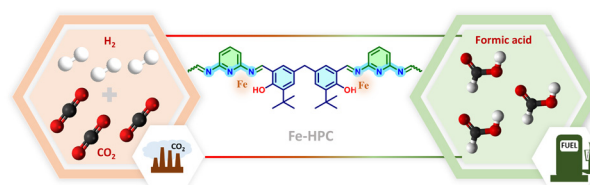
Ziqian Wang, Yitong Li, Hong Zhang, Yang Song, Zuguang Xue, Fangkui Yin, Lin Li, Maojun Jiang, Zhiyuan Hu, Zheming Wang, Yanxin Zhang, Zihan Wang, Siyao Wang, Ting Song\* and Zhichao Zhang\*



4022

Hydrogenation of CO<sub>2</sub> to formic acid over a non-precious metal-based polymeric catalyst

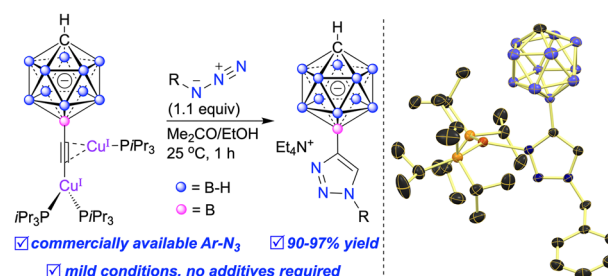
Shilpa Dabas, Manas Barik, Parul Rathour, Ankush V. Biradar and Saravanan Subramanian\*



4026

A  $\sigma, \pi$ -type monocarborane copper acetylide for regioselective 1,4-disubstituted 1,2,3-triazoles

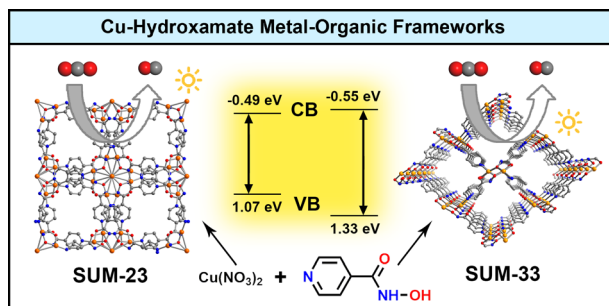
Kang Zhang,\* Luting Feng, Yujie Jin, Jiyong Liu\* and Simon Duttwyler\*





## COMMUNICATIONS

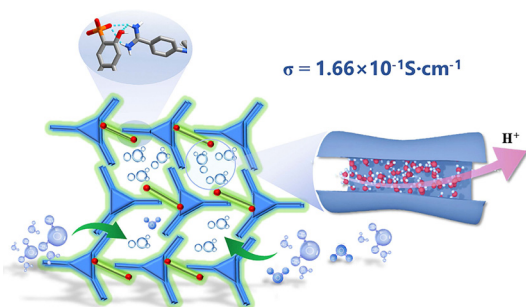
4030



### Construction of robust Cu-MOFs from bifunctional pyridine-hydroxamate linkers for photocatalytic $\text{CO}_2$ reduction

Li Xiong, Wenlei Tang, Chaozhi Xiong, Jiajun Du, Zhiyuan Zhang, Yuqing Qiu, Zhen-Wu Shao,\* Xuemei Zhou\* and Chong Liu\*

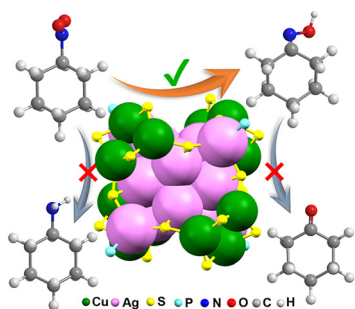
4034



### Multi-hydrophilic groups synergistic assembly ionic HOFs with multiple-water clusters and superprotonic single-crystal conductivity

Shu-Hui Li, Li-Hui Cao,\* Wenmin Zhang, Xiang-Tian Bai and Xu-Yong Chen

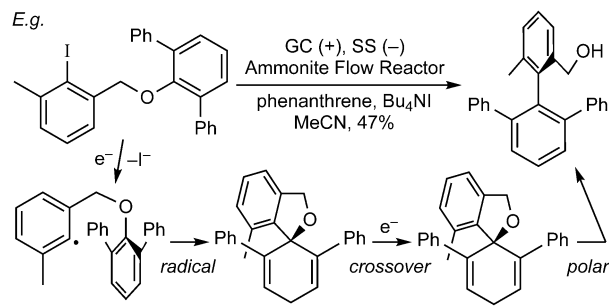
4038



### Selective hydrogenation of nitrocyclohexane to cyclohexanone oxime over a $\text{Cu}_{12}\text{Ag}_{17}(\text{SR})_{12}(\text{PPh}_3)_4$ cluster catalyst

Jinzhong Lu, Danyun Yao, Shisi Tang, Xiao Cai, Weiping Ding and Yan Zhu\*

4042



### The electrocatalytic synthesis of highly encumbered biaryls from aryl o-iodobenzyl ethers by a radical to polar crossover sequence

James E. Pearce, Jack Hodgson, Ana A. Folgueiras-Amador, Johanna A. Fish, Robert C. Carroll, Simon J. Coles, Philip J. Parsons, Richard C. D. Brown\* and David C. Harrowven\*

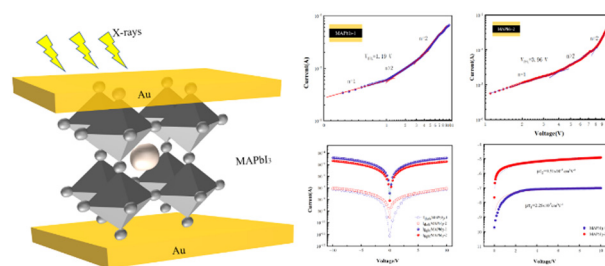


## COMMUNICATIONS

4046

### A high-performance X-ray detector based on large-size perovskite MAPbI<sub>3</sub> single crystals grown by environmentally friendly solvents and advanced systems

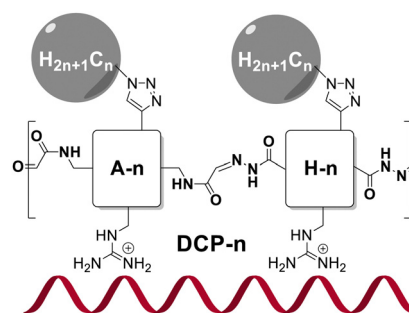
Xiangting Li, Mengke Yang, Zhuoyue Li, Yundong Ma, Yuanlong Sun, Min Zhang, Guozong Zheng and Ziyu Hu\*



4050

### mRNA delivery with templated dynamic covalent polymers

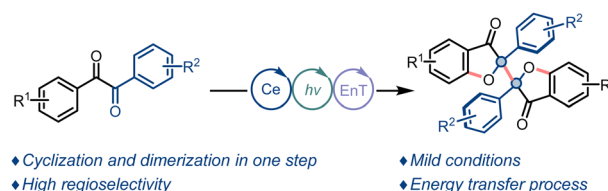
José García Coll, Lamiaa M. A. Ali, Javier Montenegro, Nadir Bettache\* and Sébastien Ulrich\*



4054

### Visible-light-induced synthesis of bibenzofuranones via a cerium-mediated energy transfer process

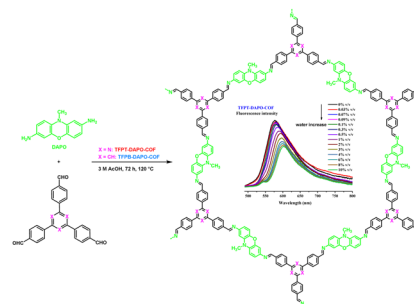
Jiaoyue Lv, Yatao Lang, Chao-Jun Li and Huiying Zeng\*



4058

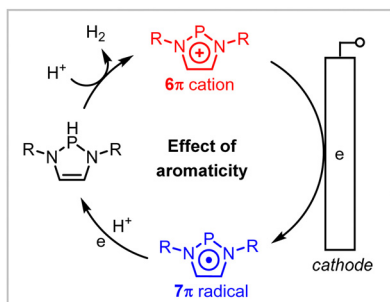
### Phenoxazine-based covalent organic frameworks as a turn-off fluorescent probe for trace water detection in organic solvents

Fengmin Cui, Yingdi Zhang, Benhai Liu, Zerong Jing and Ya Du\*



## COMMUNICATIONS

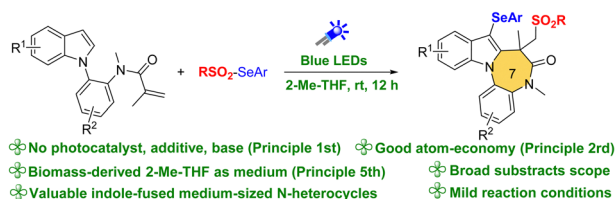
4062



### Thermodynamics-inspired identification of privileged organocatalysts for hydrogen evolution reactions

Yu-Shan Zhang, Bing Zhong, Likun Dong, Jin-Dong Yang\* and Jin-Pei Cheng

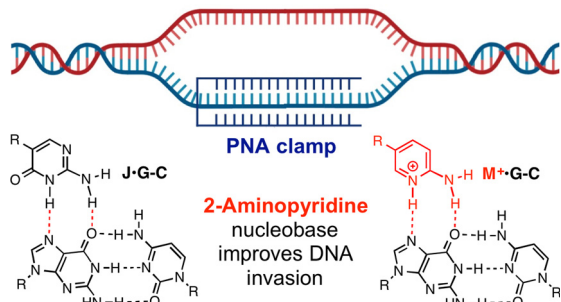
4066



### Photochemical aerobic sulfonylation–cyclization–selenylation to indole-fused medium-sized N-heterocycles in 2-Me-THF

Tongtong Shi, Miao Tian,\* Zongfei Sun, Ruixiao Zou, Zexuan Zhang, Na Xie, Erjun Hao, Xinming Xu\* and Kai Sun\*

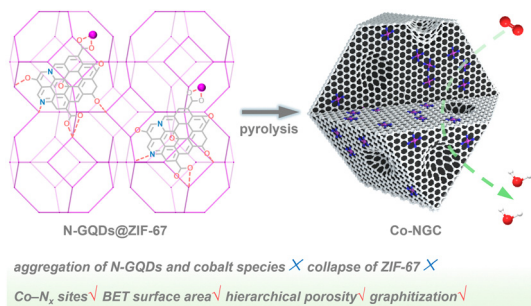
4070



### 2-Aminopyridine nucleobases enable DNA invasion by peptide nucleic acid clamps under physiological conditions

Brandon R. Tessier and Eriks Rozners\*

4074



### Graphene quantum dots as supramolecular linkers in metal organic frameworks for constructing metal atom electrocatalysts

Yujie Song, Jiajie Li, Yaqi Zhang, Jiali Lou, Yuanyuan Cui, Hongwu Chen, Chao Lin, Xiaopeng Li, Huilin Fan\* and Xiaokai Song\*





## CORRECTION

4078

**Correction: HfO<sub>2</sub>-based ferroelectric synaptic devices: challenges and engineering solutions**

Taegyu Kwon, Hyeong Seok Choi, Dong Hyun Lee, Dong Hee Han, Yong Hyeon Cho, Intak Jeon, Chang Hwa Jung, Hanjin Lim,\* Taehwan Moon\* and Min Hyuk Park\*

