

# Green Chemistry

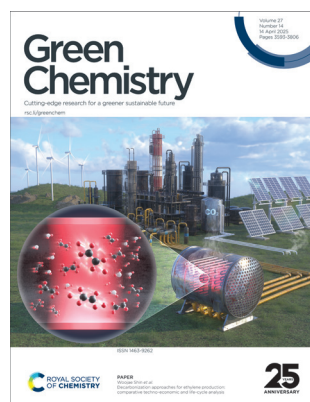
Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

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**Cover**  
See Woojae Shin *et al.*,  
pp. 3655–3675.

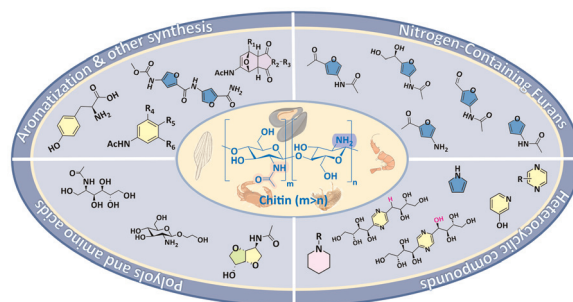
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from *Green Chem.*, 2025, **27**,  
3655.

## TUTORIAL REVIEW

3601

### Organonitrogen platform chemicals and pharmaceutical precursors: a perspective on sustainable chitin utilization

Ting Wang, Junnan Wei\* and Peter J. Deuss\*

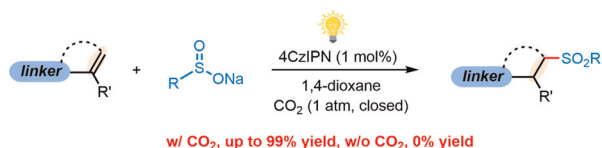


## COMMUNICATIONS

3627

### CO<sub>2</sub>-Promoted photoredox-catalyzed hydrosulfonation of alkenes with sulfinates

Wanhui Huang, Ge Liu, Fangyuanhang Yang, Yuxi Ren, Yuzhen Gao\* and Weiping Su\*



linker = halogen, alcohol, acid, ester, amide, ether, silical, boric acid and alkenyl

- CO<sub>2</sub>-accelerated sulfonation
- tolerance with broad function groups
- compatible with unactivated alkenes
- metal-free and equivalent reagent-free



# EES Catalysis

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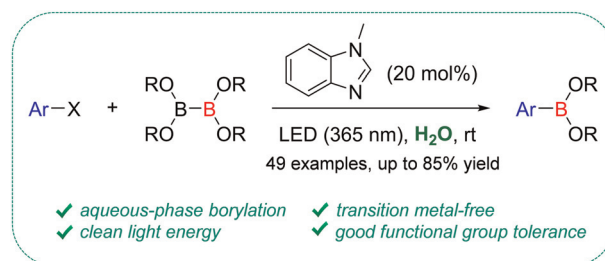
Fundamental questions  
Elemental answers

## COMMUNICATIONS

3634

**Photoinduced transition metal-free borylation of aryl halides in an aqueous phase**

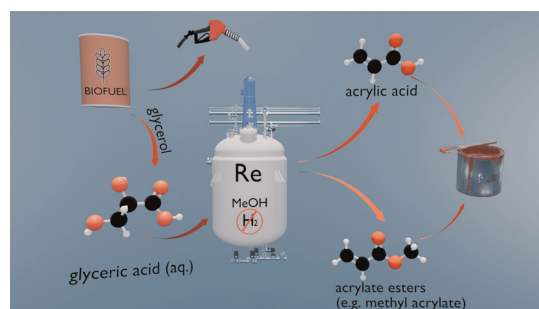
Mengqi Liu, Wan-Min Cheng, Zi-Long Li, Hong Jiang\* and Jimei Ma\*



3640

**A H<sub>2</sub>-free heterogeneous route to glycerol-based acrylics via Re-based deoxydehydration**

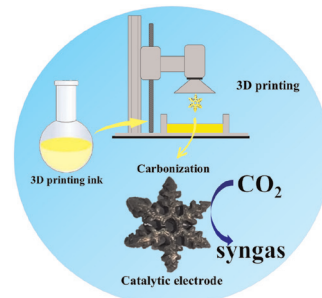
Maja Gabrič, Florian M. Harth, Brigita Hočevar, Sašo Gyergyek, Blaž Likozar and Miha Grilc\*



3646

**A 3D printed, metal-free, carbon-based catalytic electrode for converting CO<sub>2</sub> into syngas**

Na Zhao, Kai Zhao, Han Zhang, Jianguyu Sheng, Shasha Feng and Wei Wang\*

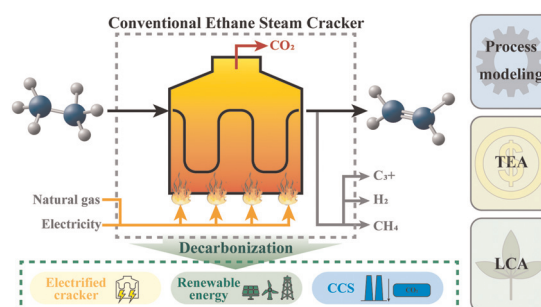


## PAPERS

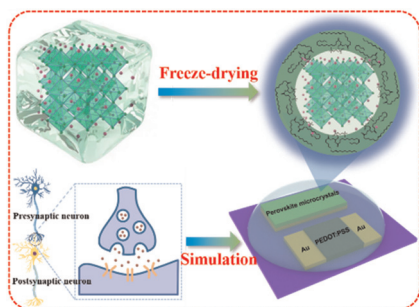
3655

**Decarbonization approaches for ethylene production: comparative techno-economic and life-cycle analysis**

Woojae Shin, Bosong Lin, Haoxiang Lai, Gasim Ibrahim and Guiyan Zang\*



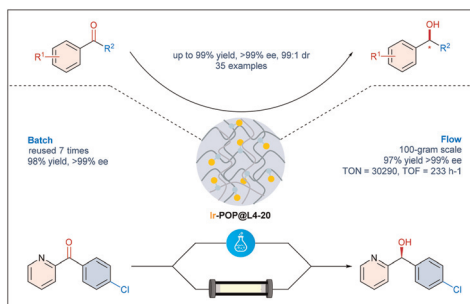
3676



### Ice-confined synthesis of lecithin-protected perovskite microcrystals for stable optical synapses

Zongyang Li, Yubo Peng, Jianlong Ji, Yuxuan Cheng, Jie Li, Ying Sun, Min Zhao,\* Xudong Jin,\* Huayun Du\* and Yuying Hao\*

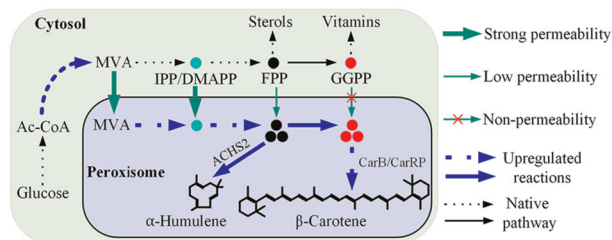
3684



### Development of a heterogeneous P–N–N tridentate ligand for iridium-catalyzed asymmetric hydrogenation of ketones in batch and flow

Lizhou Zheng, Weiqi Feng, Chen Chen, Ke Feng, Dingguo Song, Yirui Chen, Feiyang Shen, Xianghua Zhao, Fei Ling\* and Weihui Zhong\*

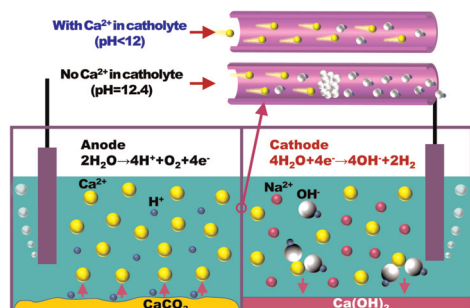
3693



### Cytoplasmic-peroxisomal spatial combination engineering in *Candida tropicalis* for enhanced terpenoid production

Lihua Zhang, Cheng Fan, Haibing Zhang, Manzhi Zhu, Haiquan Yang, Yuanyuan Xia, Wei Shen and Xianzhong Chen\*

3706



### Electrolyte pH modulation for efficient and durable electrochemical cement clinker precursor production

Lei Xu, Lei Liu,\* Zheng Fang, Min Chen, Guangfeng Ou, Michio Suzuki and Yuya Sakai

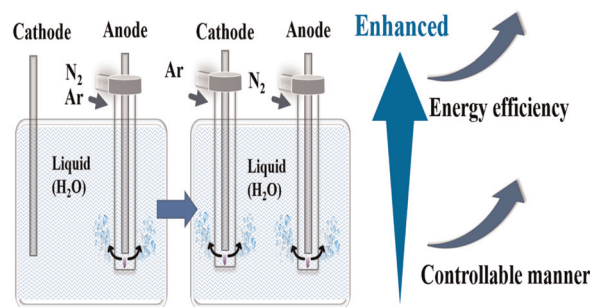


## PAPERS

3715

### Energy-efficient production of plasma-activated water: insights into controllable peroxyxynitrite chemistry

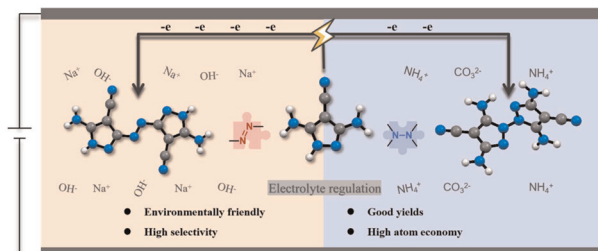
Dingwei Gan, Longfei Hong, Shuai Yuan, Mengying Zhu, Yuting Gao, Tianqi Zhang, Tianyu Li, Bohan Chen, Anna Dzimitrowicz, Piotr Jamroz, Patrick J. Cullen and Renwu Zhou\*



3727

### Site-selective electrochemical synthesis of nitrogen-enriched bis-pyrazole derivatives: a sustainable approach for N–N versus N=N bond formation

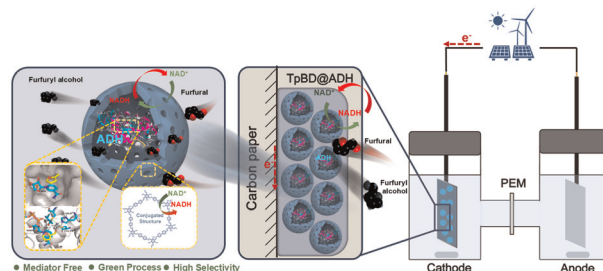
Lei Liu, Wengzhe Huang, Ye Yuan, Lu Lu, Yongxing Tang\* and Wei Huang\*



3733

### A mediator-free enzyme carbonaceous cathode for bioelectrocatalytic reduction of furfural to furfuryl alcohol

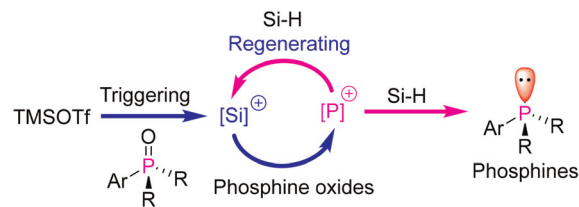
Shize Zheng, Chenxi Zhang, Peng Zhan, Xiangshi Liu, Houchao Shan, Yong Wang, Bin Wang,\* Peiyong Qin, Di Cai\* and Tianwei Tan



3743

### General and chemoselective reduction of phosphine oxides by an enhanced oxophilic competition mechanism

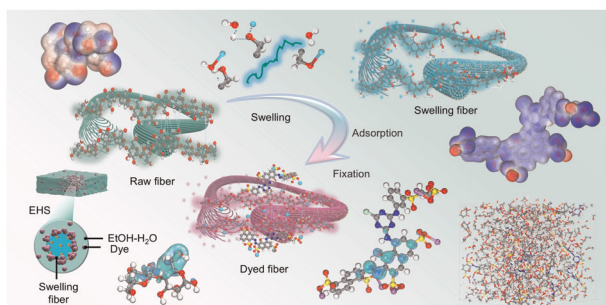
Mengyao You, Ziwei Zhang, Chao Chen, Zhichao Mei, Xinxin Zhang, Jiang Bai, Haiyang Huang\* and Qiang Xiao\*



- ◆ Cheap silanes as reducing agents
- ◆ Mild conditions
- ◆ Highly chemoselectivity
- ◆ Readily available catalyst



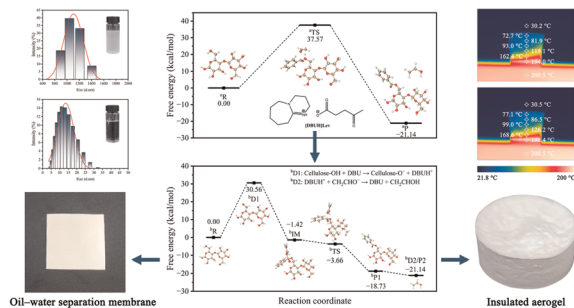
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### Environmentally friendly salt-free and low-alkaline coloration of lyocell fibers in an ethanol–water mixture with excellent exhaustion

Wanjin Hu, Xiaofeng Wang, Mengyao Cai, Chunhua Zhang, Dandan Zhong, Xuelin Wang, Yonghao Zhou, Liangjun Xia,\* Sijie Zhou\* and Weilin Xu

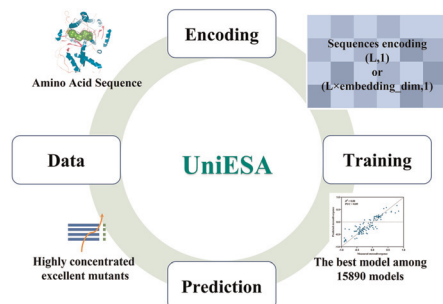
3764



### Cellulose benzoate synthesis *via* homogeneous transesterification catalyzed by superbases-derived ionic liquids for advanced applications

Yuhui Ci, Xiangjian Yang, Yunqian Ma, Feng Xu\* and Yanjun Tang\*

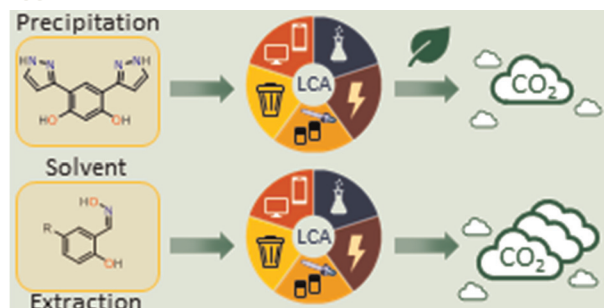
3777



### UniESA: a unified data-driven framework for enzyme stereoselectivity and activity prediction

Chun-Yue Weng, Jun Li, Qi-Lin Chen, Jia-Yi Han, Zhi-Tao Dong, Zhi-Qiang Liu\* and Yu-Guo Zheng

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### Recovering copper from e-waste: recyclable precipitation *versus* solvent extraction with carbon emission assessment

Susanna S. M. Vance, Efthalia Chatzisyseon, Carole A. Morrison\* and Jason B. Love\*

