

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(11) 6221-6840 (2024)



Cover

See Ana Rita C. Morais *et al.*, pp. 6436–6445.

Image reproduced by permission of Ana Colaco Morais from *Green Chem.*, 2024, **26**, 6436.



Inside cover

See Joshua P. Barham *et al.*, pp. 6446–6453.

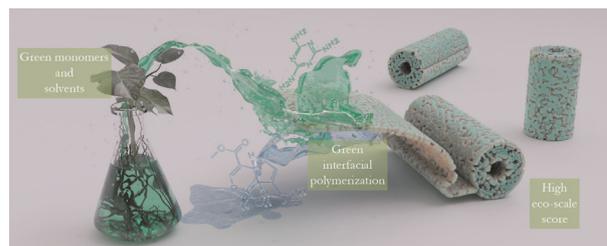
Image reproduced by permission of Joshua Barham from *Green Chem.*, 2024, **26**, 6446. Image created by Sarah S. Coutts.

CRITICAL REVIEWS

6237

Alternative materials for interfacial polymerization: recent approaches for greener membranes

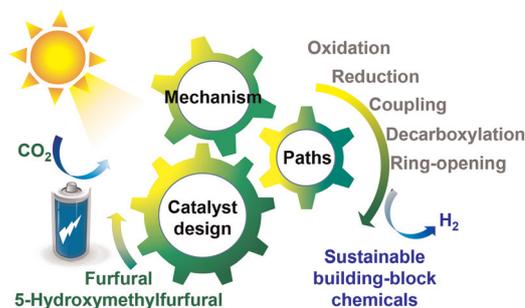
Adi Ben-Zvi, Usman Taqui Syed, Guy Z. Ramon* and Suzana Nunes



6261

Sunlight-driven photocatalytic conversion of furfural and its derivatives

Qizhao Zhang, Bang Gu and Wenhao Fang*



Environmental Science: Atmospheres

GOLD
OPEN
ACCESS

Connecting communities
and inspiring new ideas

rsc.li/submittoEA

Fundamental questions
Elemental answers

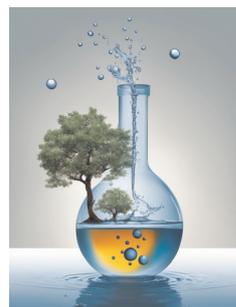


CRITICAL REVIEWS

6289

Towards a sustainable tomorrow: advancing green practices in organic chemistry

Sudripet Sharma, Fabrice Gallou and Sachin Handa*

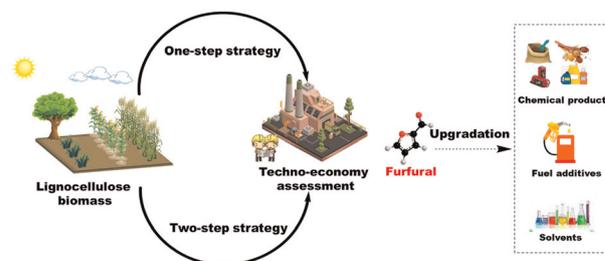


TUTORIAL REVIEWS

6318

Furfural production from lignocellulosic biomass: one-step and two-step strategies and techno-economic evaluation

Yuqi Bao, Zicheng Du, Xiaoying Liu, Hui Liu, Jinsong Tang, Chengrong Qin, Chen Liang, Caoxing Huang and Shuangquan Yao*



6339

Recent advances and perspectives of practical modifications of vanadium redox flow battery electrodes

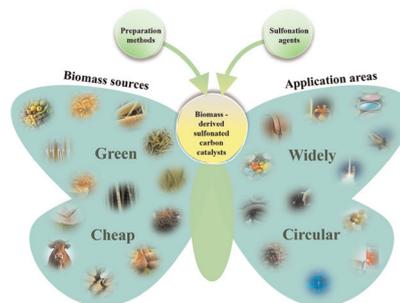
Lin Li, Xingrong Chen, Zemin Feng,* Yingqiao Jiang, Lei Dai, Jing Zhu,* Yongguang Liu, Ling Wang and Zhangxing He*



6361

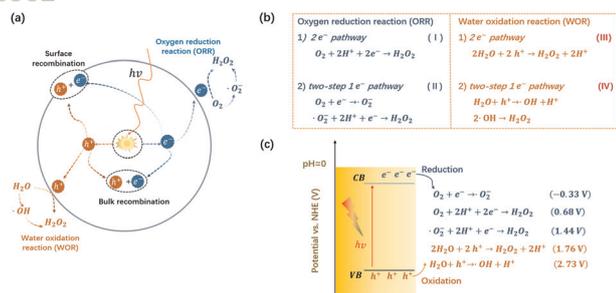
Biomass derived sulfonated carbon catalysts: efficient catalysts for green chemistry

Shangkun Zhu, Jian Ke, Xiang Li, Zixuan Zheng, Ruixin Guo* and Jianqiu Chen*



TUTORIAL REVIEWS

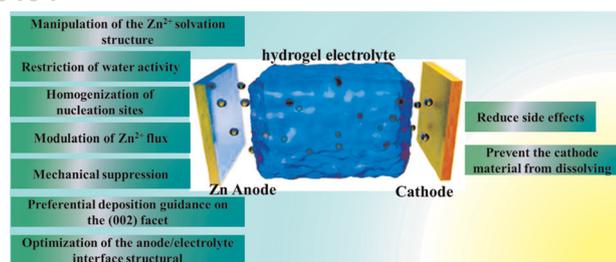
6382



Polymer photocatalysts for photocatalytic hydrogen peroxide production

Shunhang Wei, Shufang Chang, Huili Li, Zebo Fang,*
Lei Zhu* and Yuxi Xu*

6404

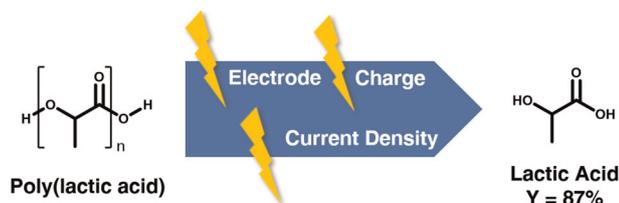


Hydrogel-stabilized zinc ion batteries: progress and outlook

Le Li, Shaofeng Jia, Shi Yue, Conghui Wang,
Hengwei Qiu, Yongqiang Ji, Minghui Cao* and
Dan Zhang*

COMMUNICATIONS

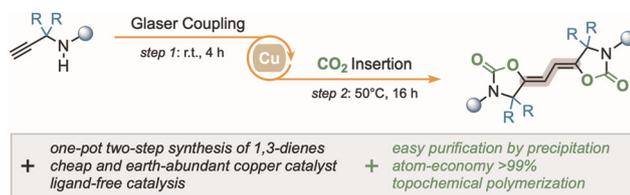
6423



Electrochemical depolymerisation of polylactic acid

Sonja D. Mürtz, Marcus S. Lehnertz, Justus Kümper,
Eike Häger, Alexandra Markus, Tabea Becker,
Sonja Herres-Pawlis and Regina Palkovits*

6429

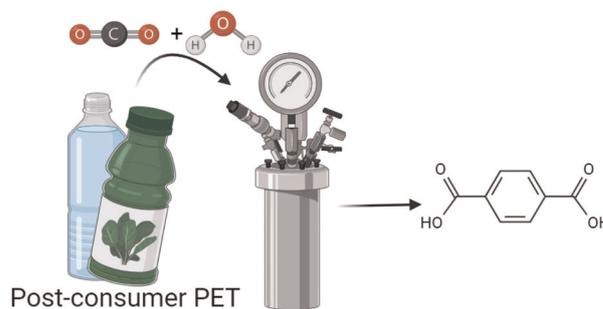
Sequential Glaser reaction – diastereoselective cyclocarboxylation of propargylamines with CO₂: a green catalytic access to bis-oxazolidinonedienes and their topochemical polymerizationFrancesco Mele, Ana Maria Constantin, Filippo Sacchelli,
Debora Schirotti, Paolo Pio Mazzeo, Giovanni Maestri,
Elena Motti, Raimondo Maggi, Raffaella Mancuso,
Bartolo Gabriele, Francesco Pancrazzi* and
Nicola Della Ca*

PAPERS

6436

Subcritical CO₂–H₂O hydrolysis of polyethylene terephthalate as a sustainable chemical recycling platform

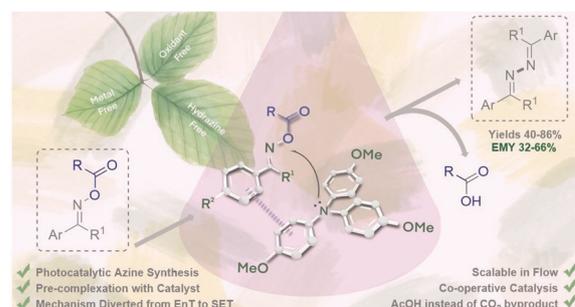
Dacosta Osei, Lakshmi Prasad Gurrula, Aria Sheldon, Jackson Mayuga, Clarissa Lincoln, Nicholas A. Rorrer and Ana Rita C. Morais*



6446

A hydrazine-free photoredox catalytic synthesis of azines by reductive activation of readily available oxime esters

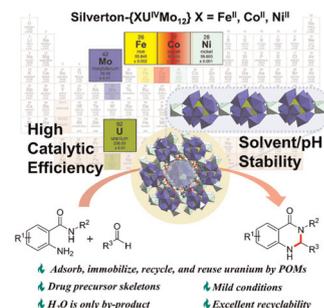
Jonathan Schütte, Daria Corsi, Wolfgang Haumer, Simon Schmid, Jonas Žurauskas and Joshua P. Barham*



6454

Highly-stable Silverton-type U^{IV}-containing polyoxomolybdate frameworks for the heterogeneous catalytic synthesis of quinazolinones

Ke Li, Yufeng Liu, Guoping Yang,* Zhijian Zheng, Xiaoling Lin, Zhibin Zhang, Shujun Li, Yunhai Liu* and Yongge Wei*



6461

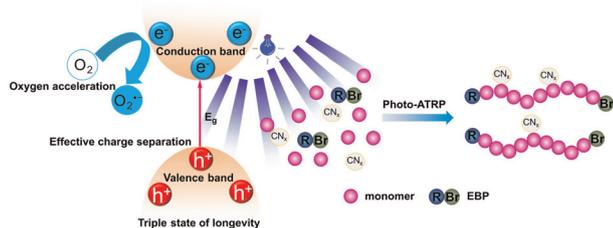
Integrating climate policies in the sustainability analysis of green chemicals

Abhinandan Nabera, Antonio José Martín, Robert Istrate, Javier Pérez-Ramírez* and Gonzalo Guillén-Gosálbez*



PAPERS

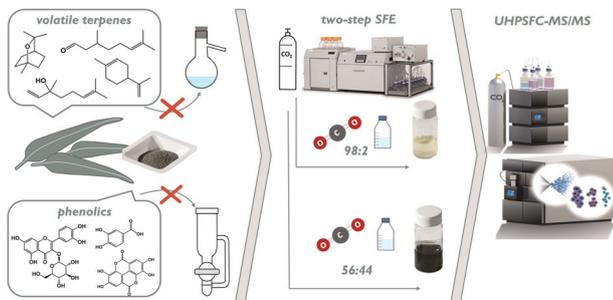
6470



Long-lived triplet state carbon nitride (urea-CN_x) catalyzed metal-free photo-ATRP with oxygen acceleration

Chen Wang, Bo Hu, Xiaoyu Guo and Lin Lei*

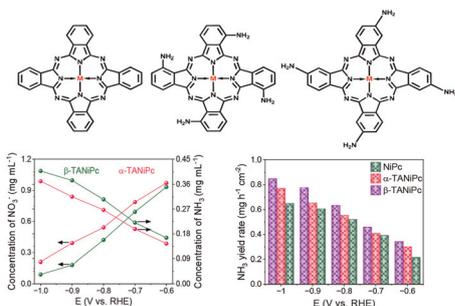
6480



Comprehensive two-step supercritical fluid extraction for green isolation of volatiles and phenolic compounds from plant material

Veronika Pilařová, Kateřina Plachká, Diana Herbsová, Štefan Kosturko, Frantisek Svec and Lucie Nováková*

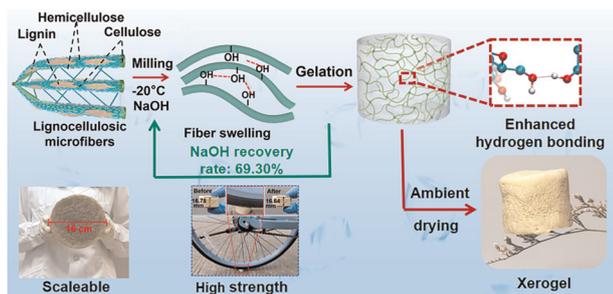
6490



Fuel from waste: electrosynthesizing ammonia directly from agricultural digestate through ligand isomerization

Rahul Mahadeo Mendhe, Ritwik Mondal, Alagar Raja Kottaichamy, Akshay Haridas, Harish Makri Nimbegondi Kotresh, Chathakudath Prabhakaran Vinod, Ravikumar Thimmappa and Musthafa Ottakam Thotiyil*

6501



Facile preparation of lignocellulosic xerogels by alkali freezing and ambient drying

Qiaoling Huang, Zerong Li, Jialong Hu, Wei Wang and Wei Li*

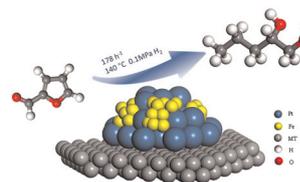


PAPERS

6511

Selective hydrogenolysis of furfural to 1,2-pentandiol over a Pt–Fe/MT catalyst under mild conditions

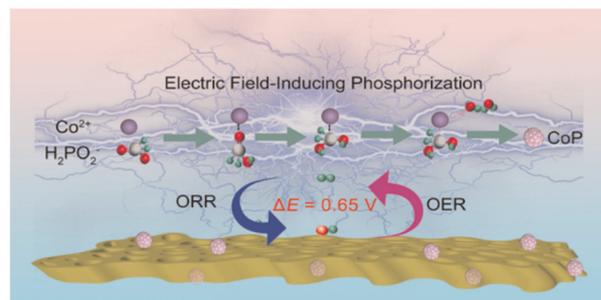
Chen Cao, Weixiang Guan, Qiaoyun Liu, Lin Li, Yang Su, Fei Liu,* Aiqin Wang* and Tao Zhang*



6520

Electric field-induced phosphorization to prepare CoP@Biochar composites for efficient bifunctional oxygen electrocatalysis

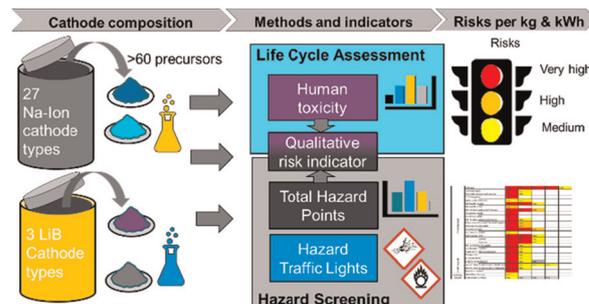
Xianli Wu, Ting Zhou, Teng Teng, Shuling Liu, Bangan Lu, Sehrish Mehdi, Yanyan Liu,* Jianchun Jiang, Yongfeng Wang and Baojun Li



6532

Prospective hazard and toxicity screening of sodium-ion battery cathode materials

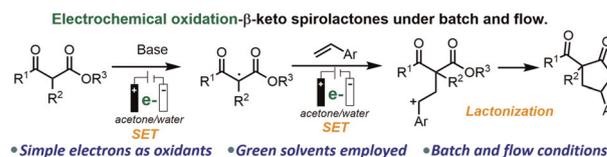
Manuel Baumann,* Jens F. Peters, Marcel Häring, Marius Schmidt, Luca Schneider, Werner Bauer, Joachim R. Binder and Marcel Weil



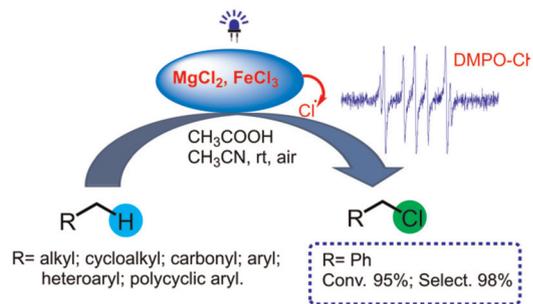
6553

Electrochemically driven green synthesis to unlock sustainable routes to β-keto spirolactones

Ian MacLean, Montaña J. García, Silvia Cabrera,* Leyre Marzo* and José Alemán*



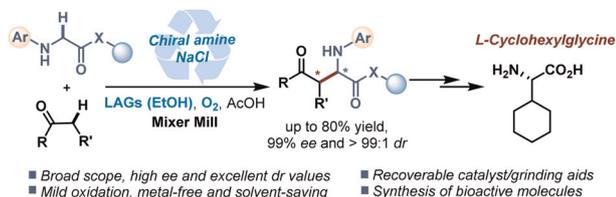
6559



Visible light-induced FeCl_3 -catalyzed chlorination of C–H bonds with MgCl_2

Jing Huang, Yidong Liu, Xia Tian, Shao-Fei Ni,* Shen Li, Zhan-Hui Zhang,* Dong Li and Shouxin Liu*

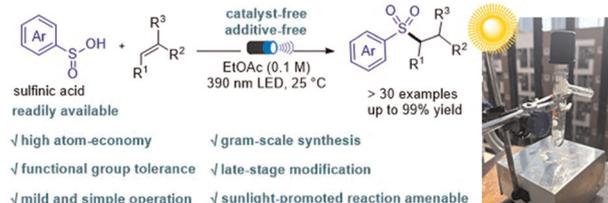
6570



Ethanol-assisted mechanochemical asymmetric cross-dehydrogenative coupling reaction with recoverable chiral amine/ NaCl for accessing chiral α -alkyl α -glycine derivatives

Jingbo Yu,* Hong Chen, Ziwen Zhang, Yuxin Fang, Tao Ying and Weike Su

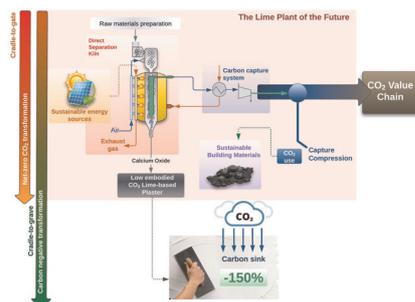
6578



Light-promoted photocatalyst-free and redox-neutral hydrosulfonylation of unactivated alkenes using sulfinic acid

Yibo Song, Cheng Li, Xueyuan Hu,* Hongdie Zhang, Yujian Mao, Xiachang Wang, Chen Wang, Lihong Hu* and Jianming Yan*

6584



From quarry to carbon sink: process-based LCA modelling of lime-based construction materials for net-zero and carbon-negative transformation

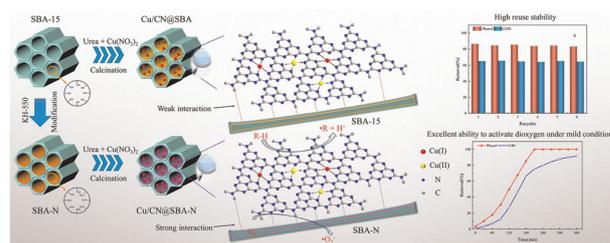
Agustin Laveglia,* Neven Ukrainczyk, Nele De Belie and Eddie Koenders



6601

In situ growth of an ultrathin Cu/g-C₃N₄ coating over SBA-15 for catalytic wet air oxidation of pollutants under extremely mild conditions

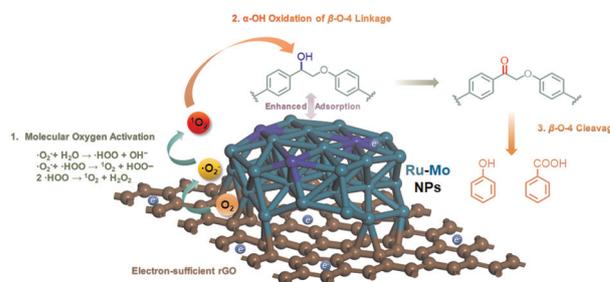
Chao Yuan, Yuan Zhang, Zhiyuan Zong, Shenghui Zhou, Hongyou Cui* and Hongzi Tan*



6616

Boosting the catalytic performance of Ru nanoparticles in the cleavage of β -O-4 linkages in lignin by doping Mo

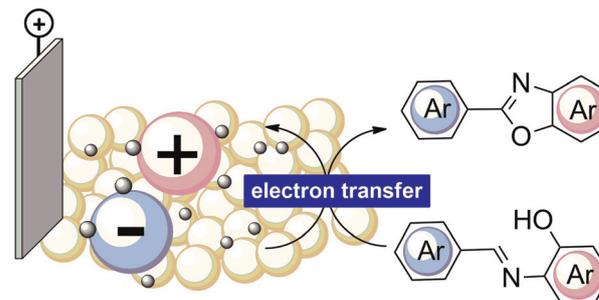
Puyi Lei, Jiali Zhang, Wenzhuo Shen, Min Zhong and Shouwu Guo*



6625

Introducing the use of a recyclable solid electrolyte for waste minimization in electrosynthesis: preparation of 2-arylbenzoxazoles under flow conditions

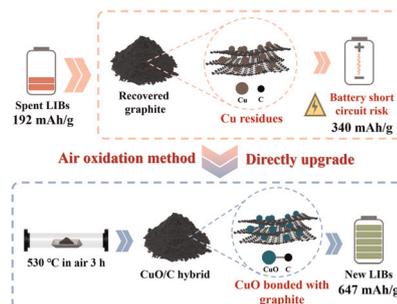
Francesco Ferlin,* Federica Valentini, Filippo Campana and Luigi Vaccaro*



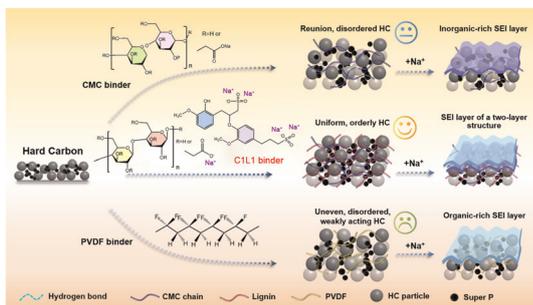
6634

Directly upgrading spent graphite anodes to stable CuO/C anodes by utilizing inherent Cu impurities from spent lithium-ion batteries

Kechun Chen, Haoxuan Yu, Meiting Huang, Zhihao Wang, Yifeng Li, Lei Zhou, Liming Yang,* Yufa Feng, Liang Chen,* Lihua Wang, Longlu Wang, Chenxi Xu, Penghui Shao and Xubiao Luo*



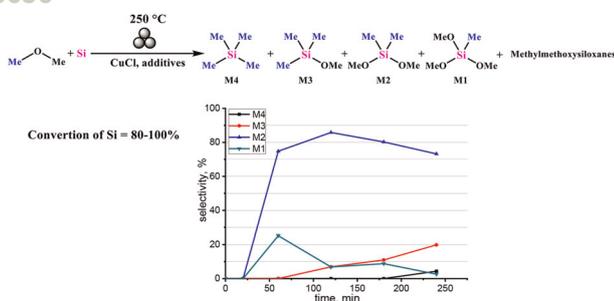
6643



Green biomass: the impact of high-adhesion and well-dispersed binders on the sodium storage performance and interfacial interaction of hard carbon anodes

Jiaqi Jiao, Conghua Yi,* Xueqing Qiu,* Dongjie Yang, Fangbao Fu and Weifeng Liu

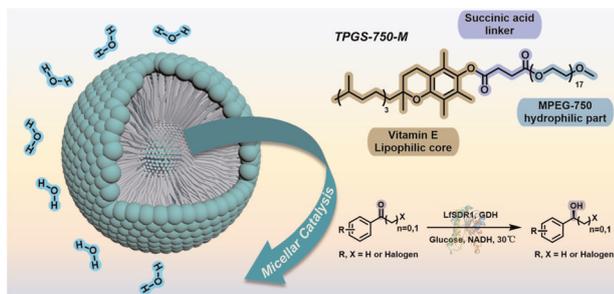
6656



From silicon to silicones without dimethyldichlorosilane: direct green mechanochemical synthesis of methylmethoxysilanes from silicon and dimethyl ether

I. N. Kryzhanovskii, M. N. Temnikov,* A. A. Anisimov, A. K. Ratnikov, I. V. Frank, A. V. Naumkin, S. M. Chistovalov and A. M. Muzafarov

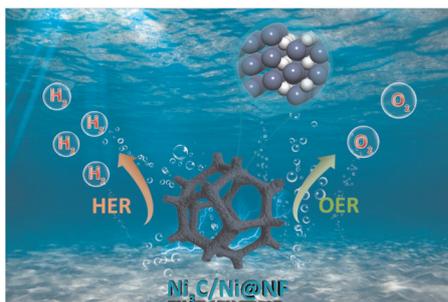
6666



Enzymatic reduction of halogenated aryl ketones in an aqueous micellar solution with enhanced catalytic performance

Yunting Liu, Jiajing Yan, Quan Yuan, Li Ma, Liya Zhou, Ying He, Guanhua Liu, Xiaoyang Yue* and Yanjun Jiang*

6675



Uniform nodule-like Ni₃C/Ni heterostructure templated by metal–organic frameworks for high-performance overall water splitting

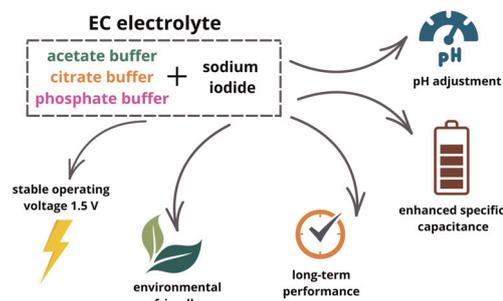
Shumin Wang, Yi Zhang, Xiaoyang Deng, Zizai Ma, Jinping Li and Xiaoguang Wang*



6684

Effect of a buffer/iodide electrolyte on the performance of electrochemical capacitors

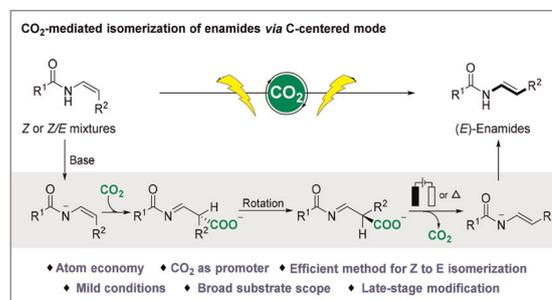
Amelia Klimek, Maciej Tobis and Elzbieta Frackowiak*



6696

CO₂-mediated isomerization of enamides

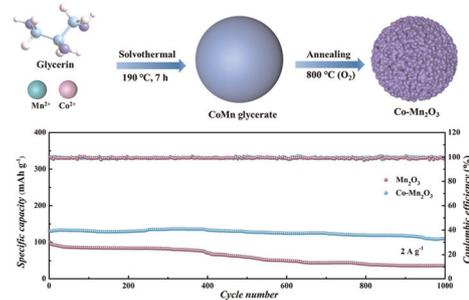
Guoqing Yang, Jingpei Jia, Zile Zhu and Youai Qiu*



6704

Cobalt-doped manganese(III) oxide cathode materials with enhanced electrochemical performance for aqueous zinc-ion batteries

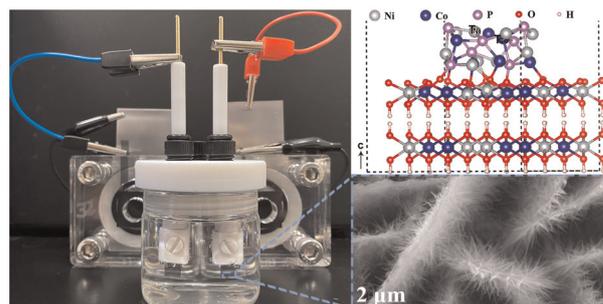
Zixiang Zhou, Jianbo Tong,* Jiale Guo, Shaofeng Guo, Shuhan Liu, Zhipeng Qin, Muxuan Luo, Chao Wang and Shuling Liu*



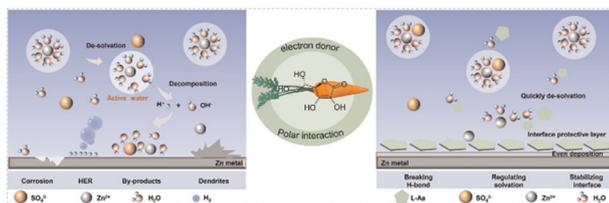
6713

NiCoP@CoNi-LDH/SSM as a multifunctional catalyst for high-efficiency water splitting and ultra-long-life rechargeable zinc-air batteries

Juan Jian, Zhuo Wang, Yu Qiao, Shuang Gao, Meiting Wang, Limin Chang,* Hairui Wang* and Ping Nie*



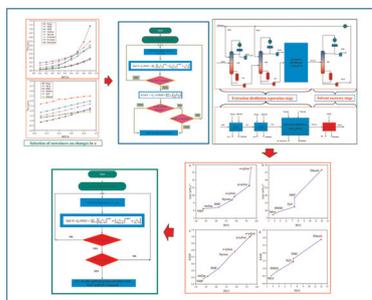
6723



Bio-inspired hydroxyl-rich electrolyte additive for highly reversible aqueous Zn-ion batteries with strong coordination chemistry

Jinlong Zhang, Qing Wu, Song Yang, Fusheng Luo, Yue Li, Yanhui Zhang, Kui Chen, Jun Huang,* Haibo Xie* and Yiwang Chen*

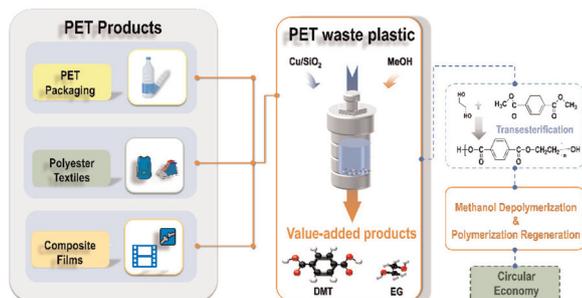
6735



Heuristic process prediction model for screening optimal green entrainers based on TAC and LCA impacts utilizing PSE concepts

Qinggong Xu, Yangyang Wang, Kexin Yin, Hongwei Xu, Jianguang Qi, Peizhe Cui, Zhaoyou Zhu, Yinglong Wang,* Limei Zhong and Yixin Ma

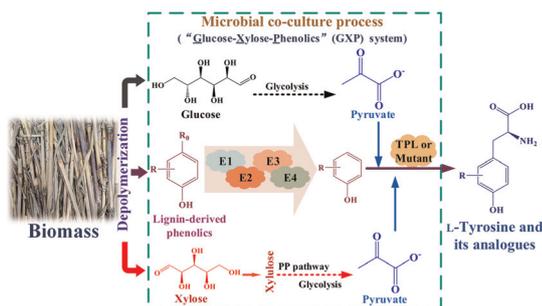
6748



Copper-supported catalysts for sustainable PET depolymerization: a cost-effective approach towards dimethyl terephthalate (DMT) production

Yitian Zhang, Jie Gao, Chao Jiang, Gang Luo, Jiajun Fan, James H. Clark and Shicheng Zhang*

6760



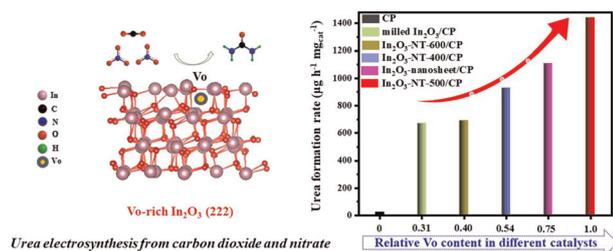
Full use of lignocellulosic biomass for efficient synthesis of L-tyrosine and its analogues by engineering microbial consortia

Mingtao Zhao, Xiaofeng Wu, Yankai Tao and Yi Xiao*



PAPERS

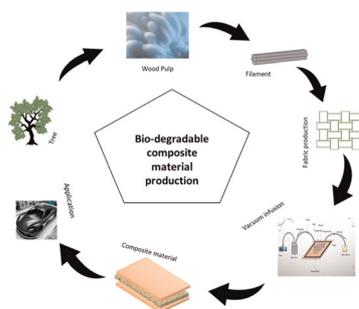
6812



Durable and efficient urea electrocatalysis using carbon dioxide and nitrate over defect-rich In₂O₃ nanotubes

Hongjun Fang, Chen-Han Kuo, Hongsheng Yang, Ze Wang, Xinzhen Feng, Weijie Ji* and Chak-Tong Au

6822



Exploring the potential of regenerated loncell fiber composites: a sustainable alternative for high-strength applications

Mahyar Fazeli,* Shariful Islam, Hossein Baniasadi, Roozbeh Abidnejad, Inge Schlapp-Hackl, Michael Hummel and Juha Lipponen

CORRECTIONS

6836

Correction: Ethanol-assisted mechanochemical asymmetric cross-dehydrogenative coupling reaction with recoverable chiral amine/NaCl for accessing chiral α-alkyl α-glycine derivatives

Jingbo Yu,* Hong Chen, Ziwen Zhang, Yuxin Fang, Tao Ying and Weike Su

6838

Correction: Retrosynthesis from transforms to predictive sustainable chemistry and nanotechnology: a brief tutorial review

Alicja Mikolajczyk,* Uladzislau Zhdan, Sylvain Antoniotti, Adam Smolinski, Karolina Jagiello, Piotr Skurski, Moussab Harb, Tomasz Puzyn and Jaroslaw Polanski*

