

# Green Chemistry

Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

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See Jun Yue *et al.*,  
pp. 5878–5898.

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*Green Chem.*, 2023, **25**,  
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### Inside cover

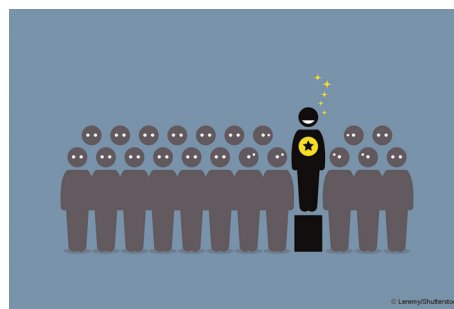
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Thomas Auvray *et al.*,  
pp. 5899–5906.

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## EDITORIAL

5774

### Outstanding Reviewers for *Green Chemistry* in 2022

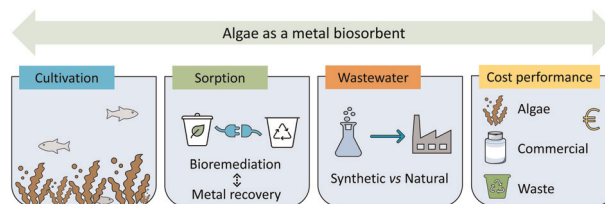


## CRITICAL REVIEWS

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### Metal biosorption onto non-living algae: a critical review on metal recovery from wastewater

Ana R. F. Carreira, Helena Passos\* and  
João A. P. Coutinho



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# Green Chemistry

Cutting-edge research for a greener sustainable future

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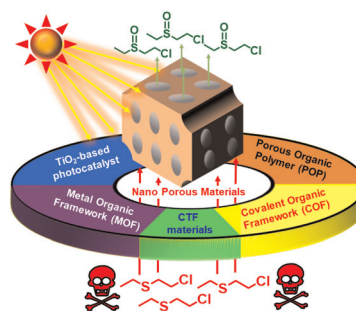


## CRITICAL REVIEWS

5789

### A critical review on emerging photoactive porous materials for sulfide oxidation and sulfur mustard decontamination

Priyanka Kalita, Ratul Paul, Ankita Boruah,  
Duy Quang Dao, Asim Bhaumik\* and John Mondal\*

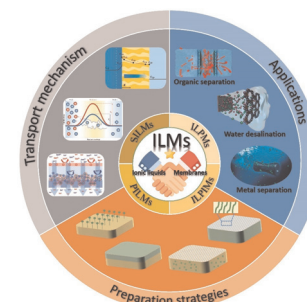


## TUTORIAL REVIEWS

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### Ionic liquids membranes for liquid separation: status and challenges

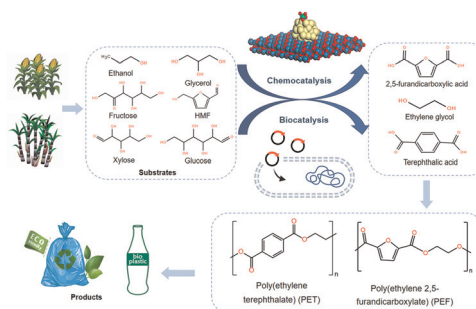
Shangqing Chen,\* Yanan Dong, Jingjing Sun, Peng Gu,  
Junfeng Wang\* and Suojia Zhang



5836

### Progress in the biosynthesis of bio-based PET and PEF polyester monomers

Yanan Cui, Chen Deng, Liqiang Fan, Yongjun Qiu and  
Liming Zhao\*



## COMMUNICATIONS

5858

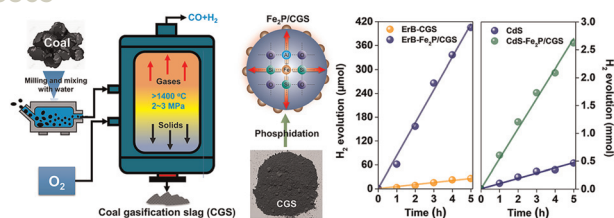
### Closed-loop recycling of lignin-based sustainable polymers with an all-hydrocarbon backbone

Yuan Hu, Qiyi Ran, Siping Wei, Chengcheng Wang,  
Zhijing Wu, Enhua Xu, Zhenyang Luo, Puyou Jia\* and  
Ye Sha\*



## COMMUNICATIONS

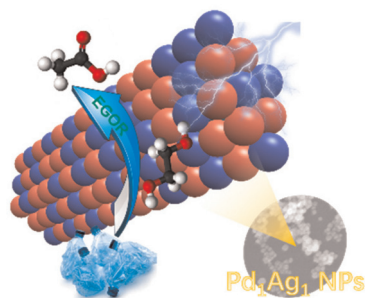
5865



### Upcycling endogenous Fe from coal gasification slag waste into a cocatalyst for the photocatalytic H<sub>2</sub> evolution reaction

Fang Wang, Kailu Li, Alkut Anwar, Zhengguo Zhang, Weibing Xu\* and Shixiong Min\*

5872

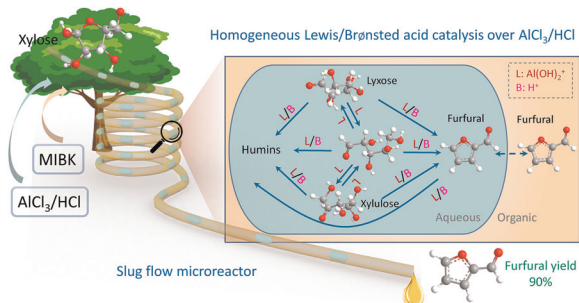


### Selective electro-reforming of waste polyethylene terephthalate-derived ethylene glycol into C<sub>2</sub> chemicals with long-term stability

Yuxiang Wang, Kesheng Liu, Fulai Liu, Chuxuan Liu, Rui Shi\* and Yong Chen\*

## PAPERS

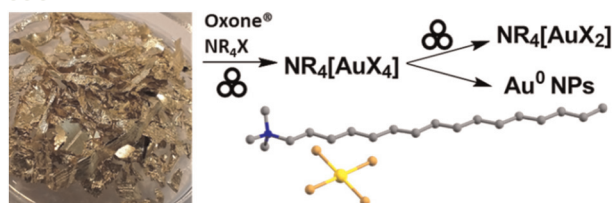
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### Insights into the reaction network and kinetics of xylose conversion over combined Lewis/Brønsted acid catalysts in a flow microreactor

Wenze Guo, Herman Carolus Bruining, Hero Jan Heeres and Jun Yue\*

5899



### Rapid, room-temperature, solvent-free mechanochemical oxidation of elemental gold into organosoluble gold salts

Jean-Louis Do, Thomas Auvray, Cameron B. Lennox, Hatem M. Titi, Louis A. Cuccia and Tomislav Friščić\*

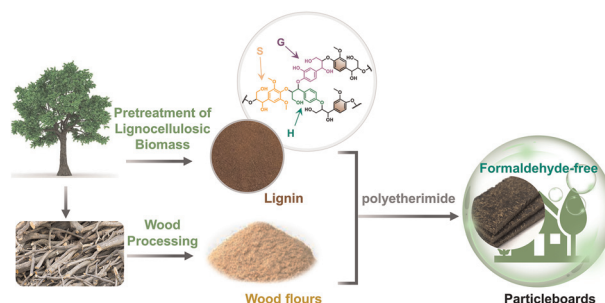


## PAPERS

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### A facile strategy to fabricate a lignin-based thermoset alternative to formaldehyde-based wood adhesives

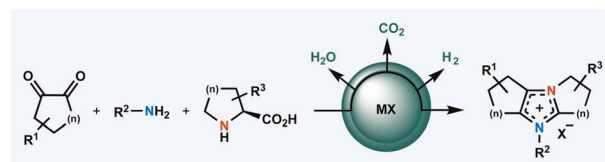
Xiaoyu Shi, Shishuai Gao, Can Jin, Daihui Zhang,\*  
Chenhuan Lai,\* Chunpeng Wang, Fuxiang Chu,  
Arthur J. Ragauskas and Mi Li\*



5916

### Direct access to polycyclic imidazolium salts *via* decarboxylative condensation of $\alpha$ -enaminones with proline

Yuval Simha, Gil Daniels, Amalya Goldman,  
Elihay Kuniavsky and Dmitry Tsvetikhovskiy\*

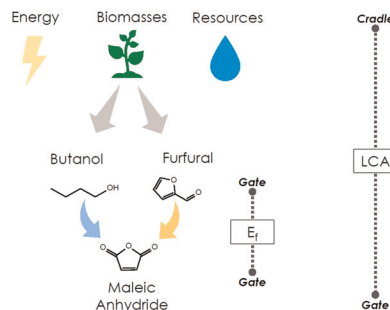


open flask setup  
any R: not limited to Ar  
any MX: no need in ion-exchange step  
simple SM: no need in imidazole as starting material

5922

### Maleic anhydride from bio-based 1-butanol and furfural: a life cycle assessment at the pilot scale

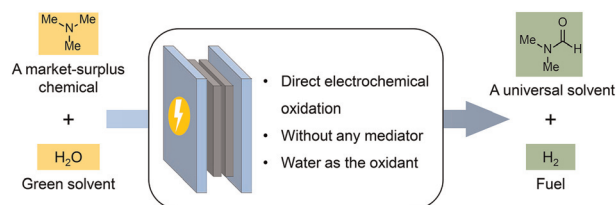
Raffaele Cucciniello, Daniele Cespi,\* Matteo Riccardi,  
Elena Neri, Fabrizio Passarini and Federico Maria Pulselli



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### Electrosynthesis of *N,N*-dimethylformamide from market-surplus trimethylamine coupled with hydrogen production

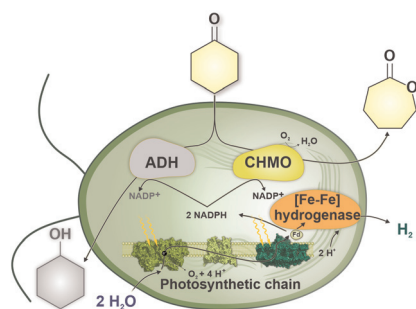
Meng Jin, An-Zhen Li, Ye Wang, Jing Li, Hua Zhou,  
Bi-Jie Li\* and Haohong Duan\*





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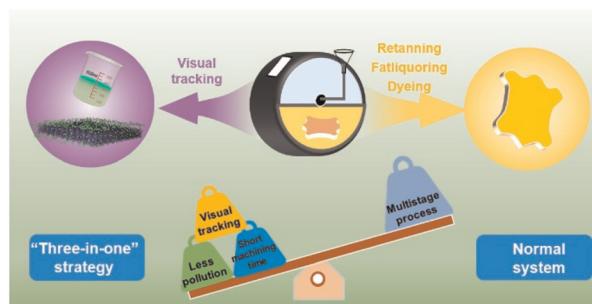
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### Engineered green alga *Chlamydomonas reinhardtii* as a whole-cell photosynthetic biocatalyst for stepwise photoproduction of H<sub>2</sub> and ε-caprolactone

Vilja Siitonen, Anna Probst, Gábor Tóth, Robert Kourist, Michael Schroda, Sergey Kosourov and Yagut Allahverdiyeva\*

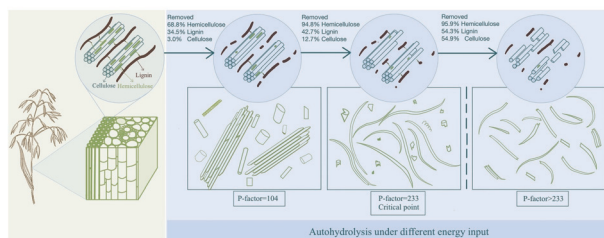
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### A "three-in-one" strategy based on an on-demand multifunctional fluorescent amphoteric polymer for ecological leather manufacturing: a disruptive wet-finishing technique

Chao Wei, Xuechuan Wang,\* Siwei Sun, Qiangqiang Lu, Xiaoliang Zou, Long Xie, Peiyao Huo, Dongyan Hao and Xinhua Liu\*

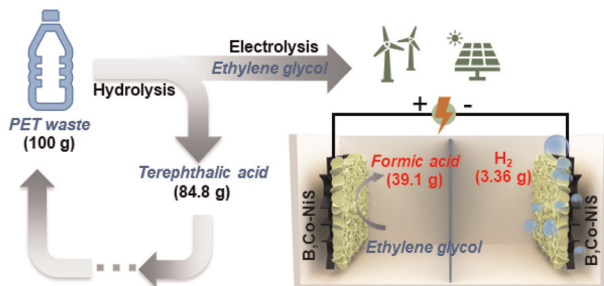
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### Effect and control of energy input on tissue and cell dissociation and chemical depolymerization in pure subcritical water autohydrolysis of naked oat stem

Jiahui Wei, Haonan Zhang, Shengcheng Zhai, Hao Ren\* and Huamin Zhai

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### Defective nickel sulfide hierarchical structures for efficient electrochemical conversion of plastic waste to value-added chemicals and hydrogen fuel

Zhijie Chen, Wei Wei, Yansong Shen and Bing-Jie Ni\*

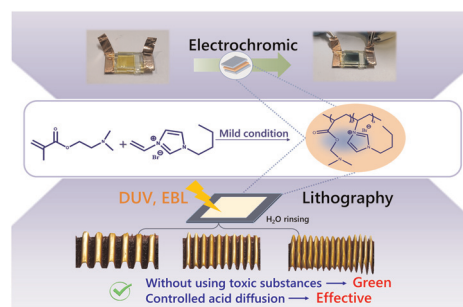


## PAPERS

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## Towards environmentally friendly processing of ionic liquid-based photoresists with a boosted lithography performance

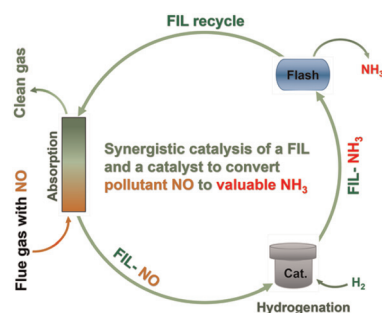
Lifei Liu, Kuntong Song, Tong Feng, Ting Song, Jintong Li, Shangqing Chen, Weizhen Zhao\* and Suojiang Zhang\*



5999

NH<sub>3</sub> production from absorbed NO with synergistic catalysis of Pd/C and functionalized ionic liquids

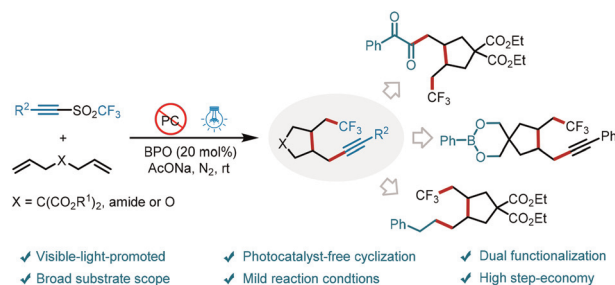
Yuanyuan Zhang, Wanxiang Zhang, Yan Wang, Shuhang Ren, Yucui Hou and Weize Wu\*



6009

## Visible-light-induced photocatalyst-free activation of alkynyl triflones for trifluoromethylalkynylation of unactivated 1,6-dialkenes

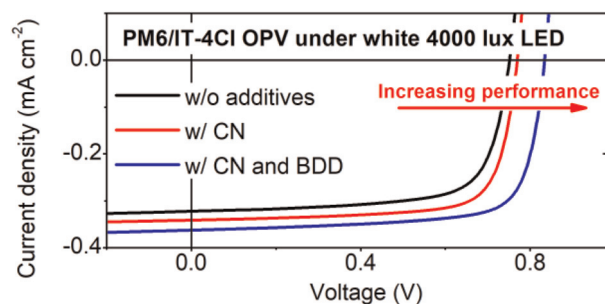
Yong-Hao Li, An-Xiang Huang, Fu-Yi Zhang, Kai Sun\* and Bing Yu\*



6014

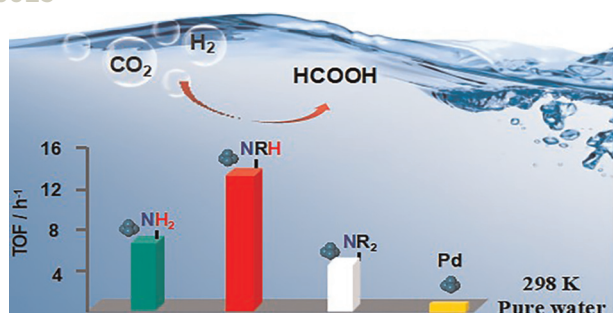
## Voltage losses in indoor light harvesting organic photovoltaic devices: a case study of green solvent processed PM6/IT-4Cl devices

Xuyan Man, Jing Wang, Deping Qian,\* Mengyang Li, Hailin Pan, Zheng Li, Ming Wang,\* Zheng Tang\* and Zaifei Ma\*



## PAPERS

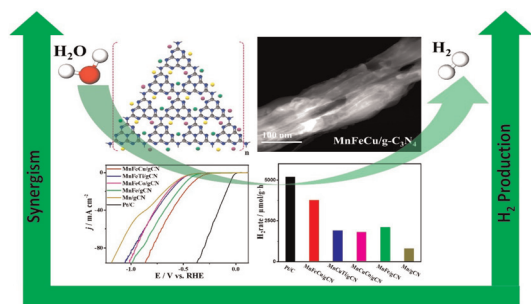
6025



### Additive-free CO<sub>2</sub> hydrogenation to pure formic acid solution via amine-modified Pd catalyst at room temperature

Shuchao Jiang, Xiaokong Liu, Shengliang Zhai, Xiuqin Ci, Tie Yu, Lei Sun, Dong Zhai,\* Weiqiao Deng and Guoqing Ren\*

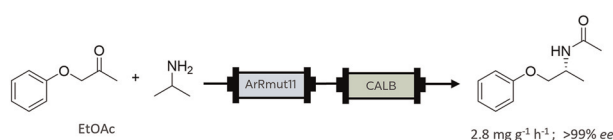
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### Synergistically interactive MnFeM (M = Cu, Ti, and Co) sites doped porous g-C<sub>3</sub>N<sub>4</sub> fiber-like nanostructures for an enhanced green hydrogen production

Belal Salah, Ahmed Abdelgawad, Qingqing Lu, Adewale K. Ipadeola, Rafael Luque and Kamel Eid\*

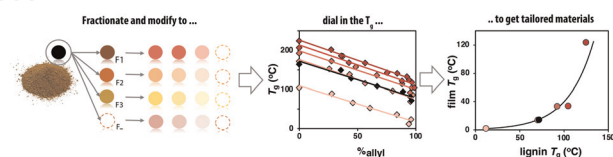
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### Development of an amine transaminase-lipase cascade for chiral amide synthesis under flow conditions

Antía Pintor, Ashley P. Matthey, Iván Lavandera, Vicente Gotor-Fernández\* and Alexey Volkov\*

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### Expanding lignin thermal property space by fractionation and covalent modification

Luke A. Riddell, Floris J. P. A. Enthoven, Jean-Pierre B. Lindner, Florian Meirer and Pieter C. A. Bruijninx\*



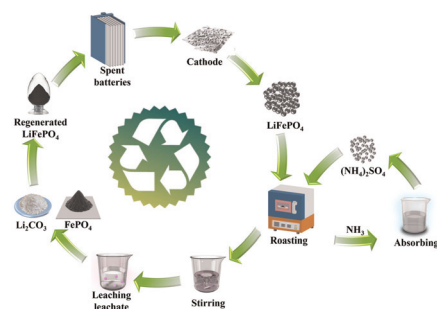


## PAPERS

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# Molten salt infiltration–oxidation synergistic controlled lithium extraction from spent lithium iron phosphate batteries: an efficient, acid free, and closed-loop strategy

Jiafeng Zhang, Jingtian Zou, Di He,\* Wenyang Hu, Dezhao Peng, Yong Li, Zaowen Zhao, Shubin Wang, Pengfei Li, Shilin Su, Keyi Ma and Xiaowei Wang\*



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# Aromatic long chain cations of amphiphilic ionic liquids permeabilise the inner mitochondrial membrane and induce mitochondrial dysfunction at cytotoxic concentrations

Meryem-Nur Duman, Alexander Angeloski, Michael S. Johnson and Tristan Rawling\*

