

Green Chemistry

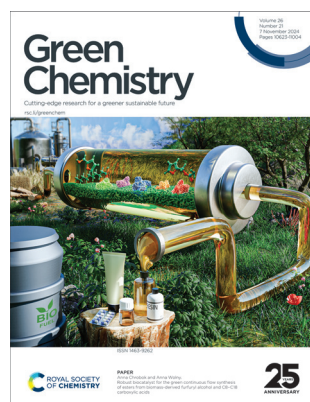
Cutting-edge research for a greener sustainable future

rsc.li/greenchem

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 1463-9262 CODEN GRCHFJ 26(21) 10623–11004 (2024)



Cover

See Anna Wolny and Anna Chrobok
pp. 10829–10841.

Image reproduced by permission of Anna Chrobok and Anna Wolny from *Green Chem.*, 2024, **26**, 10829. Artist: Ehsan Faridi Inmywork Studio.



Inside cover

See Zen Maeno *et al.*,
pp. 10842–10850.

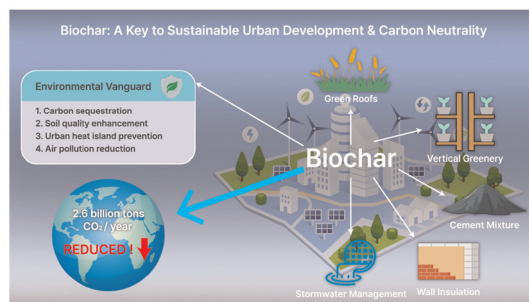
Image reproduced by permission of Zen Maeno from *Green Chem.*, 2024, **26**, 10842.

CRITICAL REVIEWS

10634

Carbon negative biochar systems contribute to sustainable urban green infrastructure: a critical review

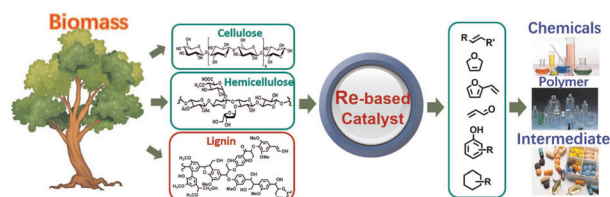
Sachini Supunsala Senadheera, Piumi Amasha Withana, Juin Yau Lim, Siming You, Scott X. Chang, Fang Wang, Jay Hyuk Rhee and Yong Sik Ok*



10661

Rhenium-based catalysts for biomass conversion

Julian Skagfjörd Reinhold, Jifeng Pang,* Bo Zhang,* Fritz E. Kühn* and Tao Zhang



Environmental Science: Atmospheres

 GOLD
OPEN
ACCESS

Connecting communities
and inspiring new ideas

rsc.li/submittoEA

Fundamental questions
Elemental answers



CRITICAL REVIEWS

10687

Recent progress in energy conversion and storage of agricultural waste-derived (carbon/nano) materials: a review

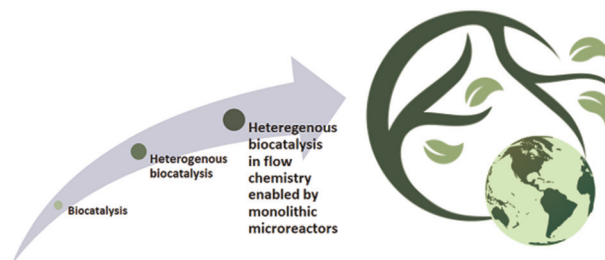
Zahra Nezafat, Yahao Dong,*
 Mahmoud Nasrollahzadeh,* Nasrin Shafiei,
 Hanieh Gharoubi and Shahrzad Javanshir



10718

Monoliths enabling biocatalysis in flow chemistry

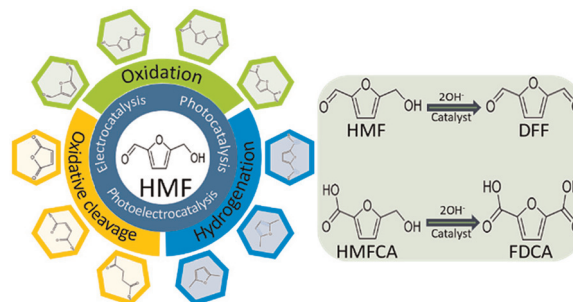
Aleksandra Lambarska, Katarzyna Szymańska* and
 Ulf Hanefeld*



10739

Research progress on photocatalytic, electrocatalytic and photoelectrocatalytic selective oxidation of 5-hydroxymethylfurfural

Yang An, Tao Lei, Weiye Jiang and Huan Pang*

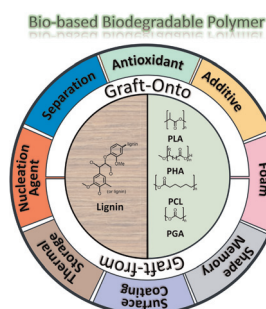


TUTORIAL REVIEW

10774

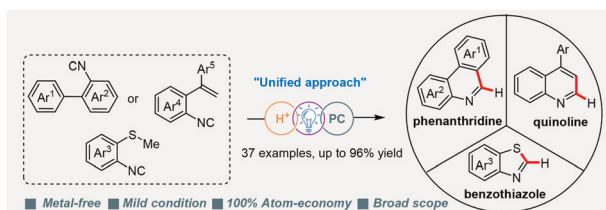
Biodegradable polymers: from synthesis methods to applications of lignin-graft-polyester

Sundol Kim and Hoyong Chung*



COMMUNICATIONS

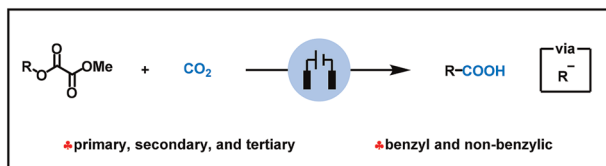
10804



Metal-free photoinduced-radical hydrocyclization of 2-isocyanides: a unified synthetic approach to facilely assemble diverse *N*-heteroarenes

Ziyi Wang, Haonan Wei, Jinrong Du and Zhijun Zuo*

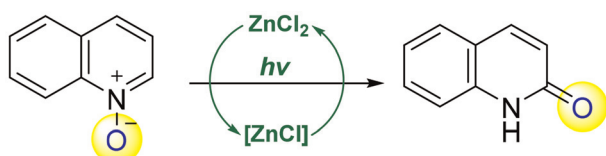
10811



Electroreductive deoxygenative carboxylation of alkyl oxalates with CO₂

Yong Yuan,* Hangfei Jiang, Ya-Nan Zhang, Yuyan Tao, Xincong Liu and Congde Huo

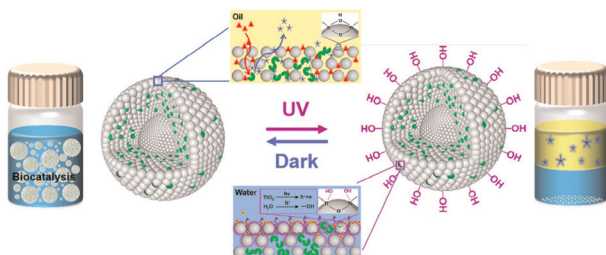
10818



Light-induced isomerization of quinoline-*N*-oxide derivatives through Zn-catalysis: a photochemical approach for synthesizing 2-quinolinone derivatives

Xiaoqiang Yu,* Sana Yang, Ning Yan, Yukang Fu, Yang Li,* Wanhui Wang and Ming Bao

10824



Lipase-entrapped colloidosomes with light-responsive wettability for efficient and recyclable Pickering interfacial biocatalysis

Dingyi Yang, Qi Zeng, Kaiwen Tan, Haoyue Hou, Xingyuan Fang, Chenlong Guo, Hao Yuan and Tao Meng*

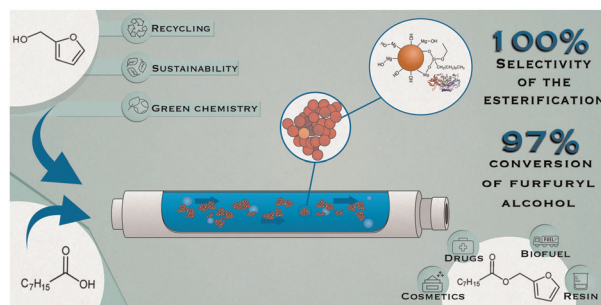


PAPERS

10829

Robust biocatalyst for the green continuous flow synthesis of esters from biomass-derived furfuryl alcohol and C8–C18 carboxylic acids

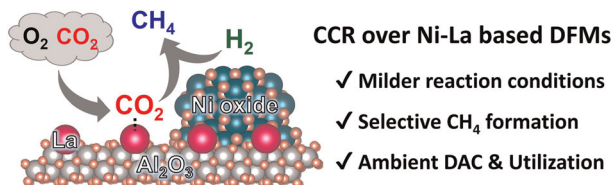
Anna Wolny, Dagmara Więctawik, Jakub Zdarta, Sebastian Jurczyk, Teofil Jesionowski and Anna Chrobok*



10842

Direct capture of low-concentration CO₂ and selective hydrogenation to CH₄ over Al₂O₃-supported Ni–La dual functional materials

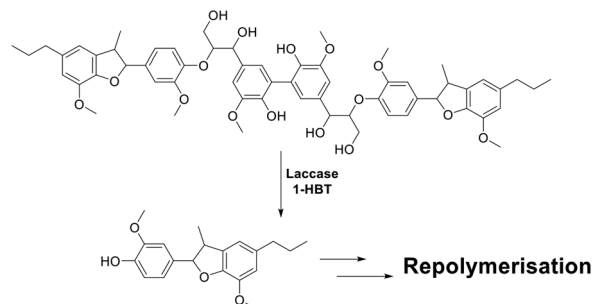
Tomotaka Tatsumichi, Rei Okuno, Hideki Hashimoto, Norikazu Namiki and Zen Maeno*



10851

Biocatalytic conversion of lignin model oligomer using a laccase-mediator system

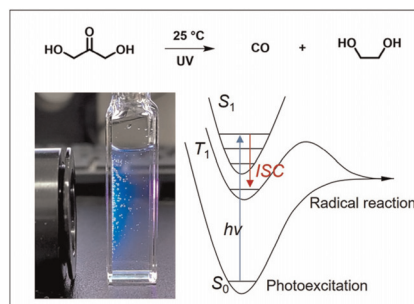
Christopher W. J. Murnaghan,* William G. Forsythe, Jack H. Lafferty and Gary N. Sheldrake



10859

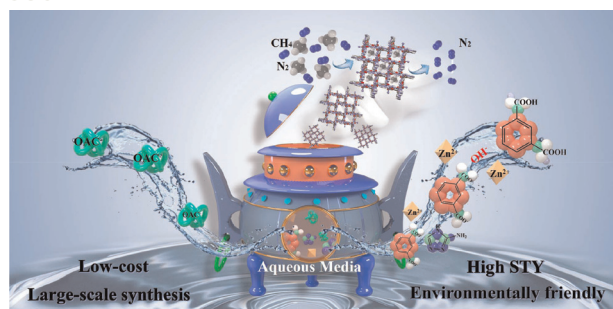
Light-driven ultrafast dual C–C cleavage and coupling of dihydroxyacetone into high-purity carbon monoxide and ethylene glycol

Fanhao Kong, Hongru Zhou, Zhiwei Chen, Zhaolin Dou and Min Wang*



PAPERS

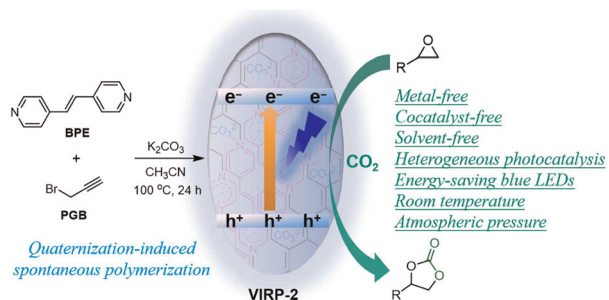
10867



Green and scalable synthesis of a dual-ligand Zn-MOF with unprecedented space–time yield in aqueous media and efficient CH₄/N₂ separation

Zhang-Ye Han, Xuefeng Bai, Yan-Long Zhao, Wen-Liang Li, Quanyou Sun, Zheng-He Xie, Li-Feng Ding, Rui Li* and Jian-Rong Li*

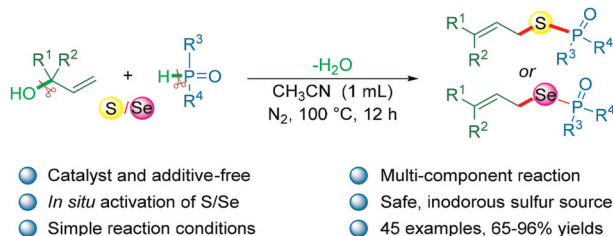
10876



One-pot synthesis of conjugated vinylene-extended viologen ionic radical polyacetylenes for visible light-promoted photocatalytic CO₂ cycloaddition

Yanan Chang, Shuo Wang, Juan Chen, Zixuan Xu, Qing Shi, Yunjie Mao, Yanli Gai, Zhouyang Long and Guojian Chen*

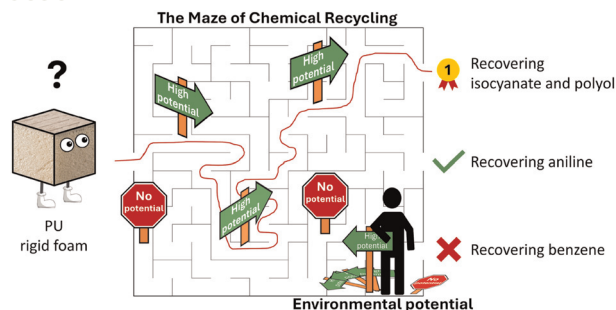
10886



Halide-free and metal-free allylic thiolation/selenation of P(O)H compounds with sulfur/selenium and allylic alcohols

Longzhi Zhu,* Weiwei Luo, Furong Guo, Lin Chen, Ying Tang, Biquan Xiong,* Yu Liu, Ke-Wen Tang and Renhua Qiu*

10893



What to do with polyurethane waste? The environmental potential of chemically recycling polyurethane rigid foam

Martin Pillich, Johannes Schilling, Luca Bosetti and André Bardow*

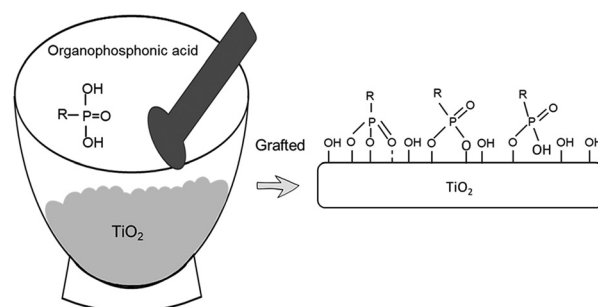


PAPERS

10907

Straightforward solid-phase modification of TiO₂ with propylphosphonic acid *via* manual grinding and shaker mixing: enhancing modification degree by thermal control while improving atom economy

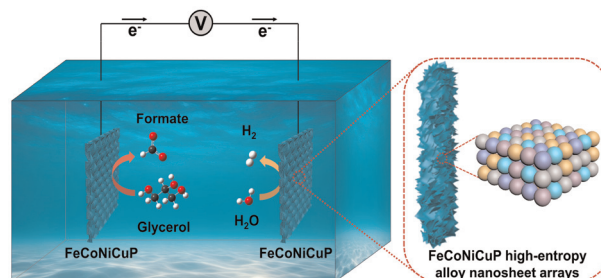
Kaimin Zhang, Jinxin Wang,* Nick Gys, Elien Derveaux, Nahal Ghanemnia, Wouter Marchal, Peter Adriaensens and Vera Meynen*



10921

Self-supported FeCoNiCuP high-entropy alloy nanosheet arrays for efficient glycerol oxidation and hydrogen evolution in seawater electrolytes

Leyang Song, Chaoqun Ma, Peidong Shi, Xiaojuan Zhu, Kaiyu Qu, Lijie Zhu,* Qipeng Lu* and An-Liang Wang*

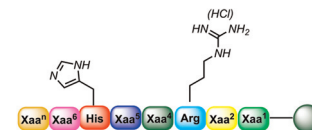


10929

Solid phase peptide synthesis using side-chain unprotected arginine and histidine with Oxyma Pure/TBEC in green solvents

Tommaso Fantoni, Andrea Orlandin, Ilaria Di Stefano, Marco Macis, Alessandra Tolomelli, Antonio Ricci,* Walter Cabri* and Lucia Ferrazzano

TBEC/Oxyma Pure protocol for minimal protection SPPS

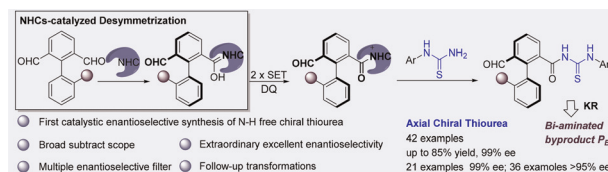


- ✓ High Atom Economy and low PMI
- ✓ Green binary solvents
- ✓ Side-chain free arginine, histidine, tryptophane and tyrosine
- ✓ Application for API synthesis

10940

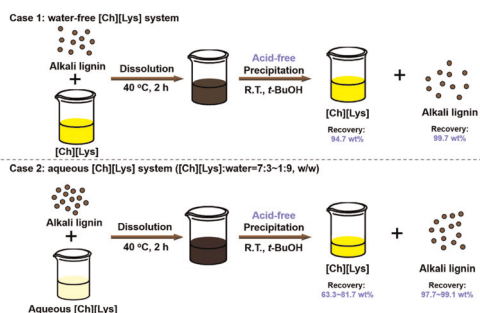
Synthesis of axially chiral thiourea by NHC-catalyzed desymmetrization

Yingtiao Wu, Xin Guan, Kehan Jiao, Huaqiu Zhao, Mingrui Li, Jiaqiong Sun, Guangfan Zheng* and Qian Zhang



PAPERS

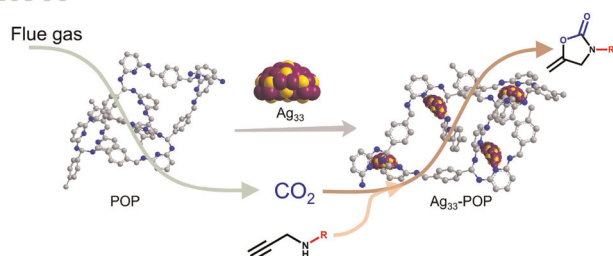
10950



Evaluation on the recovery of lignin from basic [Ch][Lys] systems using low-cost alcohols as anti-solvents under acid-free conditions

Yichen Liu, Wanting Zhao, Qizhen Luo, Jipeng Yan* and Jian Sun*

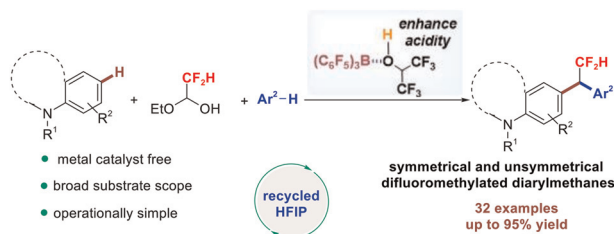
10960



A sequential flow process of CO₂ capture and conversion using cost-effective porous organic polymers

Zhongqi Wu, Zhong Li, Lei Hu, Samson Afewerki, Maria Strømme, Qian-Feng Zhang and Chao Xu*

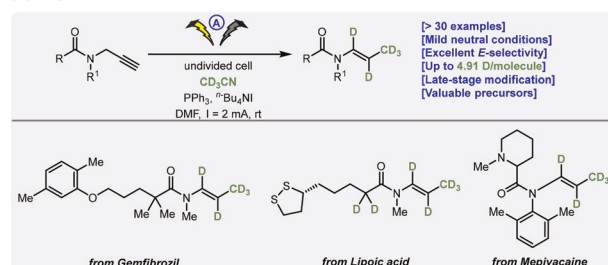
10969



Green and controllable synthesis of symmetrical and unsymmetrical difluoromethylated diarylmethanes via a direct bisarylation strategy enabled by an HFIP-B(C₆F₅)₃ adduct

Xindi Li, Yiping Zhu, Zhina Gong, Jinshan Li,* Jialin Xie, Zhendong Zhao, Jianwei Li and Chunman Jia*

10975



Electroreductive deuteration of *N*-propynylamides to enamides

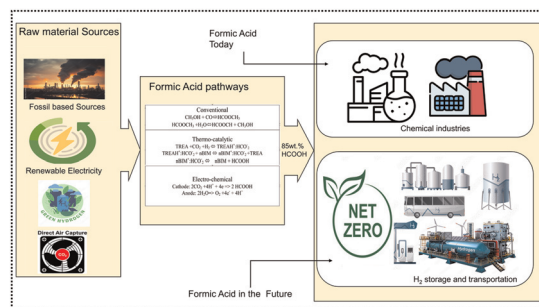
Qiansong Gao, Mingchun Wang, Lianyou Zheng, Lingling Shi, Cheng Wu, He Li and Jinbao Xiang*



10982

Feasibility and sustainability of emerging CCU pathways for formic acid production

Tesfalem Aregawi Atsbha, Ha-Jun Yoon, Ali Cherif and Chul-Jin Lee*



10996

Electrochemistry-enabled Rh-catalyzed regioselective [4 + 1] and [4 + 2] cycloaddition of benzoic acid with alkynyl esters/amides

Wei-Jung Chiu and Chung-Ming Sun*

