

Green Chemistry

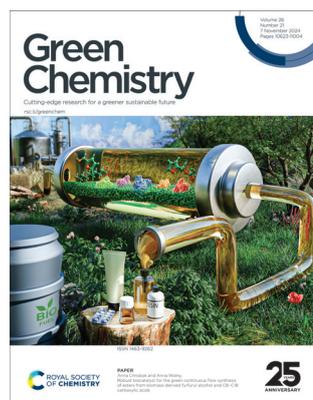
Cutting-edge research for a greener sustainable future

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

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Inside cover

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

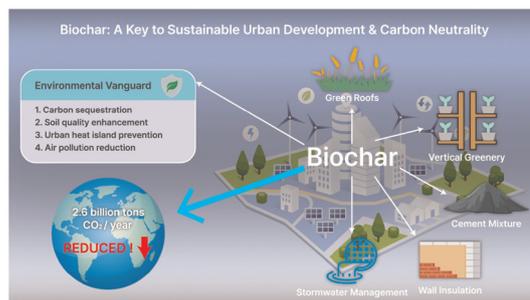
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CRITICAL REVIEWS

10634

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

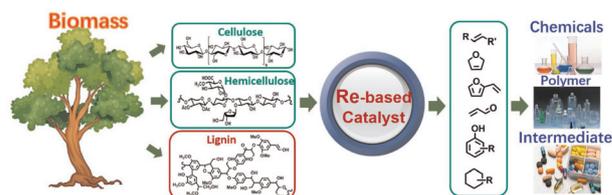
Sachini Supunsala Senadheera, Piumi Amasha Withana, Juin Yau Lim, Siming You, Scott X. Chang, Fang Wang, Jay Hyuk Rhee and Yong Sik Ok*



10661

Rhenium-based catalysts for biomass conversion

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



Environmental Science: Atmospheres

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Fundamental questions
Elemental answers

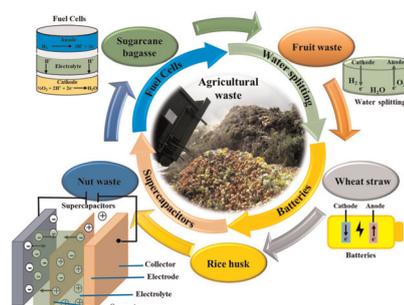


CRITICAL REVIEWS

10687

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

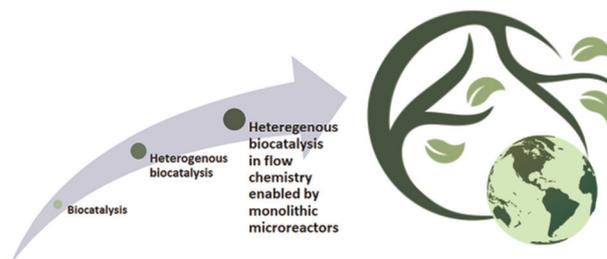
Zahra Nezafat, Yahao Dong,*
Mahmoud Nasrollahzadeh,* Nasrin Shafiei,
Hanieh Gharoubi and Shahrzad Javanshir



10718

Monoliths enabling biocatalysis in flow chemistry

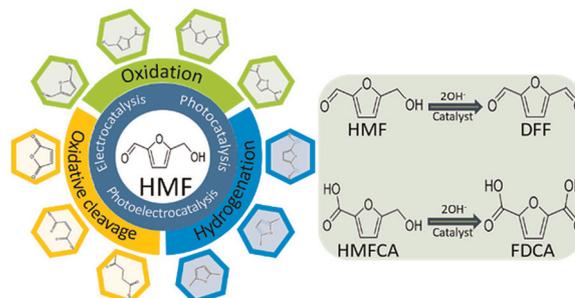
Aleksandra Lambaraska, Katarzyna Szymańska* and
Ulf Hanefeld*



10739

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

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



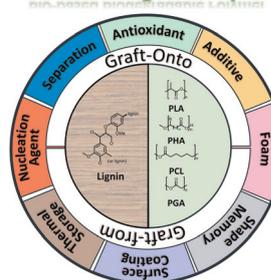
TUTORIAL REVIEW

10774

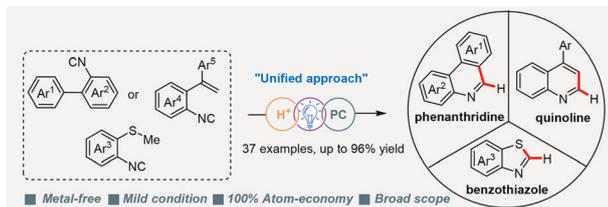
Biodegradable polymers: from synthesis methods to applications of lignin-graft-polyester

Sundol Kim and Hoyong Chung*

Bio-based Biodegradable Polymer



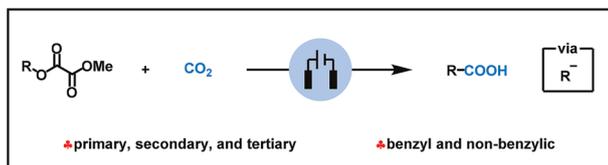
10804



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*

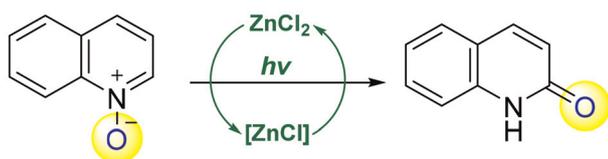
10811



Electroreductive deoxygenative carboxylation of alkyl oxalates with CO₂

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

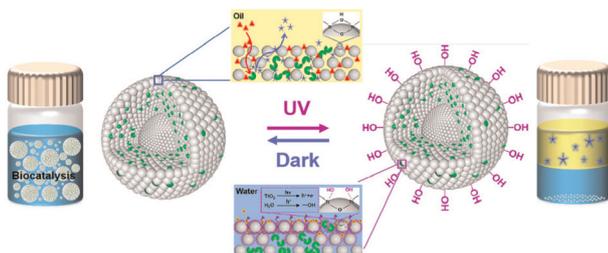
10818



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*

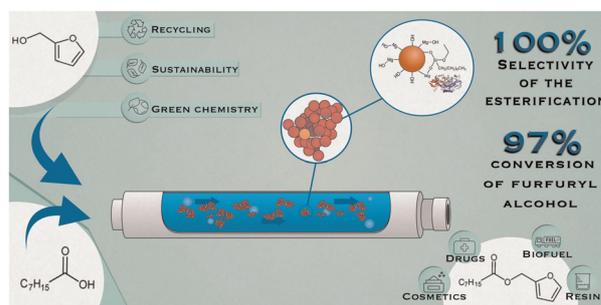


PAPERS

10829

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

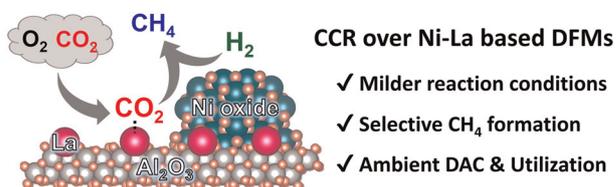
Anna Wolny, Dagmara Więctawik, Jakub Zdarta, Sebastian Jurczyk, Teofil Jesionowski and Anna Chrobok*



10842

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

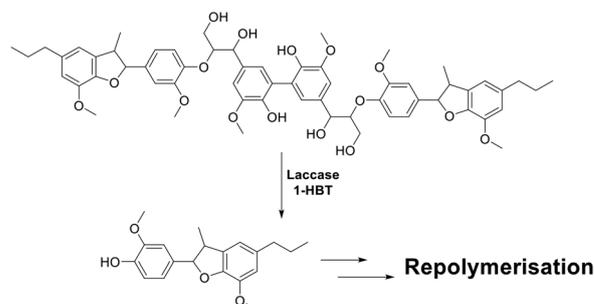
Tomotaka Tatsumichi, Rei Okuno, Hideki Hashimoto, Norikazu Namiki and Zen Maeno*



10851

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

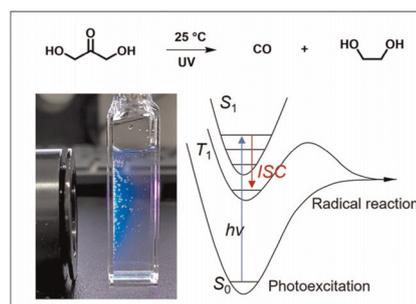
Christopher W. J. Murnaghan,* William G. Forsythe, Jack H. Lafferty and Gary N. Sheldrake



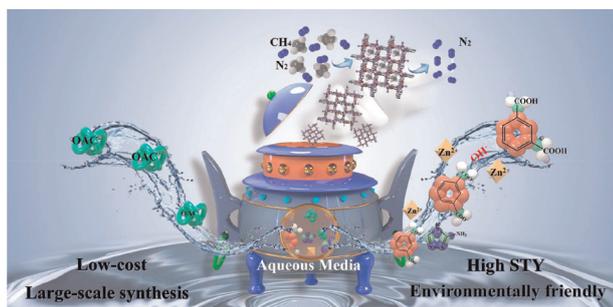
10859

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*



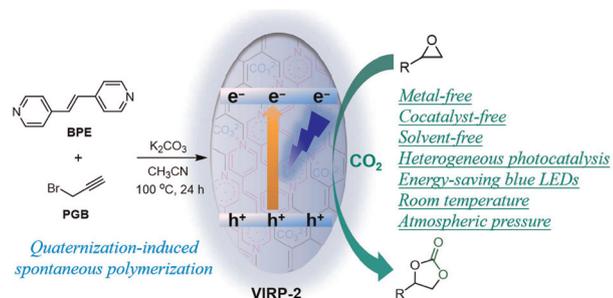
10867



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*

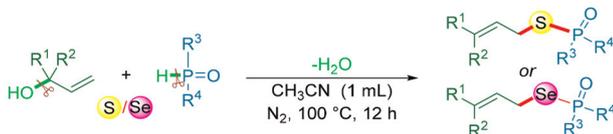
10876



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

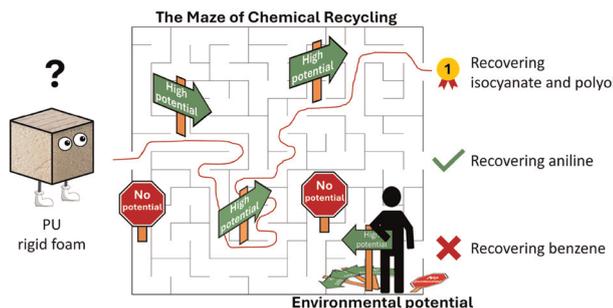


Halide-free and metal-free allylic thiolation/selenation of P(O)H compounds with sulfur/selenium and allylic alcohols

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

- Catalyst and additive-free
- *In situ* activation of S/Se
- Simple reaction conditions
- Multi-component reaction
- Safe, inodorous sulfur source
- 45 examples, 65–96% yields

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*

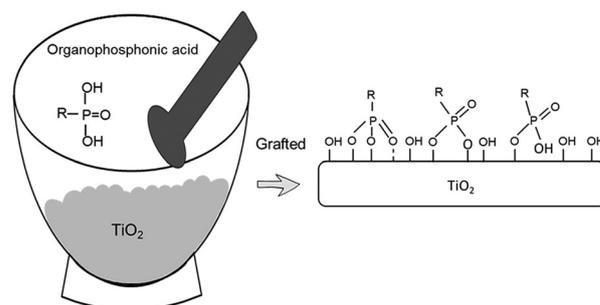


PAPERS

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

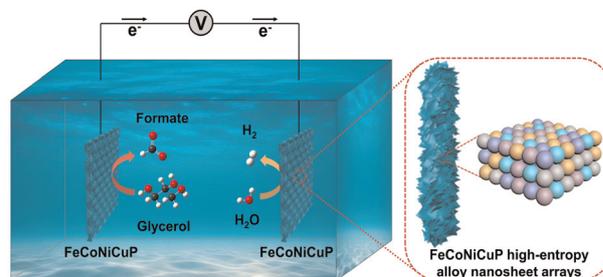
Kaimin Zhang, Jinxin Wang,* Nick Gys, Elien Derveaux, Nahal Ghanemnia, Wouter Marchal, Peter Adriaensens and Vera Meynen*



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*

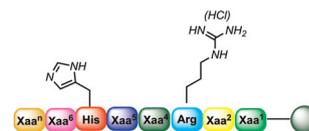


10929

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

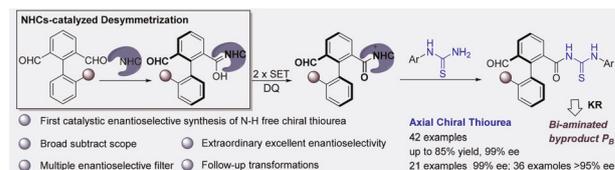


- High Atom Economy and low PMI
- Green binary solvents
- Side-chain free arginine, histidine, tryptophane and tyrosine
- Application for API synthesis

10940

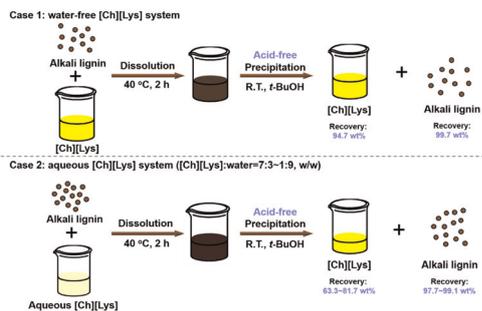
Synthesis of axially chiral thiourea by NHC-catalyzed desymmetrization

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



PAPERS

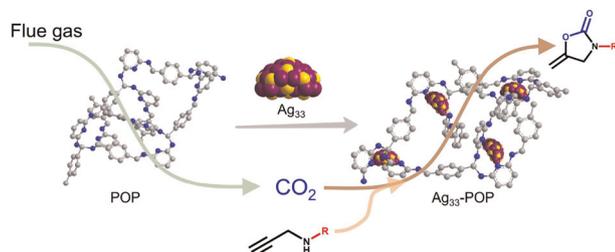
10950



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*

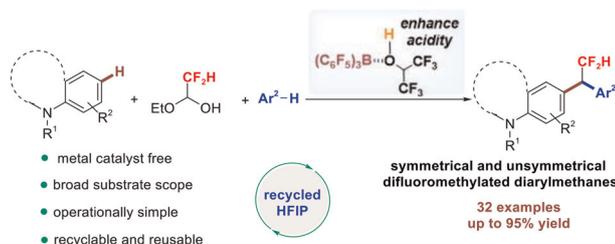
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A sequential flow process of CO₂ capture and conversion using cost-effective porous organic polymers

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

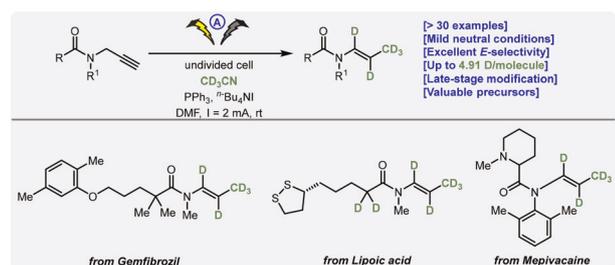
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Green and controllable synthesis of symmetrical and unsymmetrical difluoromethylated diarylmethanes via a direct bisarylation strategy enabled by an HFIP-B(C₆F₅)₃ adduct

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

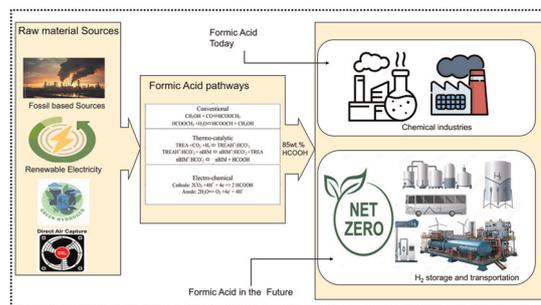
Qiansong Gao, Mingchun Wang, Lianyou Zheng, Lingling Shi, Cheng Wu, He Li and Jinbao Xiang*



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*

