

# ChemComm

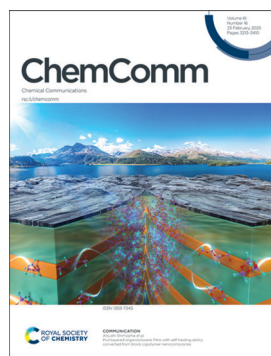
Chemical Communications

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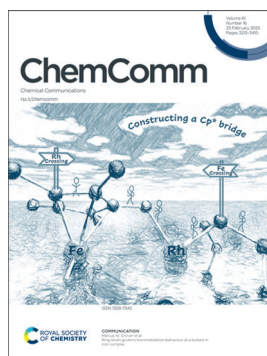
## IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 61(16) 3213-3410 (2025)



### Cover

See Atsushi Shimojima *et al.*, pp. 3319–3322. Image reproduced by permission of Yoshiaki Miyamoto from *Chem. Commun.*, 2025, 61, 3319.



### Inside cover

See Marcus W. Drover *et al.*, pp. 3323–3326. Image reproduced by permission of Connor S. Durfy and Marcus W. Drover from *Chem. Commun.*, 2025, 61, 3323.

## PROFILE

3224

### Contributors to the Emerging Investigators collection 2024: Part 3

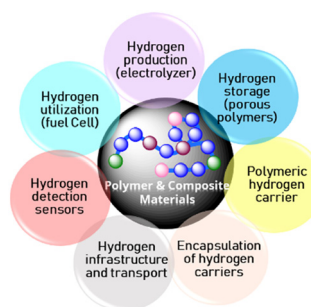


## HIGHLIGHTS

3233

### Polymer material innovations for a green hydrogen economy

Satyasankar Jana,\* Anbanandam Parthiban\* and Wendy Rusli



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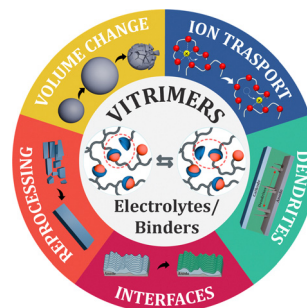
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## HIGHLIGHTS

3250

**Vitrimeric electrolytes – overview and perspectives**

Zviadi Katcharava, Anja Marinow\* and Wolfgang H. Binder\*

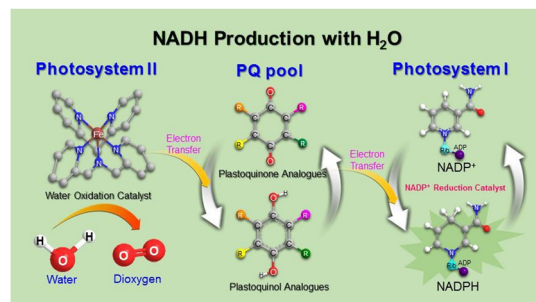


## FEATURE ARTICLES

3271

**Catalytic reduction of NAD(P)<sup>+</sup> to NAD(P)H**

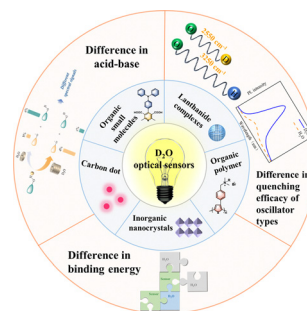
Shunichi Fukuzumi,\* Yong-Min Lee\* and Wonwoo Nam\*



3283

**Recent advances in optical heavy water sensors**

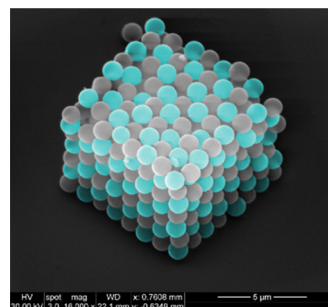
Fei Zheng, Chenghui Li, Yan Huang, Zhiyun Lu, Xiandeng Hou\* and Yanju Luo\*



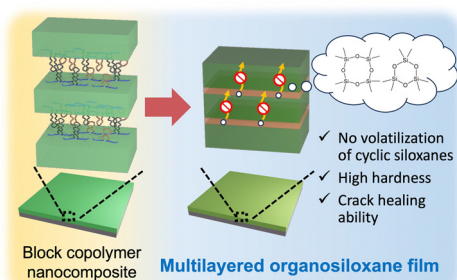
3301

**Building blocks for nanophotonic devices and metamaterials**

Natalie Shultz and Euan McLeod\*



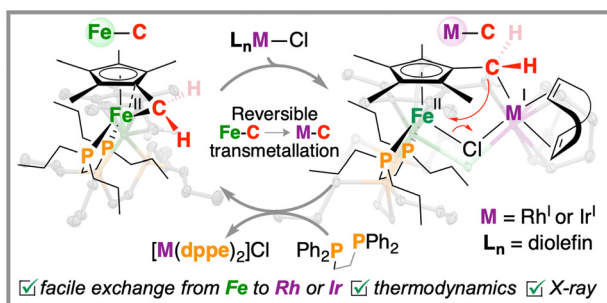
3319



### Multilayered organosiloxane films with self-healing ability converted from block copolymer nanocomposites

Yoshiaki Miyamoto, Takamichi Matsuno and Atsushi Shimojima\*

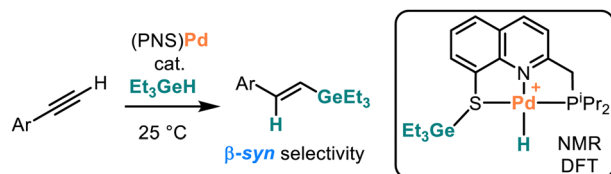
3323



### Ring strain governs transmetalation behaviour at a tuck-in iron complex

Connor S. Durfy, Michelle Huang, Joseph A. Zurakowski, Paul D. Boyle and Marcus W. Drover\*

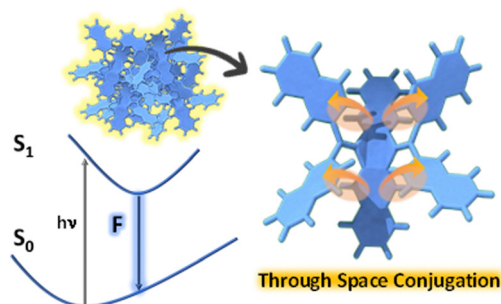
3327



### Hydrogermylation of alkynes via metal–ligand cooperative catalysis

Marceline Humbert, Arnaud Clerc, Karinne Miqueu, Julien Monot, Blanca Martin-Vaca\* and Didier Bourissou\*

3331



### Through-space conjugation driven luminescence enhancement in crystalline butterfly architectures

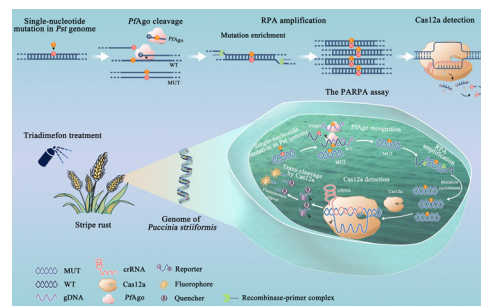
Suvarna Sujilkumar, Avinash Hari and Mahesh Hariharan\*



3335

### *Pyrococcus furiosus* Argonaute-mediated dual recognition enables the detection of trace single-nucleotide-mutated fungicide-resistant fungal pathogens

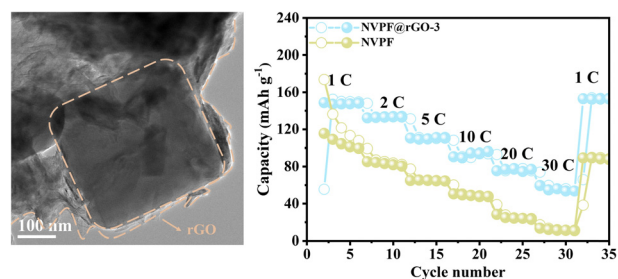
Jiahao Lin, Jiannan Zhang, Xianglin Zhu, Xuhan Xia, Yong Zhang, Qingdong Zeng, Yuanhong Xu, Ruijie Deng\* and Jinghong Li\*



3339

### Tetragonal NaVPO<sub>4</sub>F@rGO nanocomposite as a high-rate cathode for aqueous zinc-ion batteries

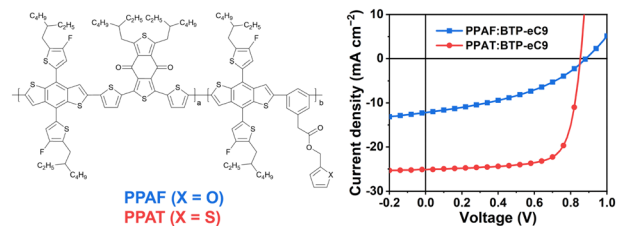
Jiajie Zhou, Shenghong Yang, Peiyin Xu, Xiaoyan Shi, Junling Xu, Lianyi Shao,\* Yan Sun\* and Zhipeng Sun\*



3343

### Polymer donors with phenylacetate pendants for efficient organic photovoltaics

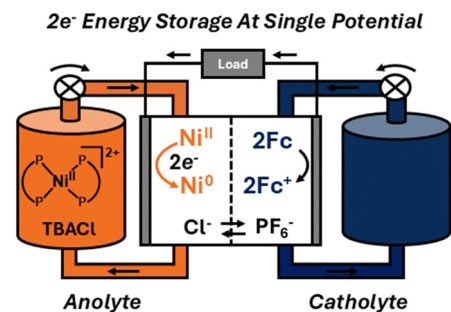
Youlin Zhang, Jiayu Wang,\* Yating Mo, Hongxiang Li, Fuqi Zhao, Hongbin Sun, Weibo Kong, Cenqi Yan, Hanlin Wang, Zhenjie Ni and Pei Cheng\*



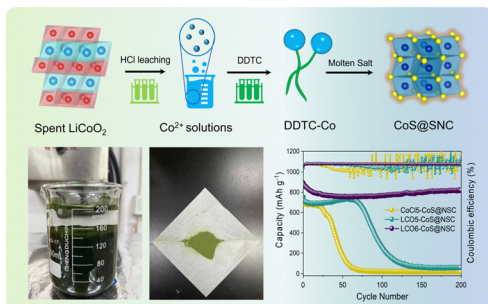
3347

### Mechanism guided two-electron energy storage for redox-flow batteries using nickel bis(diphosphine) complexes

Md. Musharraf Hossain and Byron H. Farnum\*



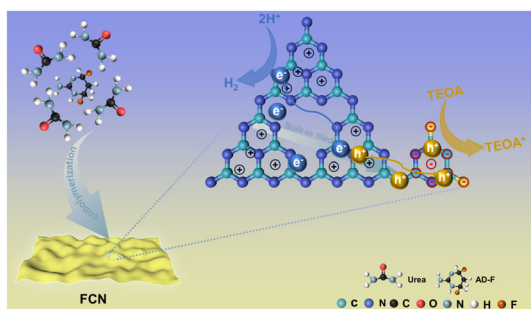
3351



### Upcycling of spent $\text{LiCoO}_2$ : engineering the coordination-trapping behavior towards conversion-type anodes for advanced Li-storage

Zihao Zeng, Hai Lei, Yunpeng Wen, Chao Zhu, Jiexiang Li, Wei Sun, Yue Yang and Peng Ge\*

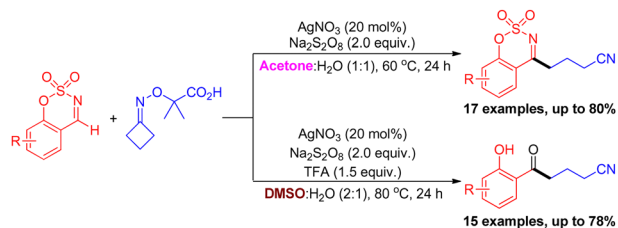
3355



### Constructing a built-in electric field by grafting strong electronegative small molecules for photocatalytic $\text{H}_2$ production

Mingtao Li, Wenying Yu, Na Tian,\* Yihe Zhang and Hongwei Huang

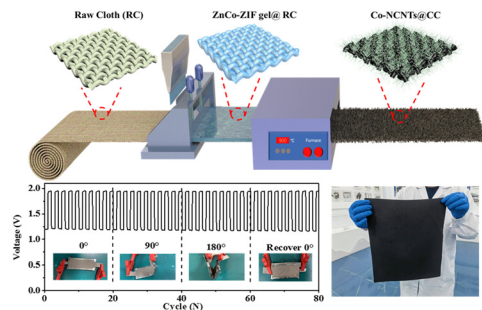
3359



### Solvent-controlled silver catalyzed radical transformation of $\alpha$ -imino-oxy acids with cyclic aldimines

Jingjing Wang, Yuran Qin, Ke Cui, Xueqi Li, Mingyue Cui, Sheng Cao, Linbo Zhang, Qin Shen, Teng Wang\* and Feng Li\*

3363



### *In situ* gel pyrolysis-derived efficient self-supporting foldable electrodes for zinc-air batteries

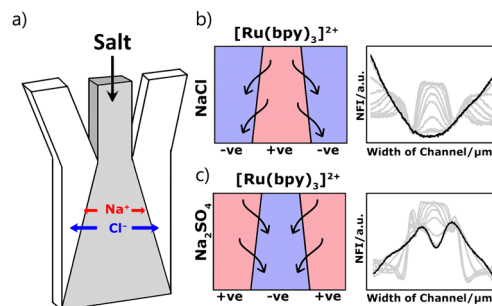
Liguang Lin, Wanbo Chen, Wen Zhang, Dong Li, Li Wang, Genhang Li, Feiyan Fu, Zhengbang Wang,\* Yangyang Zhou\* and Li Tao\*



3367

### Ionic gradients in flow to control transport of emissive ions

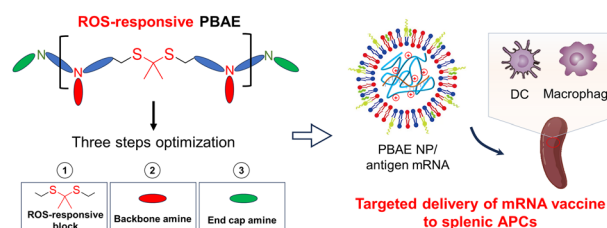
Lucy L. Fillbrook, Isis A. Middleton, Hamid Rashidnejad, Aditya Sapre, Timothy W. Schmidt, Ayusman Sen and Jonathon E. Beves\*



3371

### ROS-responsive poly( $\beta$ -amino ester) nanoparticles enable targeted delivery of mRNA vaccine to splenic antigen-presenting cells

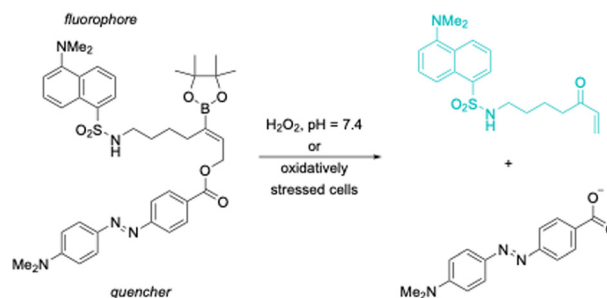
Meng Jiang, Lingjian Yan, Ling Zeng, Yingseng Tang, Zixi Zhang, Baihua Chen, Min Qiu\* and Jinjin Chen\*



3375

### Difunctional oxidatively cleavable alkenyl boronates: application to cellular peroxide sensing from a fluorophore–quencher pair

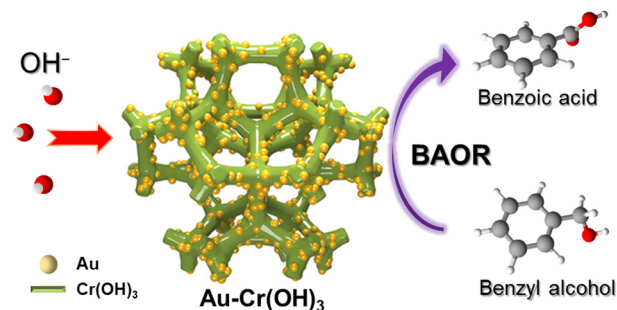
Brittany M. Klootwyk, Grace M. Fleury, Savannah Albright, Alexander Deiters and Paul E. Floreancig\*



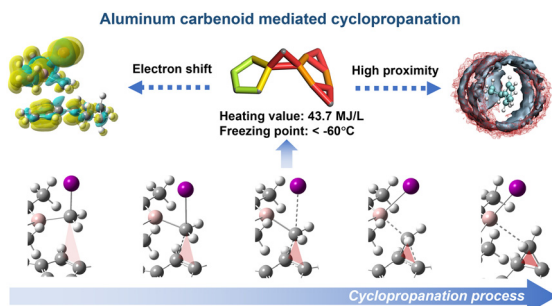
3379

### The metal–support interactions of $\text{Cr}(\text{OH})_3$ enhance the performance of supported Au-based benzyl alcohol electrooxidation catalysts

Yufeng Zhang,\* Di Liu, Hao Wu, Zhiyu Yang, Zhongxiang Xia, Qianhui Wu, Shan-Shan Yu, Hai-Ying Wang, Leiming Lang\* and Guangxiang Liu\*



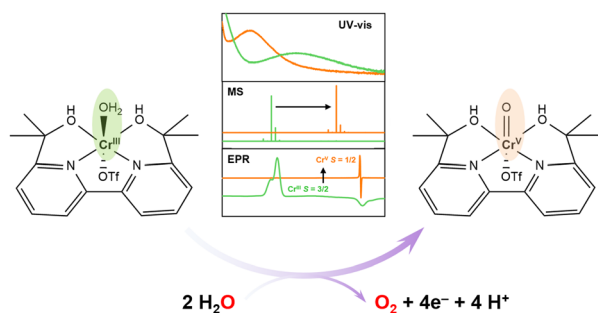
3383



### New insights into cyclopropanation: application in the synthesis of a novel high-heating-value hydrocarbon fuel derived from furfural

Haodong Zhang, Yisong Zhou, Jiawei Xie,\*  
Yushuang Huang, Yakun Liu, Tingjiang Yan,  
Chang-an Zhou, Chao Wang, Kui Ma, Lei Song,  
Hairong Yue and Ji-Jun Zou

3387



### Identification of the $\text{Cr}(\text{v})=\text{O}$ intermediate in electrocatalytic water oxidation by a chromium(III)-aqua complex

Zhi-Kai Shen, Zi-Jian Li, Zhigang Zou and Zhen-Tao Yu\*

3391

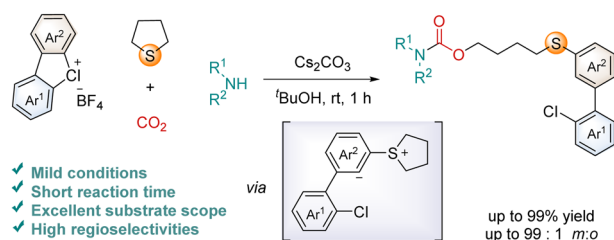


- ✓ Halide-free DESs constructed from natural compounds.
- ✓ Low catalyst loading (0.3 mol%) and excellent catalytic activity (TOF = 645  $\text{h}^{-1}$ ).
- ✓ Metal-free, solvent-free and environmentally friendly.

### Halide-free deep eutectic solvents constructed from natural compounds for converting carbon dioxide to cyclic carbonate

Wen-Wang Yu, Xiang-Guang Meng,\* Wen Li, Jie Zhou,  
Xian-Jian Ma and Dan-Dan Chu

3395



- ✓ Mild conditions
- ✓ Short reaction time
- ✓ Excellent substrate scope
- ✓ High regioselectivities

### Metal-free four-component coupling of cyclic diarylchloronium salts, tetrahydrothiophene, amines and carbon dioxide

Bangxiang Kang, Wei Li, Huanfeng Jiang and  
Chaorong Qi\*

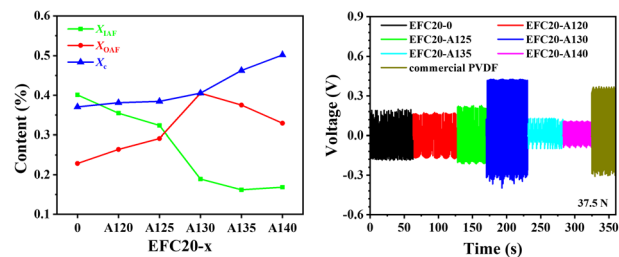


## COMMUNICATIONS

3399

### Manipulation of the oriented amorphous fraction of poly(vinylidene fluoride-co-trifluoroethylene) films by thermal annealing for high piezoelectricity

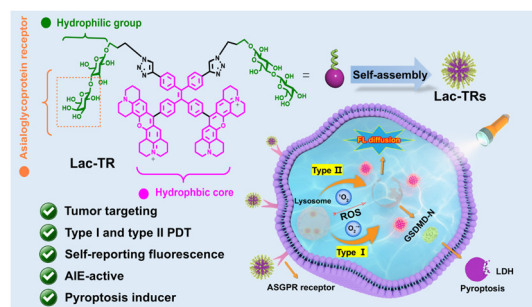
Zi-Wen Yang, Li-Wei Zhang and Yan-Fei Huang\*



3403

### Glycosylated and rhodamine-conjugated tetraphenylethylene: a type I and II reactive oxygen species generator for photodynamic therapy

Jia-wei Zhang, Gai-li Feng, Xin Niu, Yi-chen Liu, Wei Zhou, Qing-yu Ma, Guang-jian Liu, Yuan Zhang\* and Guo-wen Xing\*



## CORRECTION

3407

### Correction: Development of a carbon quantum dots-based fluorescent Cu<sup>2+</sup> probe suitable for living cell imaging

Qiang Qu, Anwei Zhu, Xiangling Shao, Guoyue Shi and Yang Tian\*

