

# Green Chemistry

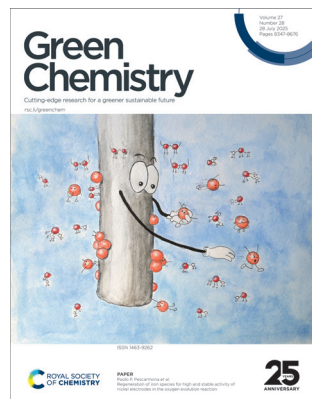
Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

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### Cover

See Paolo P. Pescarmona *et al.*, pp. 8505–8516.

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### Inside cover

See Xinhua Qi, Haixin Guo *et al.*, pp. 8414–8447.

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## EDITORIAL

8357

### From aspiration to action: evolving the mission of *Green Chemistry*

Javier Pérez-Ramírez and Michael A. Rowan

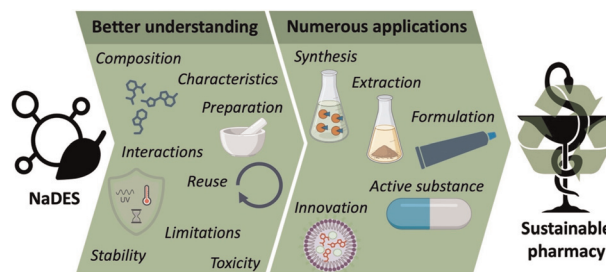


## CRITICAL REVIEWS

8360

### Natural deep eutectic solvents (NaDES): green solvents for pharmaceutical applications and beyond

Emma Chevé-Kools,\* Young Hae Choi, Catherine Roullier, Gwenaél Ruprich-Robert, Raphaël Grougnet, Florence Chapeland-Leclerc\* and Frank Hollmann



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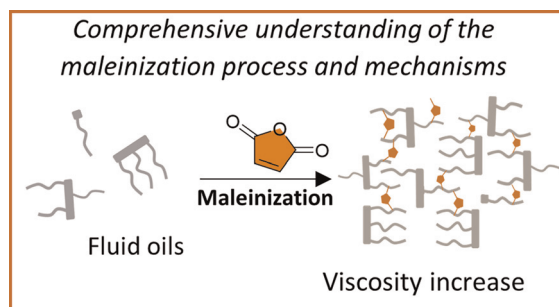
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Shamseldin A. Mohamed, Mildrède Debello,  
Justine Cantot, Stéphane Lavaud, Guillaume Chollet,  
Clémence Queffélec\* and Emmanuel Chailleux

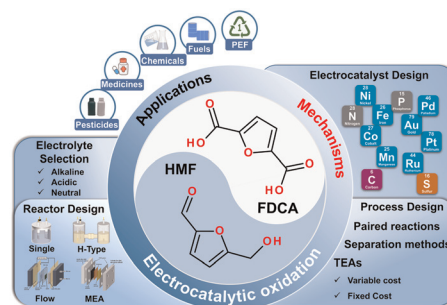
Shamseldin A. Mohamed, Mildrède Debello,  
Justine Cantot, Stéphane Lavaud, Guillaume Chollet,  
Clémence Queffélec\* and Emmanuel Chailleux



## 8414

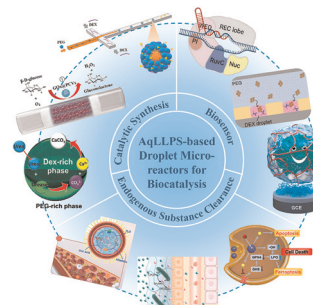
Bingkun Chen, Qidong Hou, Richard Lee Smith, Jr,  
Xinhua Qi\* and Haixin Guo\*

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Xinhua Qi\* and Haixin Guo\*



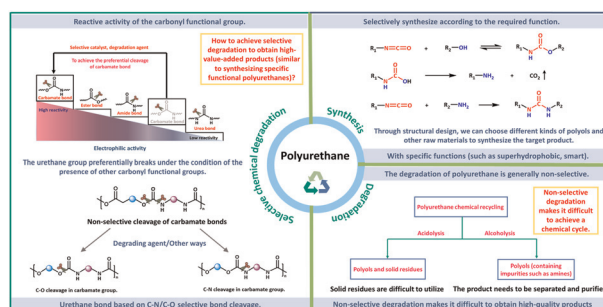
Futai Du, Huan Xin, Huiyuan Zheng, Weijiang Wang,  
Hao Yuan, Chaolong Liu,\* Tao Meng and  
Qingming Ma\*

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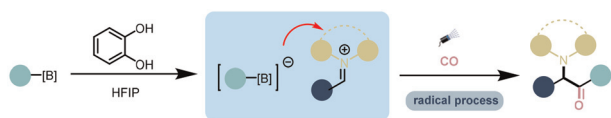
Hui-Wen He, Hang Hu, Kai-Ming Du, Ming Lu,  
Fan Yang, Ling-Xiao Cui, Meng Ma, Yu-Lu Zhu,  
Yan-Qin Shi, Si Chen\* and Xu Wang\*

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## COMMUNICATIONS

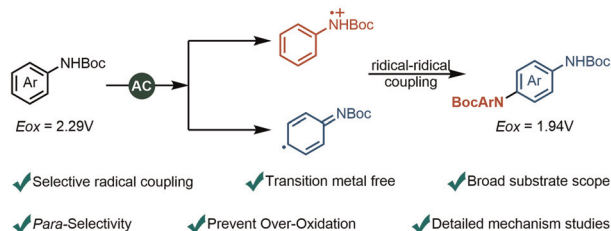
8492



### A catechol-catalyzed photocatalytic carbonylative four-component reaction of alkylboronic acids with aldehydes and amines

Qiangwei Li, Le-Cheng Wang and Xiao-Feng Wu\*

8498

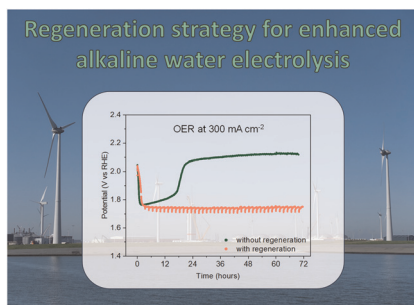


### Alternating current enabled *para*-selective C(sp<sup>2</sup>)-H/N-H cross-coupling of aniline

Zhaoliang Yang,\* Haiyan Du, Yuan Zhou, Mingming Yu and Jianye Zhang\*

## PAPERS

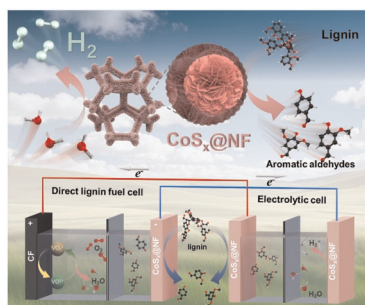
8505



### Regeneration of iron species for high and stable activity of nickel electrodes in the oxygen evolution reaction

Stefano Poli, Claude Poleunis, Matteo Miola, Dominic Gerlach, Petra Rudolf, Arnaud Delcorte, Hans Lammers, Matheus T. de Groot, Dulce M. Morales and Paolo P. Pescarmona\*

8517



### Efficient harvesting of electricity, aromatic aldehydes and H<sub>2</sub> from lignin over nanoflower-like cobalt-based bifunctional electrocatalysts

Yichen Zhang, Daihong Gao, Denghao Ouyang, Binhang Yan and Xuebing Zhao\*



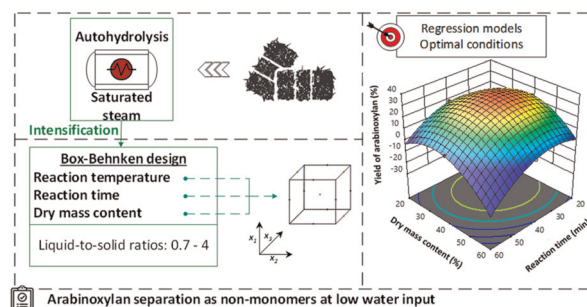


## PAPERS

8532

# Intensification of wheat straw autohydrolysis at minimal water input: Advancing a novel hemicellulose-first approach

Stanislav Parsin\* and Martin Kaltschmitt



8549

# Electrochemical Ni–H catalysis for selective tail-to-tail reductive dimerization of terminal alkynes to access 2,3-dibranched butadienes

Shide Lv, Mingming Yu,\* Yinglong Ni, Tiantian Huang, Hong Yi\* and Aiwen Lei\*



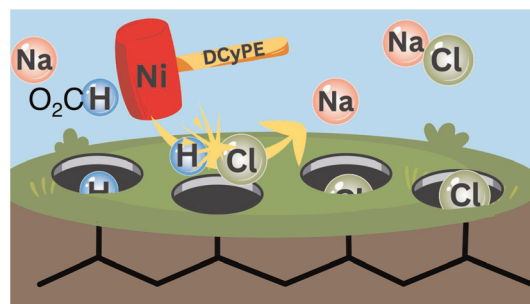
## Highlights

- ✓ Earth-abundant Ni catalyst
- ✓ New strategy for obtaining Ni-H
- ✓ General H donor
- ✓ Detailed mechanistic studies: CV, SWV and kinetic

8559

# Nickel catalyzed hydrodechlorination and CO functionalization of polyvinyl chloride

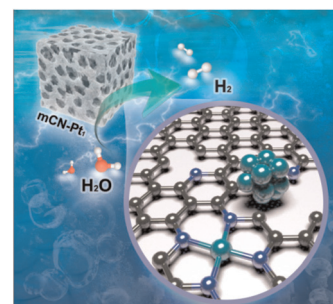
Ayon Das and Megan E. Fieser\*



8569

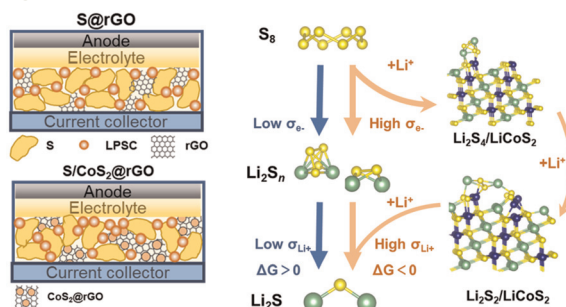
# Covalent organic framework-derived highly dispersed Pt single atoms collaborate with Pt nanoclusters electrocatalyst for acid hydrogen evolution

Huihui Zhao, Xinghao Zhang, Chengcheng Yu, Wenya Gao, Xiuxiu Chen, Haikuo Lan, Xiaorong Xin, Kang Liu and Dingxuan Ma\*



## PAPERS

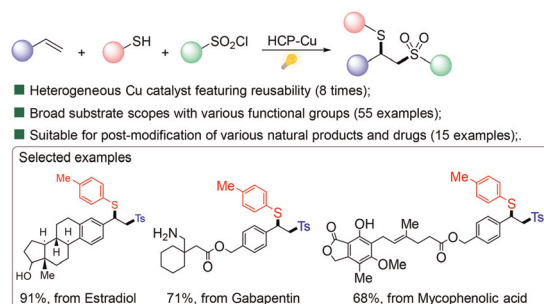
8576



### Overcoming the conversion reaction limitation with a dual-phase sulfide-based cathode for all-solid-state lithium–sulfur batteries

Ruojian Ma, Yingzuo He, Minghao Ruan, Ruyi Fang,\*  
Xinxu Wang, Jun Zhang, Yongping Gan, Xinpeng He,  
Hui Huang, Xinhui Xia, Wenkui Zhang, Xinyong Tao,  
Min Fan and Yang Xia\*

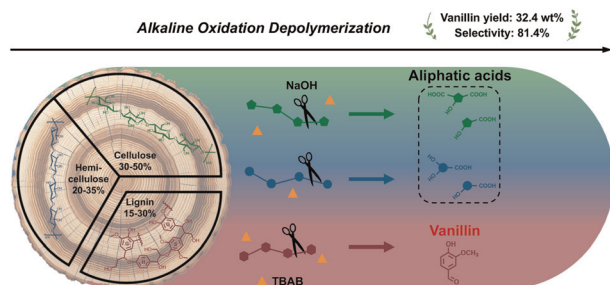
8585



### Photocatalytic 1,2-thiosulfonylation of alkenes with thiophenols and sulfonyl chlorides promoted by directly knitted copper polymers

Lijie Chen, Kai Zhang, Yajing Shen,\* Zhen Chen\* and  
Weiwei Fang\*

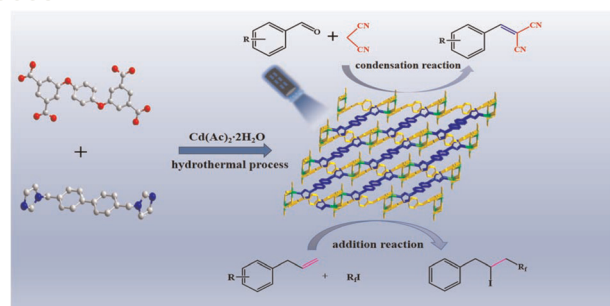
8594



### A phase-transfer-assisted strategy for oxidation-based biomass valorization

Junhao Wang, Baoyin An, Pengfei Li, Huili Zhang and  
Yunming Fang\*

8603



### Dual enabling photomediated Knoevenagel condensation and alkene perfluoroalkylation reactions by a photoresponsive cadmium–organic framework

Nana Yuan, Jia Cao, Yixia Ren,\* Xiufang Hou and  
Sanping Chen\*

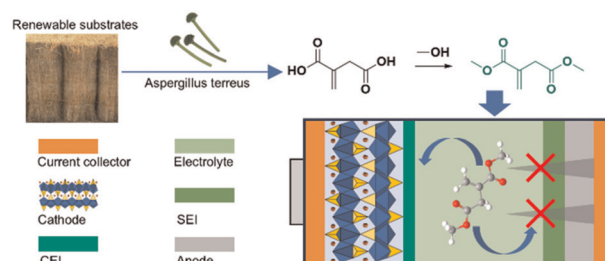


## PAPERS

8613

# Bio-derived dimethyl itaconate: a sustainable, low-cost electrolyte additive for high-performance lithium batteries

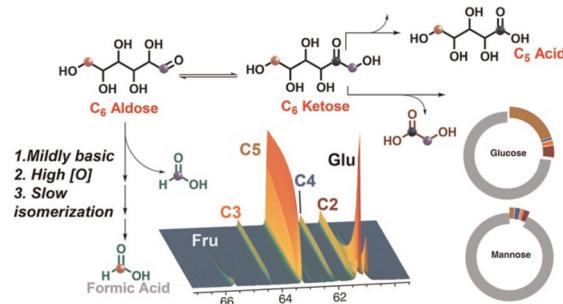
Chengliang Wang, Mingming Zhou, Lintong Zhou, Le Chang, Jianjiang He, Wei Zhao, Jingjiang Sun\* and Qingfu Wang\*



8625

# Base-catalyzed cascades of monosaccharide conversion to formic acid: isotope tracking reveals pathways and their optimal usage under mild conditions in water

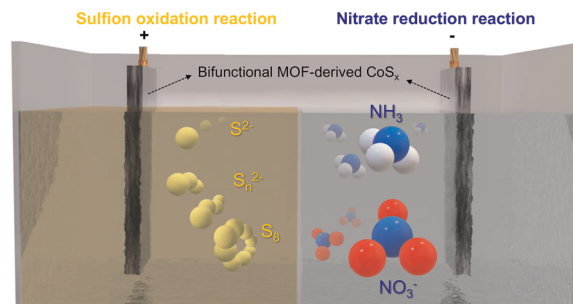
Stefan S. Warthegau, Mette-Maya Siewertsen, Robert Madsen and Sebastian Meier\*



8637

# MOF-derived CoS<sub>x</sub> as a bifunctional electrocatalyst for efficient sulfide oxidation and coupled ammonia synthesis

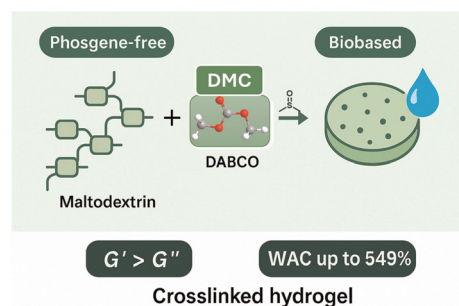
Kwangyeol Baek, Tianlei Li, Changsoo Lee, Wenzhen Li\* and Kwiyong Kim\*

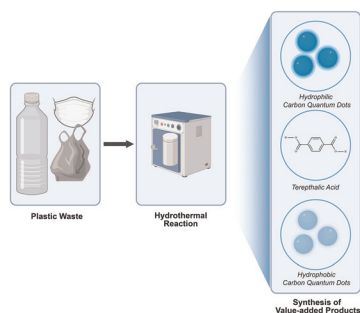


8649

# Green synthesis of scalable non-soluble hydrogels: rapid transesterification of maltodextrin with dimethylcarbonate using DABCO/DMSO

Mohamed M. H. Desoky,\* Gjylje Hoti, Arshak Tsaturyan, Claudio Ceccone, Fabrizio Caldera and Francesco Trotta





### Single step, one-pot, catalyst-free upcycling of polyethylene terephthalate into biphasic carbon dots and high-purity terephthalic acid

Kevin Brian, Mahmoud Elbeh,  
Mohammed Abdelhameed, Batoul Khlaifat,  
Fatma Alrebh, Liaqat Ali, Batool Abedrabbo,  
Brijith Thomas and Khalil B. Ramadi\*

