

# Green Chemistry

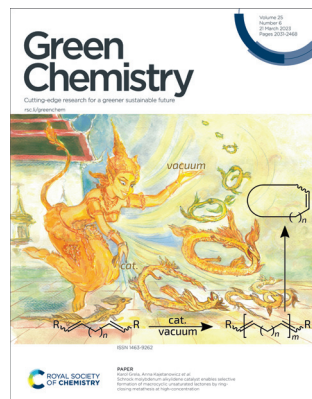
Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

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See Karol Grela,  
Anna Kajetanowicz *et al.*,  
pp. 2299–2304.

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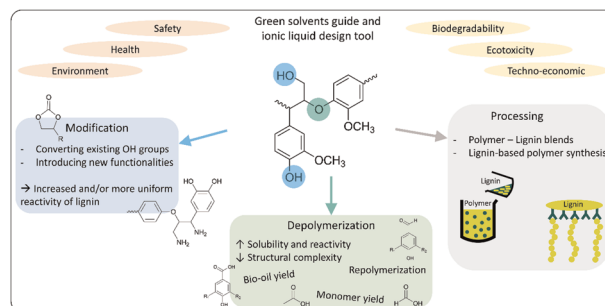
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## CRITICAL REVIEWS

2042

### Sustainable lignin modifications and processing methods: green chemistry as the way forward

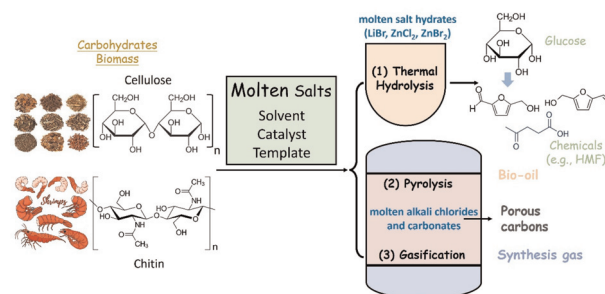
Bram Jacobs, Yawen Yao, Ine Van Nieuwenhove,  
Dhanjay Sharma, Geert-Jan Graulus, Katrien Bernaerts\*  
and An Verberckmoes\*



2087

### Research advancement in molten salt-mediated thermochemical upcycling of biomass waste

Yafei Shen\* and Xiangzhou Yuan



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# Green Chemistry

Cutting-edge research for a greener sustainable future

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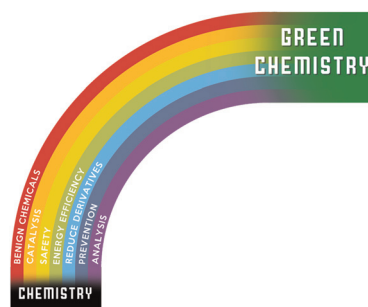


## CRITICAL REVIEWS

2109

**GreenMedChem: the challenge in the next decade toward eco-friendly compounds and processes in drug design**

Carola Castiello, Pierre Junghanns, Annika Mergel, Claus Jacob, Christian Ducho, Sergio Valente, Dante Rotili, Rossella Fioravanti,\* Clemens Zwerget\* and Antonello Mai

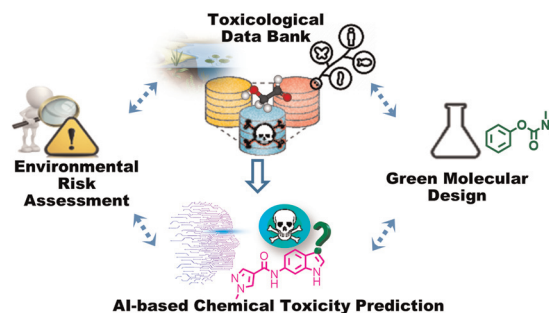


## TUTORIAL REVIEWS

2170

**Toxicological data bank bridges the gap between environmental risk assessment and green organic chemical design in One Health world**

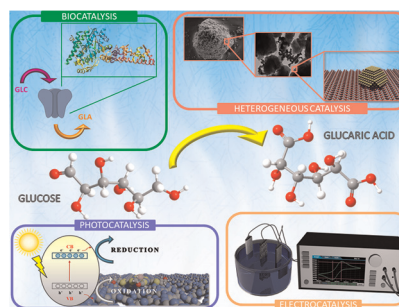
Xing-Xing Shi, Zhi-Zheng Wang, Xin-Lin Sun, Yu-Liang Wang, Huan-Xiang Liu, Fan Wang, Ge-Fei Hao\* and Guang-Fu Yang\*



2220

**Selective oxidation of biomass-derived carbohydrate monomers**

Janvit Teržan,\* Anja Sedminek, Žan Lavrič, Miha Grilc, Matej Huš and Blaž Likozar



2241

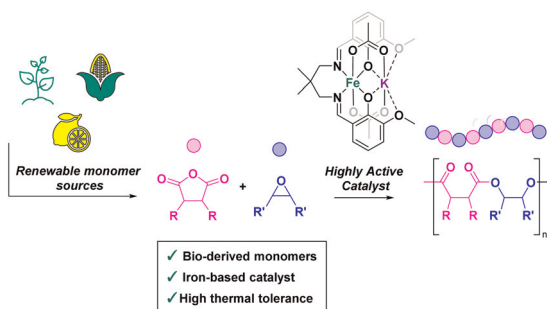
**Lignin as a green and multifunctional alternative to phenol for resin synthesis**

Wei Li, Hao Sun, Guanhua Wang,\* Wenjie Sui, Lin Dai\* and Chuanling Si\*



## COMMUNICATIONS

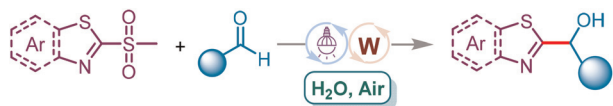
2262



### A highly active, thermally robust iron(III)/potassium(I) heterodinuclear catalyst for bio-derived epoxide/anhydride ring-opening copolymerizations

Wilfred T. Diment, Gloria Rosetto, Noura Ezaz-Nikpay, Ryan W. F. Kerr and Charlotte K. Williams\*

2268

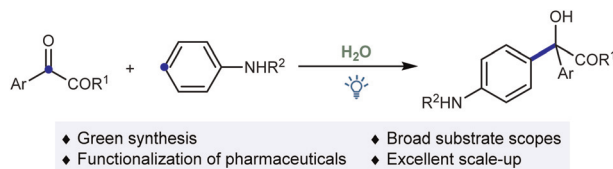


- Abundant feedstocks
- New strategy for hydroxyalkylation
- Cheap and easy-to-synthesize photocatalyst
- Mild reaction conditions in aqueous phase under air atmosphere

### Photocatalyzed hydroxyalkylation of N-heteroaromatics with aldehydes in the aqueous phase

Jun Xu, Li Liu, Zhao-Cheng Yan, Yang Liu, Long Qin, Ning Deng\* and Hua-Jian Xu\*

2274



### Visible-light-mediated green synthesis of tertiary alcohols from dicarbonyl compounds and arylamines in water

Xin Hui, Dan Zhang, Chunying Wu, Yifan Ma, Huihui Zhou and Yunbo Zhu\*

2279



### Electromagnetic mill promoted mechanochemical palladium-catalyzed solid state cyanation of aryl bromides using non-toxic K<sub>4</sub>[Fe(CN)<sub>6</sub>]

Yanan Hou, Hui Wang, Juan Xi, Ruonan Jiang, Lizhi Zhang, Xinjin Li, Fenggang Sun, Qing Liu,\* Zengdian Zhao\* and Hui Liu\*

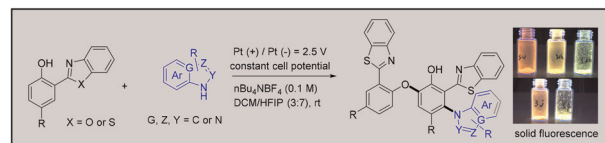


## COMMUNICATIONS

2287

### Consecutive cross-dehydrogenative C–O and C–N construction for the synthesis of polyarene with AIE properties under electrochemical condition involving oxygen radical species

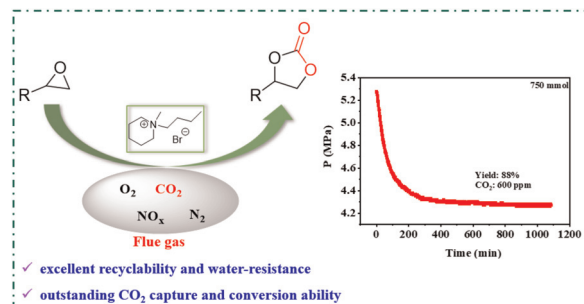
Zhicheng Zhang, Linzi Wen, Shihai Xu, Yu Tang,\*  
Xiaohui Cao\* and Pengju Feng\*



2293

### In situ CO<sub>2</sub> capture and transformation into cyclic carbonates using flue gas

Haiying Ma, Shujuan Liu, Hongli Wang, Guomin Li,  
Kang Zhao, Xinjiang Cui and Feng Shi\*

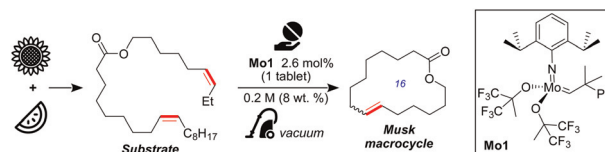


## PAPERS

2299

### Schrock molybdenum alkylidene catalyst enables selective formation of macrocyclic unsaturated lactones by ring-closing metathesis at high-concentration

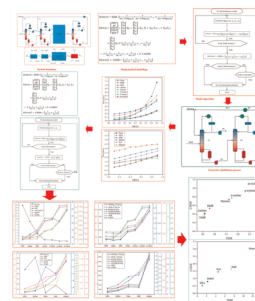
Adrian Sytniczuk, Mariusz Milewski, Michał Dąbrowski,  
Karol Grela\* and Anna Kajetanowicz\*



2305

### A heuristic predictive model for screening green entrainers comparing life cycle assessment indexes and economics

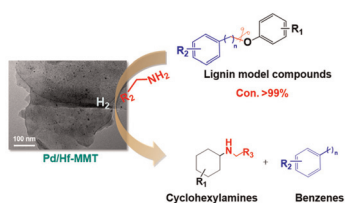
Qinggang Xu, Jiafu Xing, Yuyang Jiao, Zihao Su,  
Yanli Zhang, Peizhe Cui, Jianguang Qi, Zhaoyou Zhu,  
Yinglong Wang\* and Yixin Ma





## PAPERS

2318

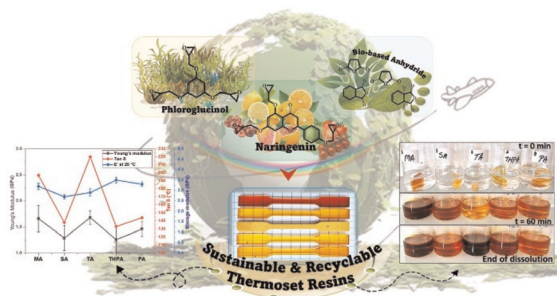


- This work:**
- ✓ Without using any acidic additives
  - ✓ Low hydrogen pressure (0.3 MPa)
  - ✓ Extensive applicability (at least 24 examples)
  - ✓ Suitable for various amine sources

### Hf<sup>4+</sup>-exchanged montmorillonite-boosted Pd-catalyzed reductive aminolysis of aryl ethers to efficiently synthesize cyclohexylamines

Jiao Xu, Bingxiao Zheng, Jinliang Song,\* Haihong Wu,\*  
Xuelei Mei, Kaili Zhang, Wanying Han, Chunyu Li,  
Mingyuan He and Buxing Han\*

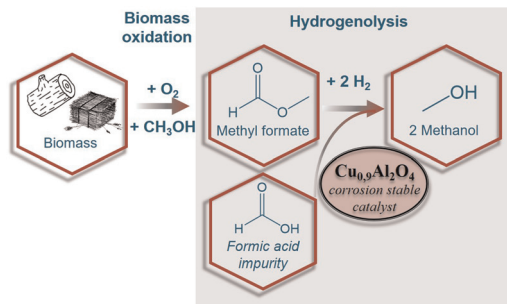
2327



### High performance, recyclable and sustainable by design natural polyphenol-based epoxy polyester thermosets

Roxana Dinu, Anastasiia Pidvoronia, Ugo Lafont,  
Olivier Damiano and Alice Mija\*

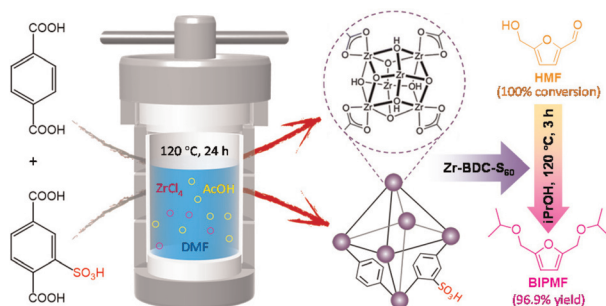
2338



### Synthesis of methanol by hydrogenolysis of biobased methyl formate using highly stable and active Cu-spinel catalysts in slurry and gas phase reactions

Vera Haagen, Jakob Iser, Markus Schörner,  
Dennis Weber, Tanja Franken, Peter Wasserscheid and  
Patrick Schühle\*

2349



### One-pot reductive etherification of biomass-derived 5-hydroxymethylfurfural to 2,5-bis(isopropoxymethyl)furan over a sulfonic acid-functionalized zirconium-based coordination catalyst

Aiyong He, Qinyin Gu, Xinming Shen, Jingyi Zheng,  
Lei Hu,\* Xiaoyu Wang, Yetao Jiang, Zhen Wu,\*  
Jiaxing Xu and Jinliang Song\*

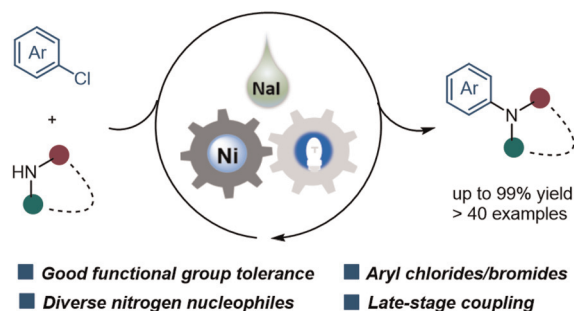


## PAPERS

2361

### Sodium-iodide-promoted nickel-catalyzed C–N cross-coupling of aryl chlorides and N-nucleophiles under visible-light irradiation

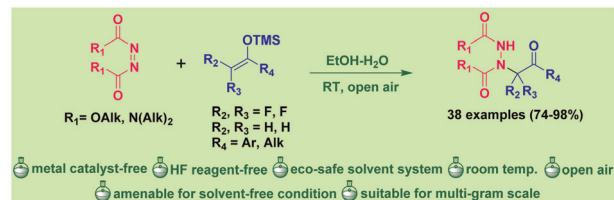
Yunhui Feng, Hang Luo, Fangnian Yu, Qian Liao and Luqing Lin\*



2368

### Developing a transition-metal-free green protocol for the electrophilic hydrazination of silyl enol ethers using diazo electrophiles with EtOH–H<sub>2</sub>O as a safe solvent

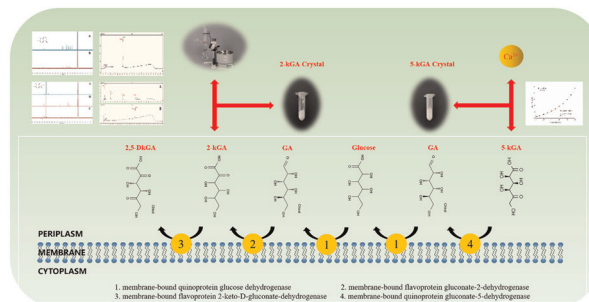
Subba Rao Polimera, Andivelu Ilangoan and Murugaiah A. M. Subbaiah\*



2378

### Cascading and precise regulation of the selective bio-production of 2- or 5-ketogluconic acid from glucose with whole-cell catalysis technology

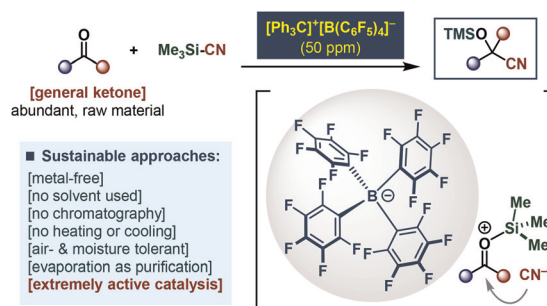
Xia Hua, Jian Han, XinLu Liu and Yong Xu\*



2387

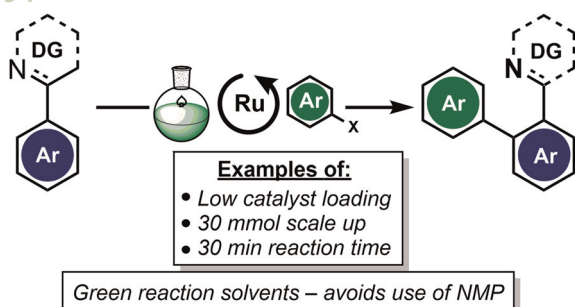
### Sustainable organocatalytic cyanosilylation of ketones by PPM-level loading of triphenylcarbenium tetrakis(pentafluorophenyl) borate

Muhammad Israr and Han Yong Bae\*



## PAPERS

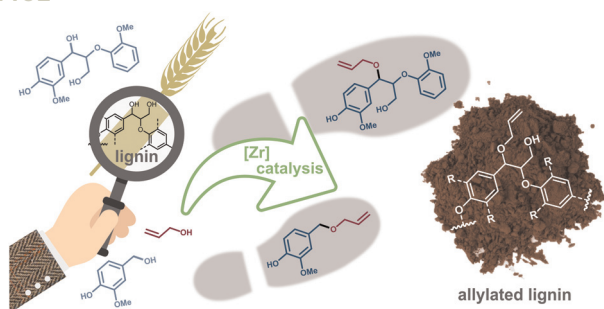
2394



### Improving the sustainability of the ruthenium-catalysed *N*-directed C–H arylation of arenes with aryl halides

Michael T. Findlay, Ashley S. Hogg, James J. Douglas and Igor Larrosa\*

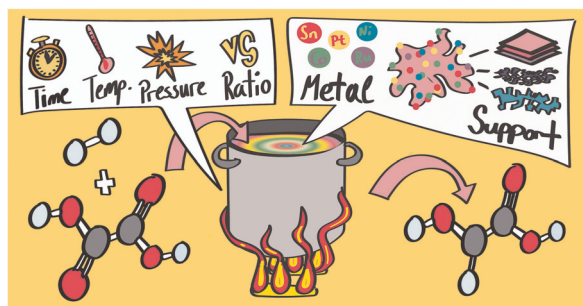
2401



### Mild and selective etherification of wheat straw lignin and lignin model alcohols by moisture-tolerant zirconium catalysis

Cristiana Margarita, Davide Di Francesco, Hernando Tuñón, Ivan Kumaniaev, Carlos Jansson Rada and Helena Lundberg\*

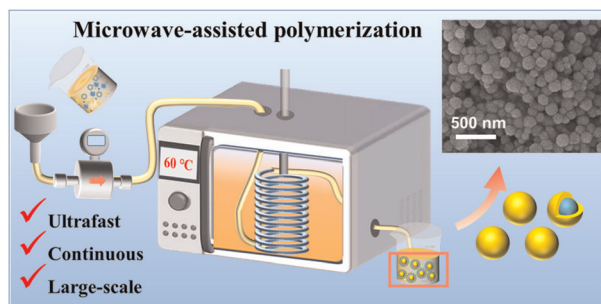
2409



### Oxalic acid hydrogenation to glycolic acid: heterogeneous catalysts screening

Eric Schuler, Lars Grooten, Mohanreddy Kasireddy, Santosh More, N. Raveendran Shiju, Setrak K. Tanielyan, Robert L. Augustine and Gert-Jan M. Gruter\*

2427



### Ultrafast and continuous synthesis of phase change nanocapsules using salt-accelerated microwave-assisted polymerization

Dan Li, Xin Li, Jun Yan, Yongqiang Qian, Guxia Wang, Yen Wei and Shengwei Guo\*



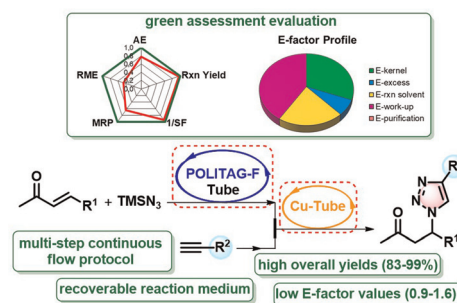


## PAPERS

2438

# Continuous flow synthesis of 1,4-disubstituted 1,2,3-triazoles via consecutive $\beta$ -azidation of $\alpha,\beta$ -unsaturated carbonyl compounds and CuAAC reactions

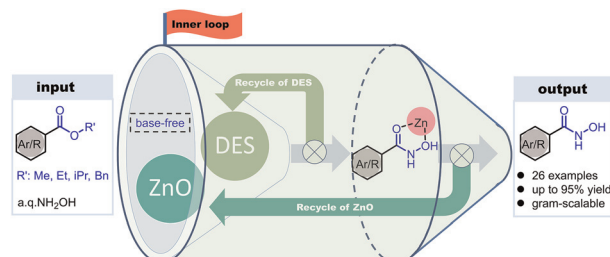
Giulia Brufani, Federica Valentini, Gabriele Rossini, Luigi Carpisassi, Daniela Lanari\* and Luigi Vaccaro\*



2446

# A base-free hydroxylaminolysis protocol promoted by ZnO in deep eutectic solvents

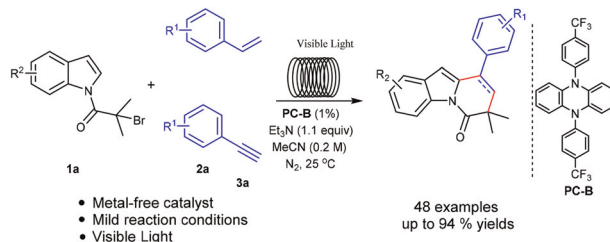
Xinjie Liang, Bingqing Lv, Shitao Sun, Zhixuan Wu, Bin Lin, Xuefei Bao\* and Guoliang Chen\*



2453

# Synthesis of pyrido[1,2-a]indol-6(7H)-ones via a visible light-photocatalyzed formal (4 + 2) cycloaddition of indole-derived bromides and alkenes or alkynes

Minghui Wei, Chengkou Liu, Chang-Sheng Wang, Yuguang Li, Peng Qiu, Quanxiao Dong, Zhao Yang, Zheng Fang\* and Kai Guo\*



2458

# Herbaceous plants-derived hydroxycinnamic units for constructing recyclable and controllable copolyesters

Jia Shi, Shuizhong Wang, Helong Li\* and Guoyong Song\*

