

# Green Chemistry

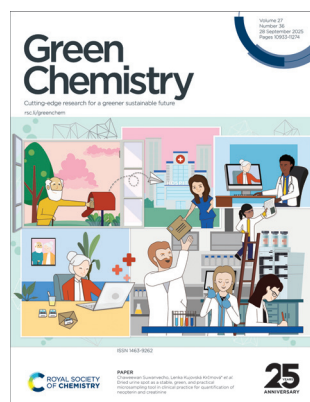
Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

ISSN 1463-9262 CODEN GRCHFJ 27(36) 10933–11274 (2025)

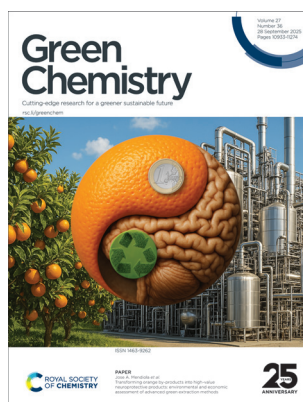


### Cover

See Chaweewan Suwanvecho, Lenka Kujovská Krčmová et al., pp. 11007–11020.

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We kindly thank Chaweewan Suwanvecho, MSc. for the preparation of our excellent front cover image.



### Inside cover

See Jose A. Mendiola et al., pp. 11021–11035.

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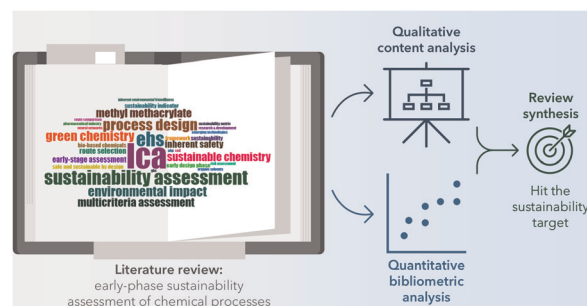
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## CRITICAL REVIEW

10944

### From qualitative analysis to quantitative insights: a systematic review of early phase sustainability assessments of chemical processes

Katharina Waniek, C. Oliver Kappe\* and Rupert J. Baumgartner\*

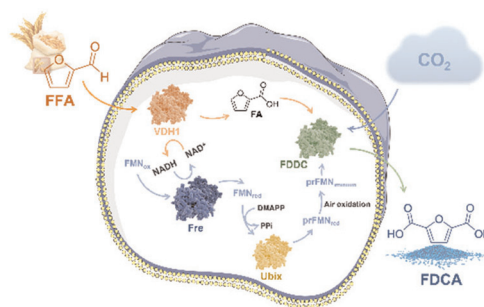


## COMMUNICATIONS

10969

### NAD(H) self-recycling whole-cell biocatalysis for the production of furoic acid and 2,5-furandicarboxylic acid from furfural via CO<sub>2</sub> fixation

Mingzhe Ma and Yajie Wang\*



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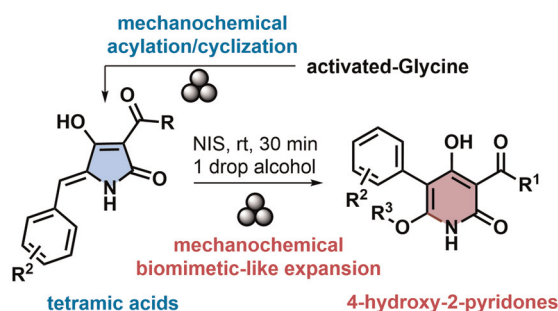
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## COMMUNICATIONS

10974

**Mechanochemical synthesis of tetramic acids and their biomimetic ring expansion to 4-hydroxy-2-pyridones**

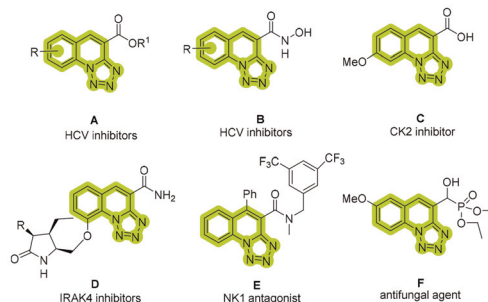
Kalliopi Mazaraki, Aimilia Eirini Tsirozidou, Basil Kakarikas and Alexandros L. Zografos\*



10980

**A PASE synthesis of tetrazoloquinolines and its applications in the syntheses of bioactive compounds**

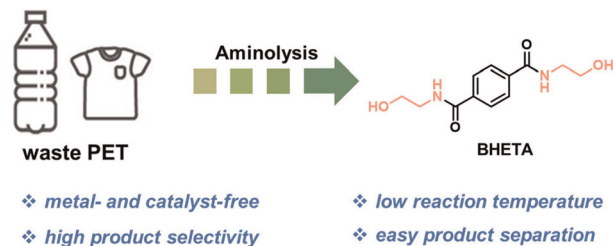
Xiaofeng Zhang,\* Sashirekha Nallapati, Shea Johnson, Xian Chen and Jongwon Lim



10988

**Solvent-promoted catalyst-free aminolytic upcycling of waste polyethylene terephthalate under low-temperature conditions**

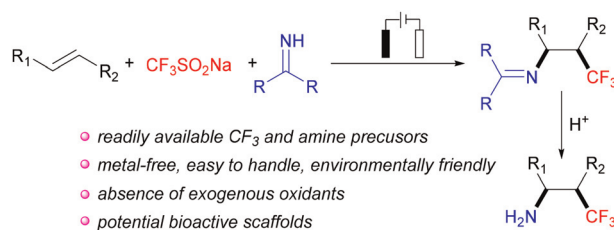
Zan Yang,\* Meihua Chen, Anqi Huang, Jundong Xu, Congshan Zhou and Yongbing Yuan\*



10994

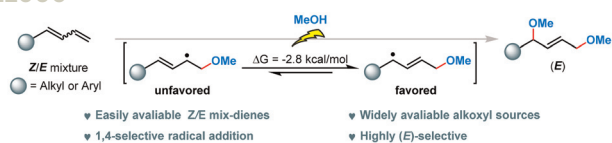
**Electrochemical intermolecular trifluoromethylation of alkenes**

Meiqun Lu,\* Kailun Chen and Hu Cai\*



## COMMUNICATIONS

11000

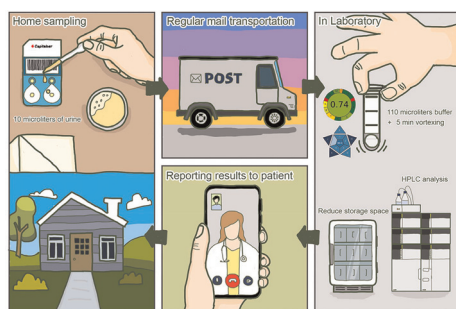


### Electrochemical radical 1,4-dialkoxylation of 1,3-dienes to access (E)-1,4-diether alkenes

Chenlei Ji, Yuhe Cheng, Zhiwei Jiang and Yang'en You\*

## PAPERS

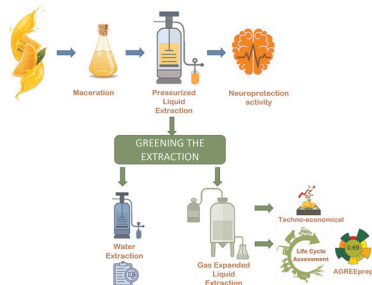
11007



### Dried urine spot as a stable, green, and practical microsampling tool in clinical practice for quantification of neopterin and creatinine

Chaweewan Suwanvecho, Lea Vyleťalová, Nikola Přívratská, Pakanan Laolertworakul, Dorota Turoňová, Milan Vošmik, Lenka Kujovská Krčmová\* and Frantisek Svec

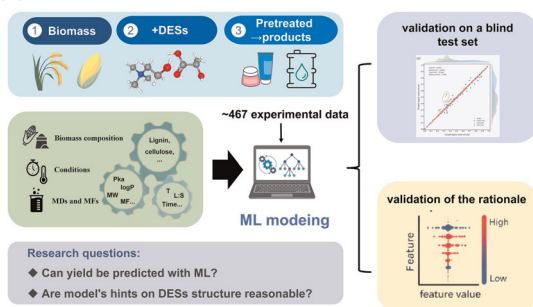
11021



### Transforming orange by-products into high-value neuroprotective products: environmental and economic assessment of advanced green extraction methods

Brenda L. S. Porto, Berenice Acevedo-García, Ayla Elmi Kashtiban, Tulio Miranda Sepulveda, Miguel Herrero, Alejandro Cifuentes, Jose A. Mendiola\* and Elena Ibáñez

11036



### Predicting lignin removal efficiency in deep eutectic solvent-based biomass fractionation: an explainable machine learning approach

Zijing Zhong, Babbiker Mohammed Taher Gorish, Yue Bai, Waha Ismail Yahia Abdelmula, Wenqian Dang and Daochen Zhu\*

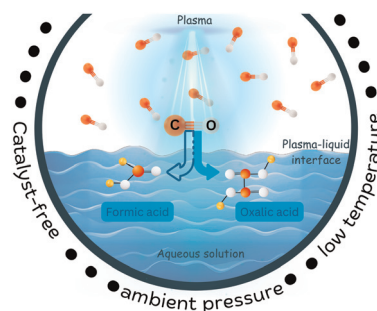


## PAPERS

11055

### Non-thermal atmospheric pressure plasma–liquid synthesis of organic acids in aqueous solution from carbon monoxide

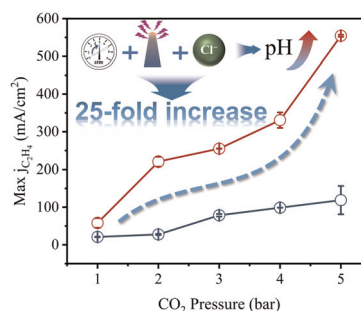
Alcina Johnson Sudagar,\* Piper Drebes and Elijah Thimsen



11065

### Breaking the C–C coupling barrier in pressurized CO<sub>2</sub>RR: local alkalinity control against buffering of CO<sub>2</sub> species at industrial current densities

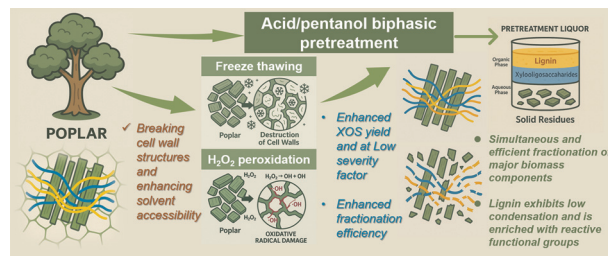
Shilei Zhang, Hang Wang, Yang Wang, Min Zhang, Weimin Wang, Liang Zhang, Jun Li, Xun Zhu, Qian Fu\* and Qiang Liao\*



11075

### Hydrogen peroxide pre-oxidation breaks down the recalcitrance of poplar biomass during acid/pentanol biphasic fractionation

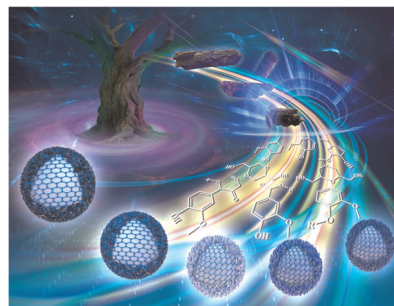
Hong Liao, Yimeng Wang, Huayou Chen, Fubao Sun and Junhua Zhang\*



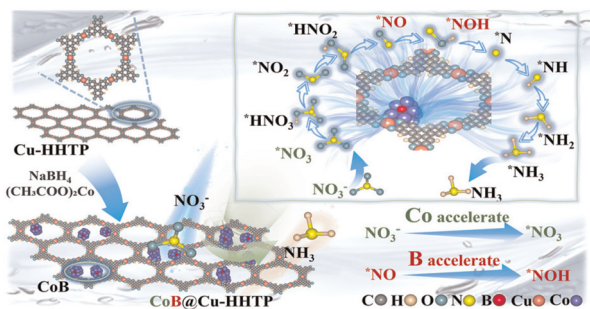
11093

### Structural and functional divergence of lignin-derived carbon dots and their nucleation pathways under varying alcohol-solvothermal treatments

Wenhao Hu, Siyu Zhao, Chihe Sun,\* Xueping Song, Meysam Madadi, Elahe Chiani, Abdolreza Samimi, Alireza Ashori and Fubao Sun\*



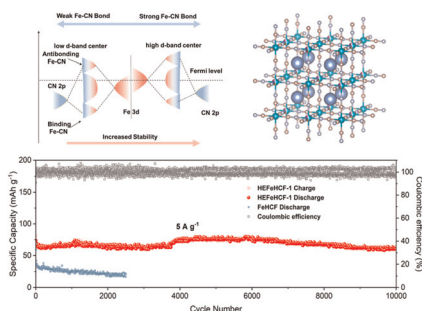
11107



### Integration of B-doped Co nanoclusters within Cu metal–organic frameworks for highly efficient electrocatalytic nitrate reduction

Ran Li, Hui Li, Yuxin Liu, Jing Luo, Qi Sui, Keke Wang,\* Jiarui Xia\* and Yi Jiang\*

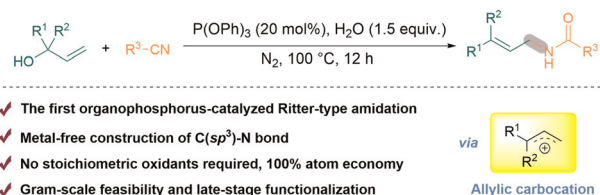
11115



### D-band center modulation of Prussian blue analogues through a high-entropy strategy for aqueous potassium-ion batteries

Fuping Min, Qi Zhang,\* Usman Ali, Maoyu Sun, Fayin Liu, Yueqi Xu, Lu Li,\* Chungang Wang and Bingqiu Liu\*

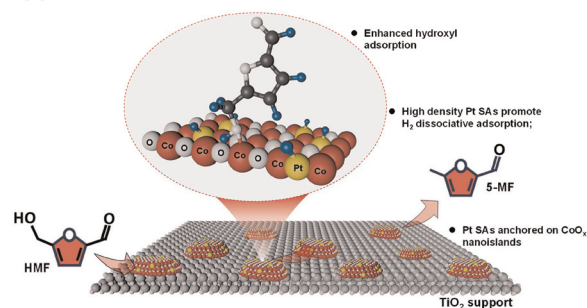
11125



### Metal-free triphenyl phosphite-catalyzed Ritter-type amidation of allylic alcohols

Longzhi Zhu,\* Furong Guo, Weiwei Luo, Shuangjiao Xie, Tingyuan Zhu, Zihao Liao, Biquan Xiong,\* Yu Liu, Ke-Wen Tang and Renhua Qiu\*

11133



### Pt single atoms anchored on CoO<sub>x</sub> nanoislands for efficient biomass-derived 5-methylfurfural production

Xiongxin Liang, Zidong Huang, Xin Luo, Xu Yang,\* Dai Dang, Xu Li\* and Hongliang Peng

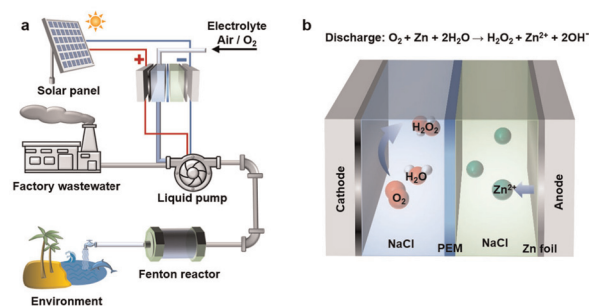


## PAPERS

11144

### High-performance neutral Zn–air batteries: revolutionizing energy storage with concurrent hydrogen peroxide electrosynthesis

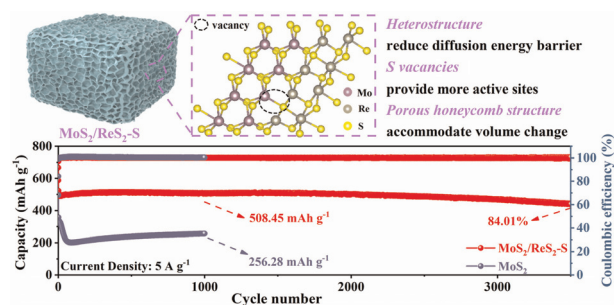
Yunlong Liu, Cairong Gong, Ruguang Wang,\*  
Jiaxin Guo, Jisi Li, Quanlu Wang, Zheng Lv and  
Tao Ling\*



11155

### A novel carbon-free 3D porous honeycomb-like $\text{MoS}_2/\text{ReS}_2$ heterostructure with S vacancies as anodes for sodium-ion batteries

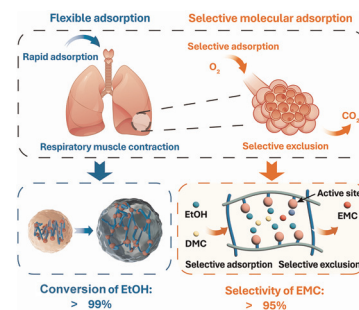
Minghui Ding, Siyi Chen, Tianyu Xue, Mingyu Xie,  
Junying Weng,\* Dongming Liu, Lechen Diao\* and  
Pengfei Zhou\*



11167

### A bioinspired heterogeneous catalyst for green and targeted transesterification of ethanol and dimethyl carbonate to ethyl methyl carbonate with high endurance

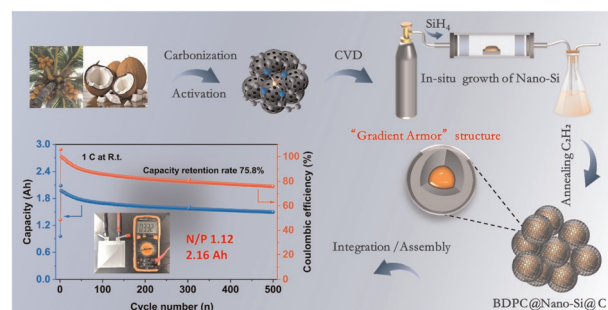
Rongkai Cui, Fengyue Yin, Wangquan Gong,  
Ningjing Yan, Siyao Li, Changshen Ye, Ting Qiu\* and  
Jie Chen\*



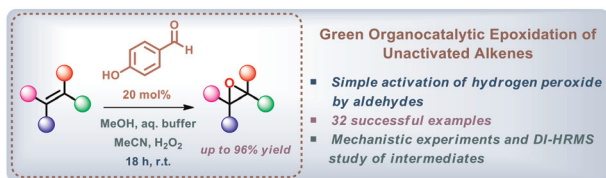
11179

### "Gradient armor" design of the Si–C anode using biomass-derived porous carbon for high-stability pouch cells

Lei Ma, Zhi Chen, Qiming Wang, Ying Lin, Lichun Zhou,  
Xiongbang Wei, Linnan Bi,\* Sizhe Wang and  
Jiaxuan Liao\*



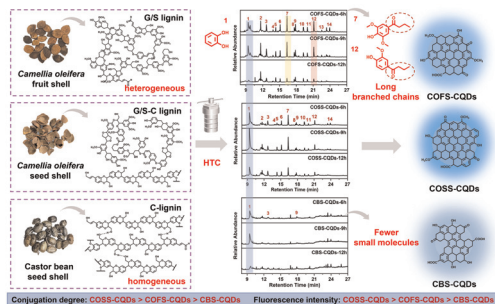
11192



### Green epoxidation of unactivated alkenes *via* the catalytic activation of hydrogen peroxide by 4-hydroxybenzaldehyde

Efthymios T. Poursaitidis, Christiana Mantzourani, Ierasia Triandafillidi, Maroula G. Kokotou and Christoforos G. Kokotos\*

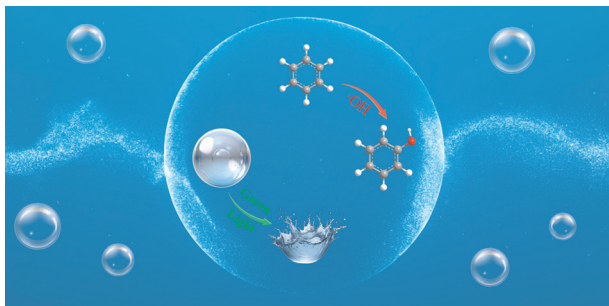
11203



### The formation mechanism and properties of carbon quantum dots prepared from guaiacyl/syringyl lignin and catechyl lignin

Xingmei Tang, Wenhua Gao,\* Sheng Duan, Jing Li, Jinsong Zeng, Jinpeng Li, Daxian Cao, Bin Wang, Jun Xu and Kefu Chen

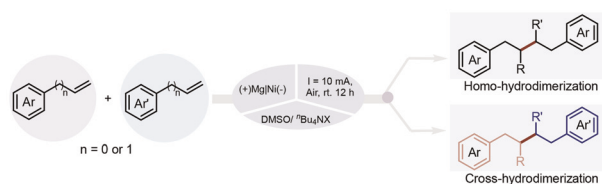
11216



### Catalyst-free one-step oxidation of benzene to phenol using nanobubbles

Rui Yin, Qihang Zhang, Weiqing Yang, Xinlan Hou, Mingyi Xie and Yuxi Tian\*

11222



### Electroreductive hydrodimerization of allylbenzenes and vinylarenes enables the diversified synthesis of 1,4-diarylbutanes

Wei Zhang,\* Shilu Zhang, Wan-Jian Fan, Shu Chen, Mei Xiong and Lei Chen\*

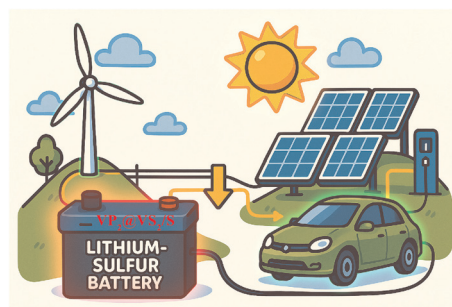


## PAPERS

11230

### An *in situ* phosphorization constructed $VP_2@VS_2$ nanoflower heterostructure with a modulated d-band center of V for efficient polysulfide adsorption and conversion in lithium–sulfur batteries

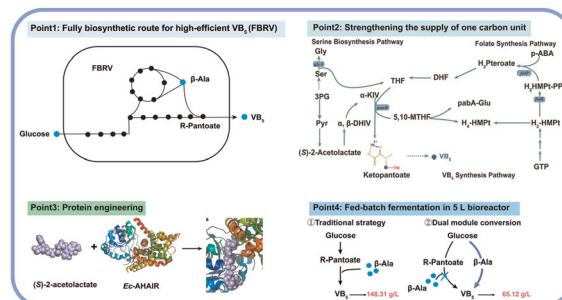
Zhidong Ye, Yaxiong He, Huasheng Gao, Heming Hu, Tao Chen and Qi Jiang\*



11248

### Enhancing vitamin B<sub>5</sub> biosynthesis by multimodule optimization and protein engineering

Bo Zhang, Yuning Xiao, Yi Zhu, Chaoze Liu, Lidan Zhu, Junping Zhou, Xue Cai, Guoping Qian, Zhiqiang Liu\* and Yuguo Zheng



11260

### Molecular recognition interfaces driving homogeneous zinc deposition for superior Zn metal anodes

Fusheng Luo, Xin Qi, Qing Wu, Jintong Zhang, Song Yang, Xiude Liu, Zeyu Yan and Jun Huang\*

