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Green Chemistry

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IN THIS ISSUE

ISSN 1463-9262 CODEN GRCHFJ 27(45) 14391–14734 (2025)

Cover
See Vjekoslav Štrukil *et al.*, pp. 14401–14435.

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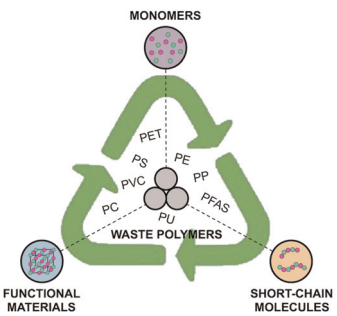
CRITICAL REVIEWS

14401

Mechanochemical ball milling as an emerging tool in chemical recycling and upcycling of waste polymers

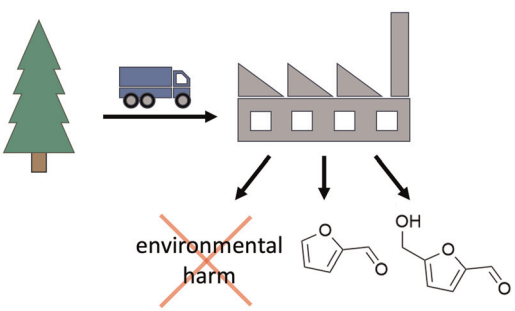
Anamarija Briš, Davor Margetić and Vjekoslav Štrukil*



14436

How to make furfural and HMF production greener? Lessons from life cycle assessments

Ouwen He, Bailey A. Smith, Pascale Champange, Philip G. Jessop* and Hongbing Yu



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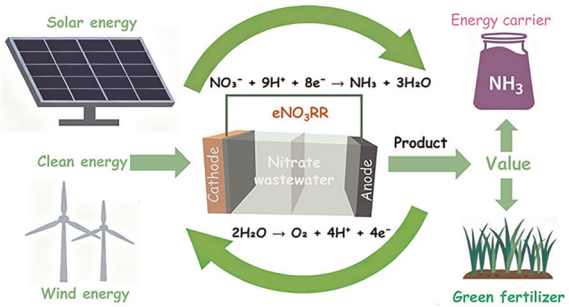
TUTORIAL REVIEW

14478

From lab-scale performance to field barriers: electrocatalytic nitrate treatment for sustainable water remediation

Zhenlin Mo, Wei Guo, Laiji Xu, Yiwen Chen, Shaoqi Zhou and Baojun Liu*

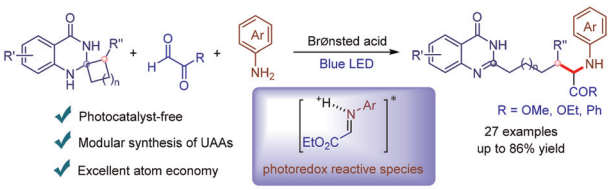


COMMUNICATIONS

14507

Synergistic visible-light/Brønsted-acid promoted deconstructive aminoalkylation of spiro dihydroquinazolinones: modular synthesis of α-functionalized unnatural amino acids

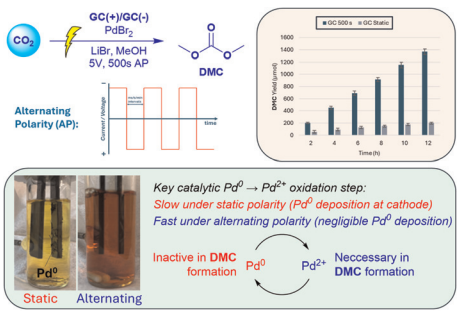
Wen-Peng Yang, Hong-Jie Miao, Jia-Yi Li, Xin-Hua Duan* and Li-Na Guo*



14513

Enhanced production of dimethyl carbonate from the alternating polarity electrolysis of methanol and carbon dioxide

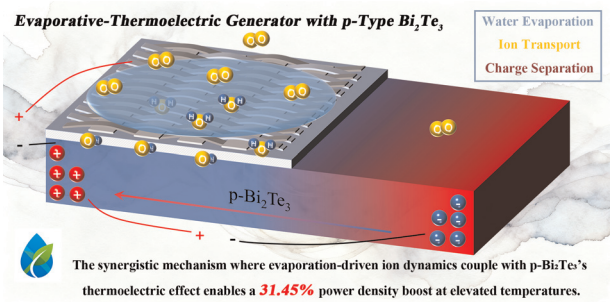
Momoko Ishii, Maria M. Paulsen, Remi A. Mellinghoff, Heather O. LeClerc, Ho Yin Tse, Hanno C. Erythropel, Julie B. Zimmerman, Paul T. Anastas* and Darren S. Lee*



14522

Synergistic enhancement of evaporation-driven power generation *via* thermoelectric coupling at elevated temperatures

Xin Zhou, Changhao Li, Jianfeng Lin, Guang Yang, Zipei Zhang, Zhangfeng Wu, Mi Lu and Jianping Lin*



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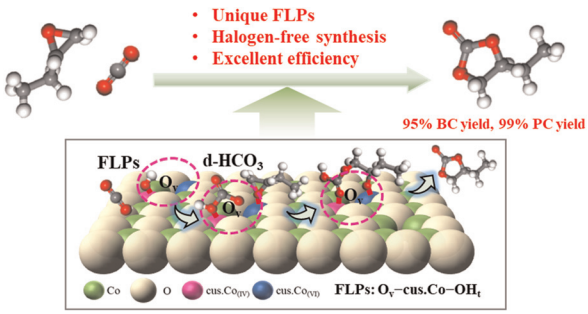
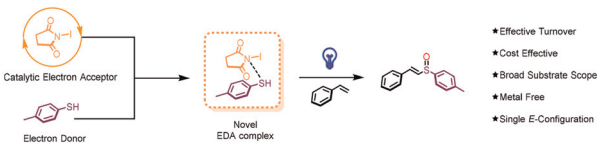
14531



Oxygen vacancy-hydroxyl frustrated Lewis pairs enabling CO_2 cycloaddition for halogen-free synthesis of cyclic carbonates

Chengguang Yue, Jiaxin Li, Mei-Yan Wang,* Zhiyi Yang, Tiantian Xiao, Ji Qi, Shouying Huang, Yue Wang, Liang-Nian He* and Xinbin Ma*

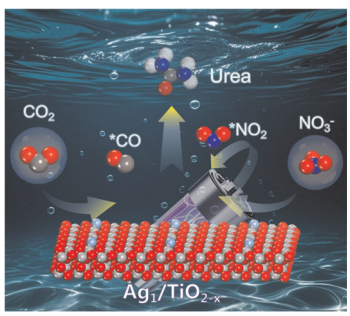
14540



Catalytic electron-acceptor mediated C(sp^2)–H sulfoxidation reactions

Wenkai Huang, Xue Yang, Wanting Qi, Yuxin Ding, Changjun Zhang* and Yuanyuan Xie*

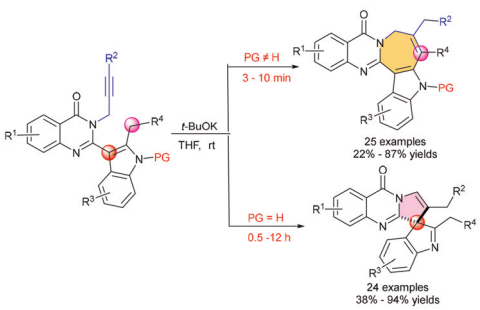
14547



Combined catalyst–pathway design for efficient and green urea synthesis

Zhuohang Li, Xuezi Xing, Ruichao Zhang, Xue Zeng* and Ke Chu*

14556



An unexpected transition-metal free regioselective cyclization of alkynyl-tethered indoles to prepare indole-fused azepino[2,1-*b*]quinazolinones and spiroindole-pyrrolo[2,1-*b*]quinazolinones

Pei-Sen Zou, Yi-Fan Geng, Xiao-Qing Liu, Jun-Cheng Su,* Cheng-Xue Pan, Dong-Liang Mo* and Gui-Fa Su*

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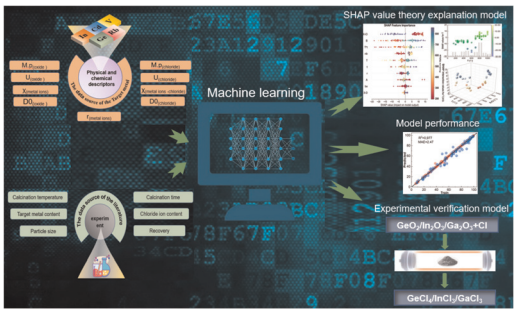
PAPERS

14564

Mechanism-infused machine learning for scattered metal recovery: SHAP decodes multiscale physicochemical drivers in refractory matrices

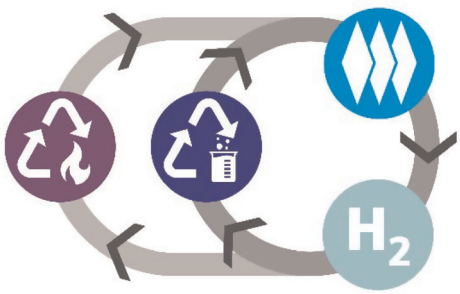
Jiayu Zhang, Ji Zhang, Ping Zhu, Zhenming Xu and Lingen Zhang*



14577

Aligning platinum recycling with hydrogen economy growth: a comparative LCA of hydrometallurgical and pyrometallurgical methods

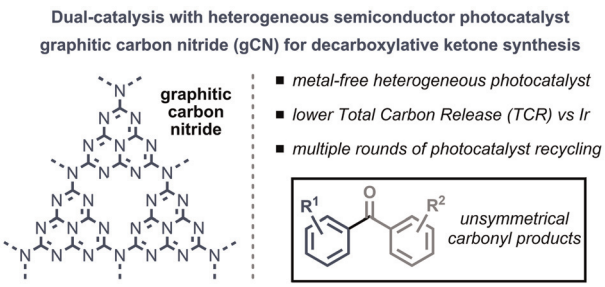
Jessica Lord,* Robert White, Richard Murphy and Jhuma Sadhukhan



14589

Graphitic carbon nitride/nickel dual catalysis for decarboxylative synthesis of unsymmetrical ketones from keto acids

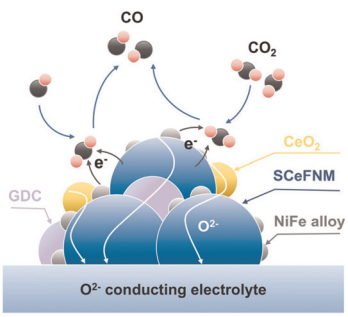
Michael T. Findlay, Florian Lukas, Francesca Rizzo, Junsong Liu, Benjamin Martin, Simon Allmendinger, Markus Furegati, Pablo Gabriel and Timothy Noël*



14595

Perovskite-triggered dual exsolution of oxygen-deficient CeO_2 matrix and NiFe nanoalloys for enhanced CO_2 electrolysis

Biao Ouyang, Ming Yang, Lin-Bo Liu, Shuo Liu, Yan Li, Xian-Zhu Fu, Yifei Sun, Subiao Liu* and Jing-Li Luo



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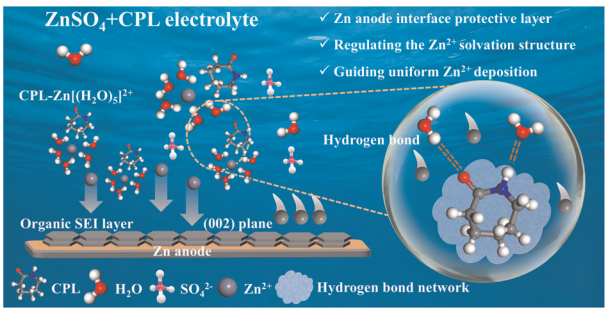
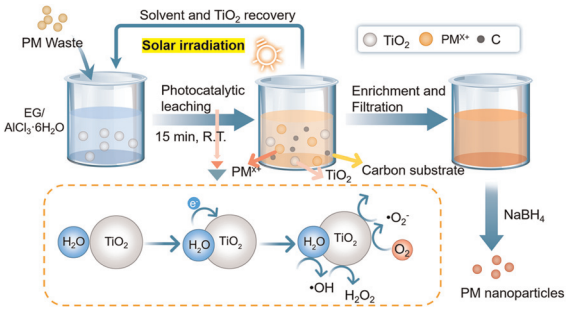
14604



Intrinsic dual active sites synchronously regulate the solvation structure and interface to boost a highly stable Zn anode

Hui Peng,* Kaifa Dong, Xin Wang, Yaping Jing, Pengyun Xie, Xuan Xie, Zhe Zhang and Guofu Ma*

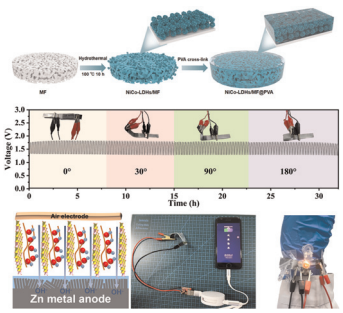
14616



Rapid recovery of precious metals *via* photocatalytic-assisted solvometallurgy using an ethylene glycol-based solvent

Anting Ding, Qibin Yan, Chenchen Zhu, Ming Li, Chuanying Liu and Chengliang Xiao*

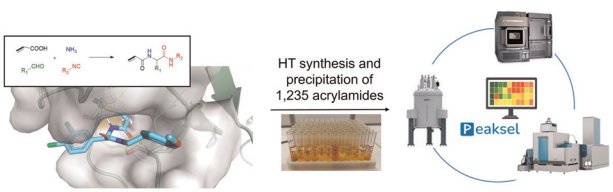
14627



A melamine foam-scaffolded LDHs@PVA gel electrolyte with high ionic conductivity and water retention capability for flexible zinc–air batteries

Yonghang Zeng, Yanhong Gong, Wenhao Wang, Xinglong Song, Dongbin Xiong, Yue Du, Lina Zhou, Yi Cao, Faqi Zhan and Yisi Liu*

14640



Precipitation-first synthesis and deep profiling of a 1200-member acrylamide library for covalent drug discovery

Pravin Patil, Emis Ingenito, Riccardo Fusco, Imma Capriello, Zhirui Guan, Anuja Bhalkikar, John Gibbons, Tomas Korba, Stanislav Bashkyrtsev, Oleh Tkachenko and Alexander Dömling*

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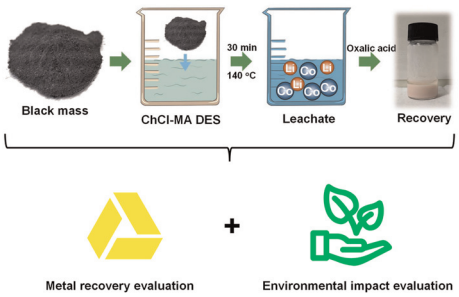
PAPERS

14648

An ultra-fast and eco-friendly recycling process for spent LIBs using deep eutectic solvents: mechanism and life-cycle insight

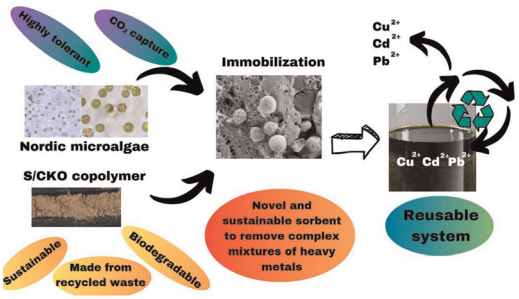
Shuang Liu, Shuangjun Li,* Xiangkun Elvis Cao* and Sungyeol Choi*



14658

Nordic microalgae immobilized to a sulfur-cooking oil copolymer form a highly efficient, sustainable and reusable sorbent to remove heavy metals from complex mixtures

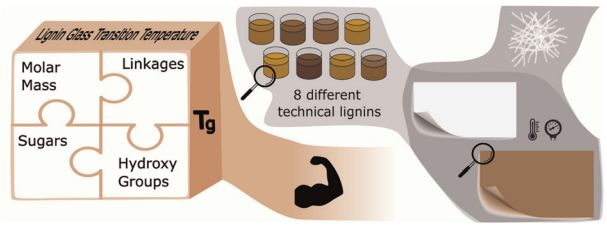
Antonio Leon-Vaz, Martin Plöhn, Juan Cubero-Cardoso, Juan Urbano and Christiane Funk*



14672

Unmodified technical lignins as sustainable binders in structural biocomposites

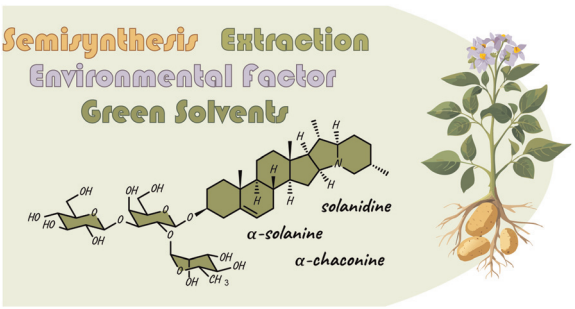
Luisa Scolari, Oliver Musl,* Nadine Kohlhuber, Irina Sulaeva, Stefan Grasböck, Josef Füssl, Michael Harasek, Antje Potthast* and Markus Lukacevic



14683

A sustainable method for potato side stream valorisation to obtain steroidal glycoalkaloids within a bioeconomic approach

Nina Stadler, Birgit Henßen, Jörg Pietruszka and Thomas Classen*



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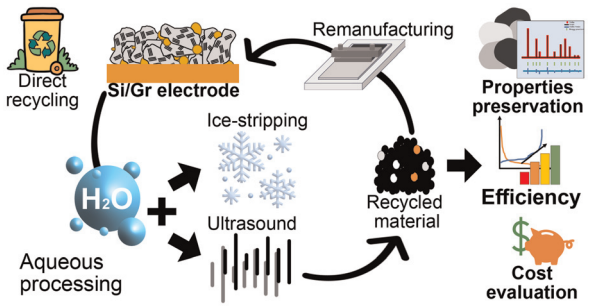
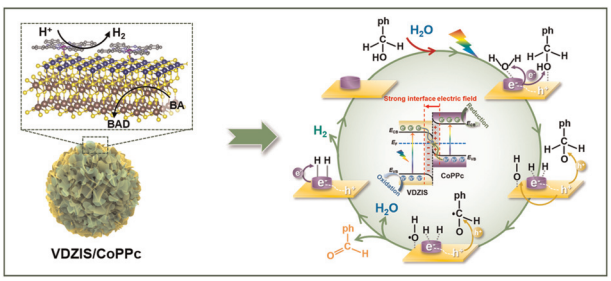
14695



Sustainable direct recycling of Si/Gr scrap electrodes using water-based methods: a green and scalable delamination approach

Stiven López Guzmán, Lisa Schlott, Cristina Luengo, Marine Reynaud, Marcus Fehse* and Montse Galceran*

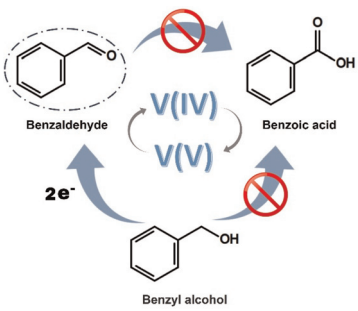
14710



Interfacial engineering of S-scheme $ZnIn_2S_4$/CoPPc for photoinduced H_2 production coupled with benzyl alcohol valorization

Ying Jiang, Dongfang Hou,* Siyue Li, Sinan Xiao, Jiashuo Liu, Fenglan Lu, Xiu-Qing Qiao, Bojing Sun* and Dong-Sheng Li*

14721



Redox-mediated electrified synthesis of benzaldehyde

Jingkai Yan, Manohar Salla, Yuxi Song, Hang Zhang, Linbo Wang, Dao Gen Lek, Mengxiao Li, Junzhe Pei, Qinghua Xu* and Qing Wang*

CORRECTION

14732

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

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

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