

# Green Chemistry

Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

ISSN 1463-9262 CODEN GRCHFJ 27(23) 6679–6908 (2025)



### Cover

See Xiaoli Xi *et al.*, pp. 6754–6763.

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### Inside cover

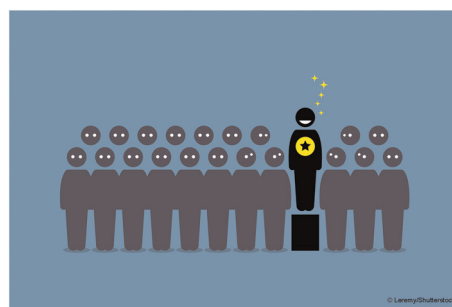
See Yongchao Zhang, Chunlin Xu *et al.*, pp. 6764–6775.

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## EDITORIAL

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### Outstanding Reviewers for *Green Chemistry* in 2024



## PERSPECTIVES

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### The hydrogen economy fairytale

Tycho Ehrhardt and Gadi Rothenberg\*



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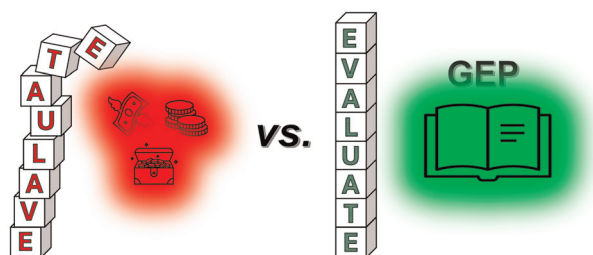
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## PERSPECTIVES

6699

## How to correctly evaluate greenness, whiteness and other “colours”? Introducing general rules of a good evaluation practice

Paweł Mateusz Nowak

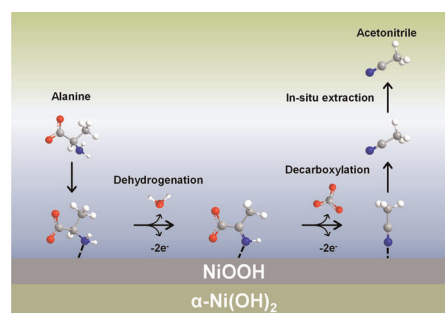


## COMMUNICATIONS

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## Direct nitrile electrosynthesis from amino acids on nickel oxyhydroxide

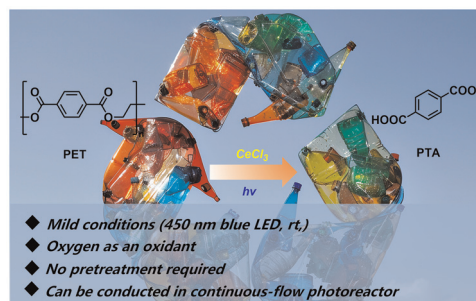
Xudong Liu, Zhe Chen, Tao Jiang, Wei Du, Can Lei, Xueting Cao, Shuangshuang Cha, Mengxin Qu, Xinchu Zhou and Ming Gong\*



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## Visible-light-driven photocatalytic depolymerization of post-consumer PET to terephthalic acid via cerium catalysis with batch-to-flow scalability

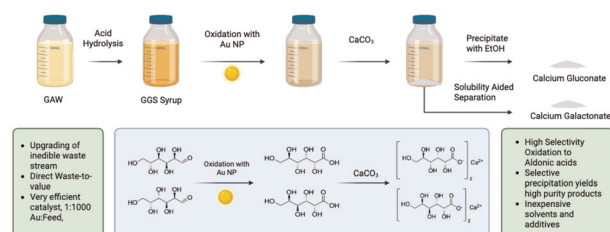
Yujian Pang, Xiqun Wu, Zhijie Li, Jie Sun, Zhenjiang Li, Jiang-Kai Qiu, Jian Wang,\* Canliang Ma\* and Kai Guo\*



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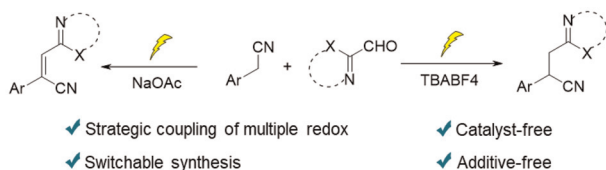
## Selective oxidation of glucose–galactose syrup to gluconic and galactonic acids

Joseph Install, Anže Zupanc, Seonyeong Kim, Wenjia Wang, Marianna Kemell, George W. Huber and Timo Repo\*



## COMMUNICATIONS

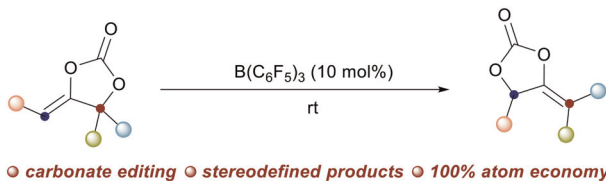
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### Switching between $\alpha$ -alkenylation and $\alpha$ -alkylation of nitriles by coupling multiple electrochemical methods

Kai Li, Tong Li, Yupu Zhang, Hao Yang, Qi Sun\* and Zhiyong Wang\*

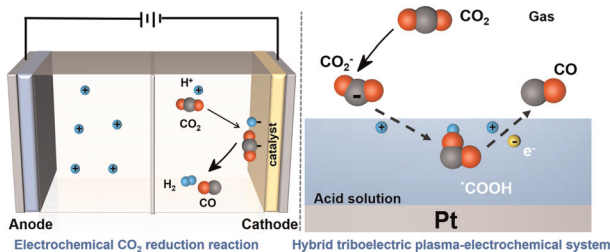
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### B(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>-catalysed cyclic carbonate editing

Yicheng He, Krishnapriya Anattil Unnikrishnan, Wenhao Yin, Rositha Kuniyil,\* Haifeng Du\* and Wusheng Guo\*

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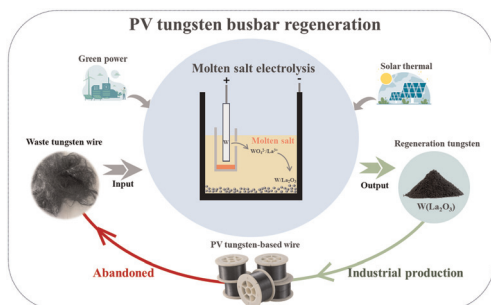


### Highly selective, catalyst-free CO<sub>2</sub> reduction in strong acid without alkali cations by a mechanical energy-induced triboelectric plasma-electrolytic system

Hui Hu, Nannan Liu, Qinglong Ru, Wei Jiang, Yongcui Yang, Kailan Ma, Lixiang Meng, Zuliang Du, Bao Zhang\* and Gang Cheng\*

## PAPERS

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### Co-recovery of tungsten and lanthanum from photovoltaic tungsten-based busbars scrap by molten salt electrolysis

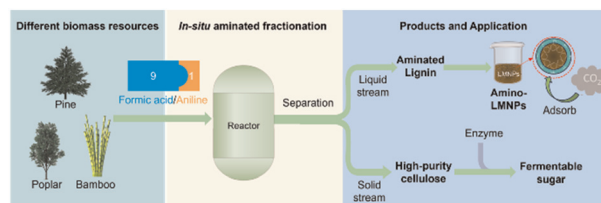
Xiang Xue, Liwen Zhang, Qi Fang, Chunjia Liu, Shuijie Su, Xiaoli Xi\* and Zuoren Nie



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### *In situ* amino–lignin production via biomass fractionation for high-efficacy CO<sub>2</sub> capture

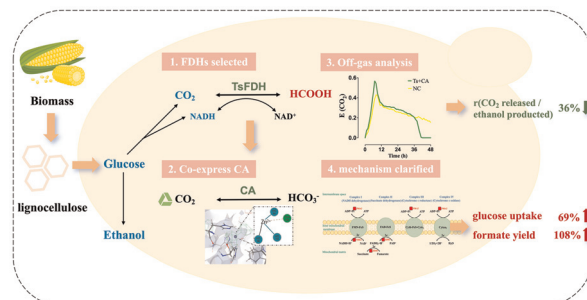
Ruijie Wu, Caiyun Liu, Yongchao Zhang,\* Jiayun Xu, Andrey Pranovich, Jarl Hemming, Teija Tirri, Xiaoju Wang and Chunlin Xu\*



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### The synergistic effect of formate dehydrogenase and carbonic anhydrase accelerates the ethanol fermentation process and improves carbon recovery

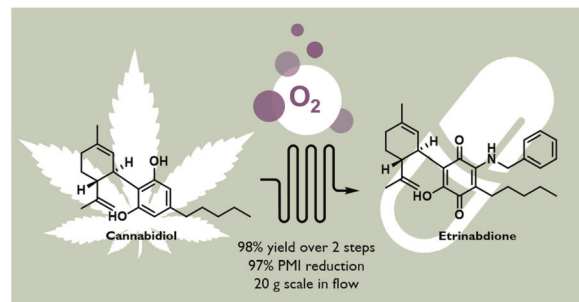
Ying He, Yimin Li, Jiaxin Liu, Liming Su, Cong Du\* and Wenjie Yuan\*



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### Two-step continuous flow aerobic oxidation of cannabidiol to cannabinoquinone derivatives

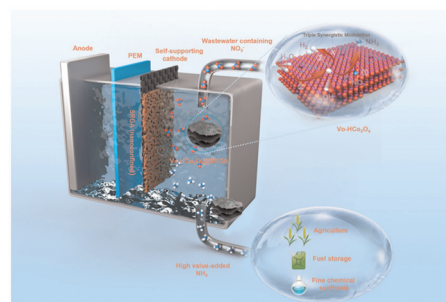
Manuel Zielke, Christof Aellig, Dominique M. Roberge,\* Christopher A. Hone\* and C. Oliver Kappe\*



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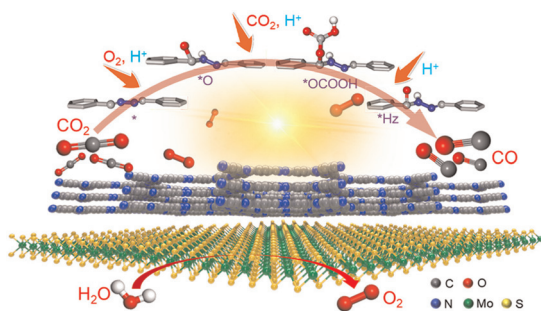
### Asymmetric defective site-triggered triple synergistic modulation in nanoconfined aerogel for superior electrochemical conversion of low-concentration nitrate into ammonia

Ke Wang, Tong Zhao, Shiyu Zhang, Rupeng Wang, Meng Wang, Zixiang He and Shih-Hsin Ho\*



## PAPERS

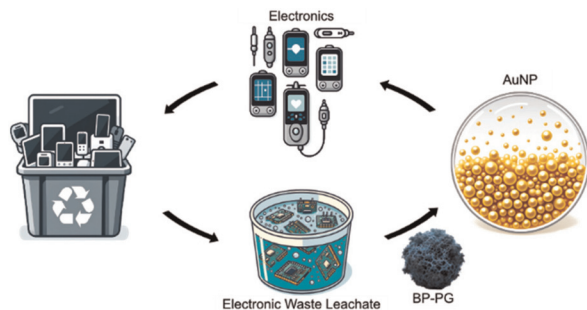
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### Aerobic oxidation of a covalent organic framework facilitating photocatalytic CO<sub>2</sub> reduction with water

Jiangqi Ning, Qing Niu, Zheyuan Liu and Liuyi Li\*

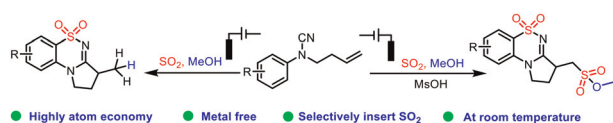
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### Mechanochemical approach to polymer-functionalized black phosphorus nanomaterials for precious metal recovery

Obida Bawadkji, Peng Tang, Christian Müller\* and Rainer Haag\*

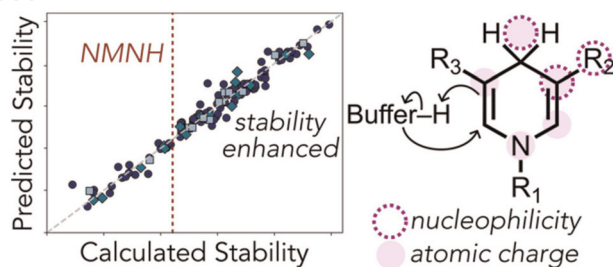
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### Electrochemical selective incorporation of SO<sub>2</sub> to synthesize fused-ring framework compounds

Zhi-Long Lei, Dan Tan, Jin-Tao Qin, Xiu-Jin Meng,\* Fei-Hu Cui,\* Hai-Tao Tang and Ying-Ming Pan\*

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### Computer-aided design of stability enhanced nicotinamide cofactor biomimetics for cell-free biocatalysis

Alexandra P. Platt, Heidi Klem, Sam J. B. Mallinson, Yannick J. Bomble\* and Robert S. Paton\*

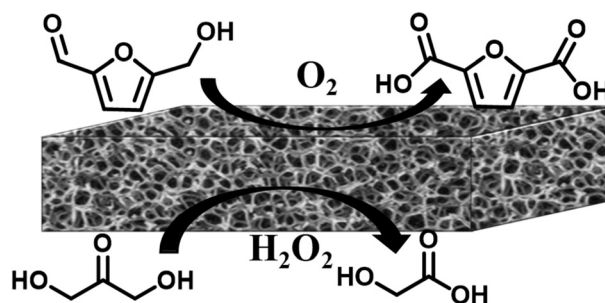


## PAPERS

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**Polymer monomers fabricated from biomass platform molecules over metal-free catalysts**

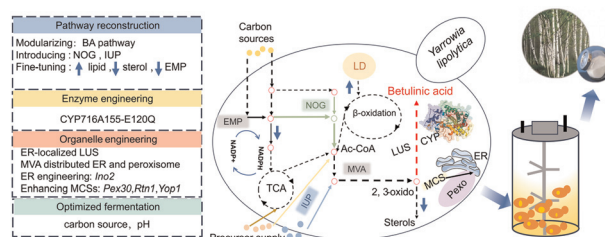
Siwei Xu, Nian Xiang, Jie He,\* Yang Li, Huankun Nie, Liang Huang, Chongbei Wu and Zehui Zhang\*



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**Multidimensional metabolic engineering of *Yarrowia lipolytica* for highly efficient biosynthesis of betulinic acid**

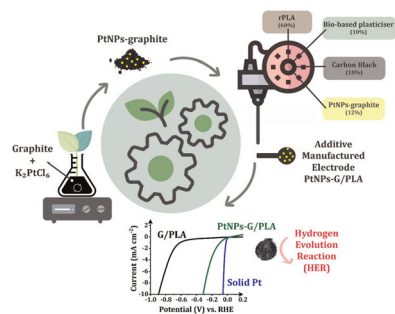
Xiaoyan Li, Liangcheng Jiao, Guowei Zhao, Yunchong Li, Yunjun Yan\* and Jinyong Yan\*



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**Platinum nanoparticle-doped recycled PLA filament for sustainable additive manufactured electrocatalytic architectures**

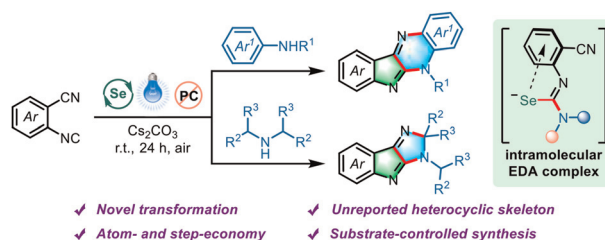
Karen K. L. Augusto, Robert D. Crapnell, Elena Bernalte, Hayley G. Andrews, Orlando Fatibello-Filho and Craig E. Banks\*



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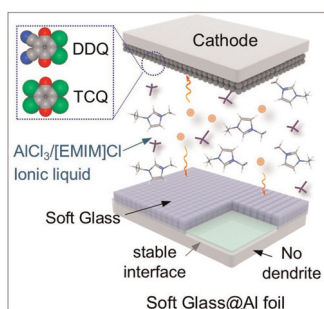
**Visible-light-induced selenium-mediated cascade cyclization of 2-isocyanobenzonitriles with secondary amines to access indole-fused polycyclics**

Dongping Xu, Lizhen Jin, Mengya Huang and Wu Zhang\*



## PAPERS

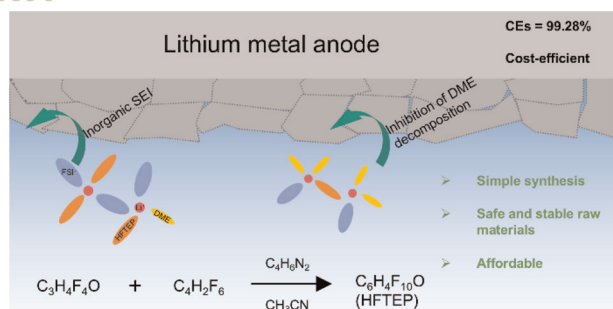
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### Soft glass interphase engineering for ultra-stable aluminum metal batteries

Shibin Zhang, Yan Xu, Danni Zhang, Lishun Bai, Yue Liu, Ying He, Feiyan Yu, Chengjun Liu, Sijie Li\* and Zhi Chang\*

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### Rational design of a cost-efficient and eco-friendly fluorinated ether for high-energy and long-lived Li-metal batteries

Nan Li, Xue Han, Xinke Cui, Longji Xu, Chenxi Liu, Qiao Han, Kai Xi, Zhenglong Xu, Xiaobing Dai, Chong Mao,\* Lewen Yang\* and Weijiang Xue\*

## CORRECTION

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### Correction: Highly selective, catalyst-free CO<sub>2</sub> reduction in strong acid without alkali cations by a mechanical energy-induced triboelectric plasma-electrolytic system

Hui Hu, Nannan Liu, Qinglong Ru, Wei Jiang, Yongcui Yang, Kailan Ma, Lixiang Meng, Zuliang Du, Bao Zhang\* and Gang Cheng\*

