

Green Chemistry

Cutting-edge research for a greener sustainable future

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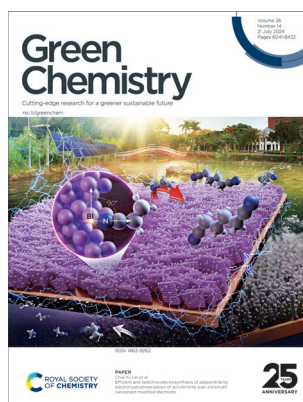
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ISSN 1463-9262 CODEN GRCHFJ 26(14) 8041-8432 (2024)



Cover
See Robert Wojcieszak, Ivaldo Itabaiana *et al.*, pp. 8211–8219.

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Inside cover
See Chia-Yu Lin *et al.*, pp. 8220–8229.

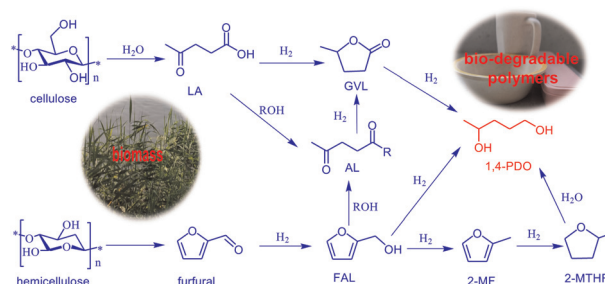
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CRITICAL REVIEWS

8052

Catalytic production of 1,4-pentanediol from lignocellulosic biomass

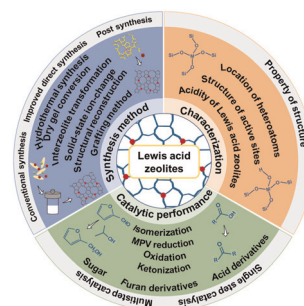
Shanhui Zhu,* Zexiang Lv, Jiamin Wang, Xiangyu Jia, Xiaoming Li, Mei Dong, Jianguo Wang* and Weibin Fan*



8068

Heteroatom Lewis acid zeolites: synthesis, characterization and application in the conversion of biomass-derived oxygenates

Zijun Yang, Qingfeng Ge and Xinli Zhu*



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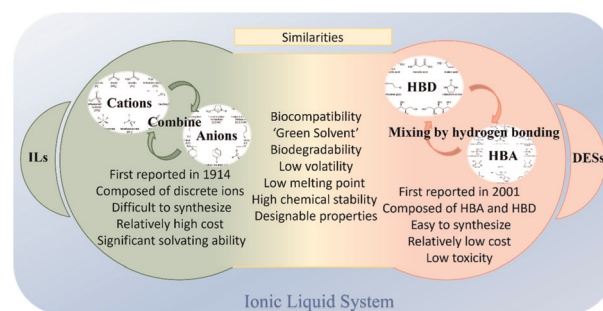
Fundamental questions
Elemental answers

CRITICAL REVIEWS

8100

Review of the application of ionic liquid systems in achieving green and sustainable recycling of spent lithium-ion batteries

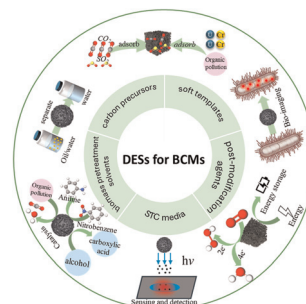
Huiying Shi, Yi Luo, Chengzhe Yin and Leming Ou*



8123

Emerging applications of deep eutectic solvents in the preparation and functionalization of biomass-derived carbonaceous materials: challenges and prospects

Yiyi Shen, Haiqin Zhou, Xiaotong He, Feng Shen, Zhixiang Xu, Bo Yang, Lingzhao Kong and Lichun Dai*

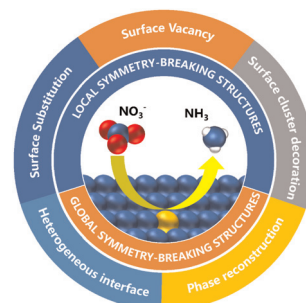


TUTORIAL REVIEWS

8145

Symmetry-breaking structure electrocatalysts for nitrate reduction to ammonia

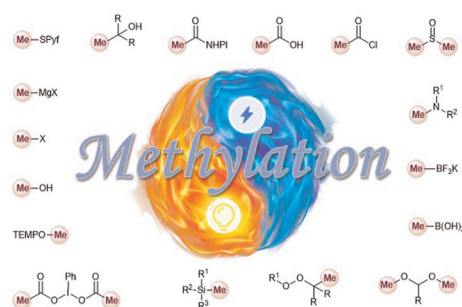
Yifan Han, Jiachangli Shang, Shuai Yin, Rong Cao, Jing Zhang,* Wei Jiang* and Guigao Liu*



8161

Demystifying the recent photochemical and electrochemical strategies in installing the magic methyl group: a comprehensive overview

Feiyang Liao, Zenghui Wei, Yunhao Guan, Zhe Zhuang, Kun Xu* and Jiajing Tan*



COMMUNICATION

8204

Electroreductive hydrolysis of amides by H₂O

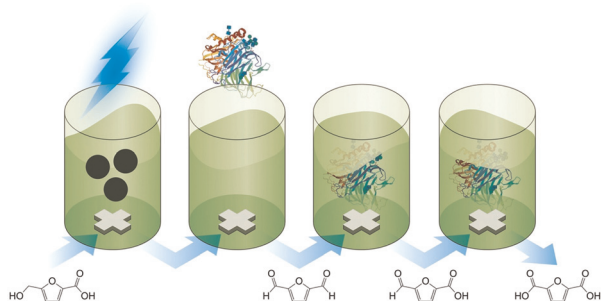
- mild and simple electroreduction
- no sacrificial anode, metal-free process
- H₂O as the hydrogen source
- high chemoselectivity

Highly selective hydrolysis of amides *via* electroreduction

Jin-Yu He, Yan-Zhao Wang, Wen-Xi Duan, Jia-Rong Li, Hao Xu* and Cuiju Zhu*

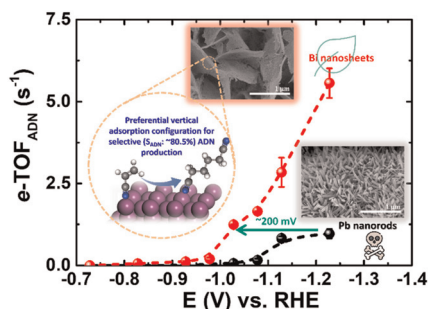
PAPERS

8211

Optimization of 5-hydroxymethylfurfural oxidation *via* photo-enzymatic cascade process

Marcelo A. do Nascimento, Bernardo Haber, Mauro R. B. P. Gomez, Raquel A. C. Leão, Mariusz Pietrowski, Michał Zieliński, Rodrigo O. M. A. de Souza, Robert Wojcieszak* andIVALDO Itabaiana, Jr*

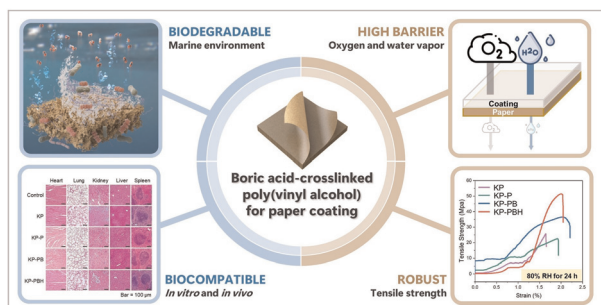
8220



Efficient and selective electroreduction of adiponitrile by electrohydrodimerization of acrylonitrile over a bismuth nanosheet modified electrode

Jia-Sheng Su, Shih-Ching Huang, Ming-Chi Tsai, Chia-Hui Yen and Chia-Yu Lin*

8230



Boric acid-crosslinked poly(vinyl alcohol): biodegradable, biocompatible, robust, and high-barrier paper coating

Shinhyeong Choe, Seulki You, Kitae Park, Youngju Kim, Jehee Park, Yongjun Cho, Jongchul Seo, Hanseul Yang and Jaewook Myung*

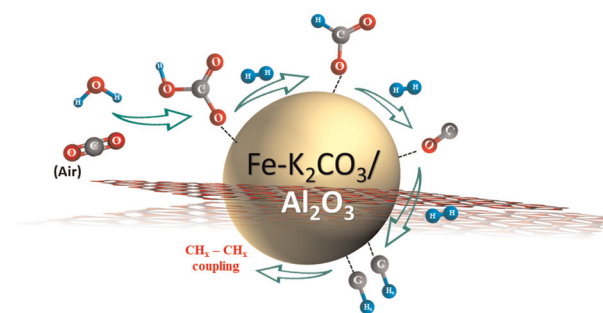


PAPERS

8242

Reactive direct air capture of CO₂ to C–C coupled products using multifunctional materials

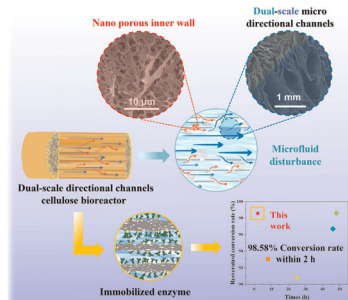
Shazia Sharmin Satter, Johnny Saavedra Lopez, Michael L. Hubbard, Yuan Jiang, Robert A. Dagle and Jotheeswari Kothandaraman*



8256

Wood-inspired dual-scale directional channel cellulose bioreactors with high mass transfer efficiency for continuous flow catalytic green conversion

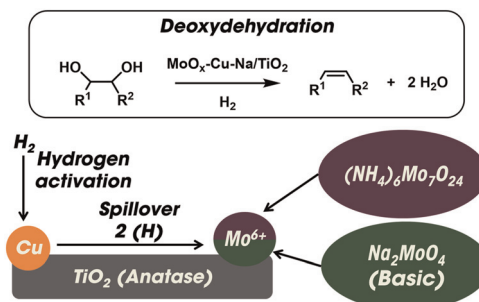
En-Jiang Liu, Yu-Shi Shen, Mei-Yan Ling, Chen-Xi He, Xing Zhou, Jun Wang, Shuai You, Wei-Guo Zhao, Xiao-Hui Yao and Dong-Yang Zhang*



8267

Non-noble metal heterogeneous catalysts for hydrogen-driven deoxydehydration of vicinal diol compounds

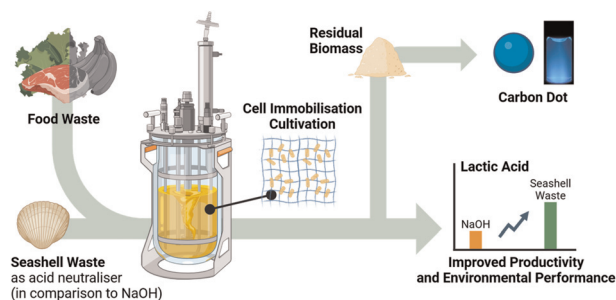
Jianxing Gan, Yoshinao Nakagawa,* Mizuho Yabushita and Keiichi Tomishige*



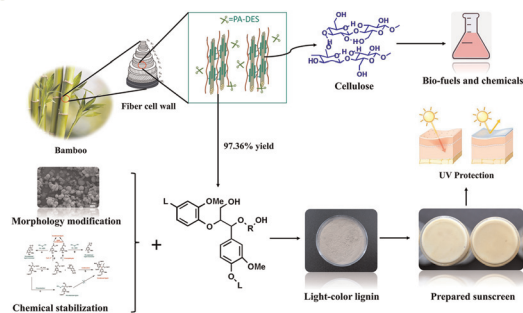
8282

Green synthesis of lactic acid and carbon dots using food waste and seashell waste

Jin-Hua Mou, Ling-Feng Ouyang, Zi-Hao Qin, Ya-Hui Miao, Xin-Tian Jiang, Mui-Choo Jong, Man-Chung Tang, Chenyu Du, Season Si Chen* and Carol Sze Ki Lin*



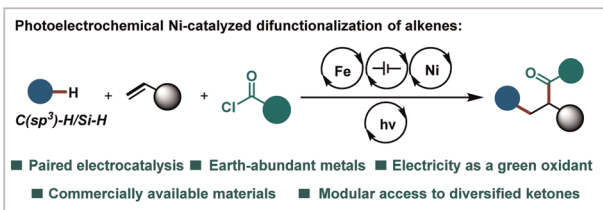
8298



Low-chromophore lignin isolation from natural biomass with polyol-based deep eutectic solvents

Jinyuan Cheng, Xuelian Zhou, Caoxing Huang, Chang Geun Yoo, Xianzhi Meng, Guigan Fang,* Arthur J. Ragauskas and Chen Huang*

8315



Photoelectrochemical nickel-catalyzed carboacylation/silanoxylation of alkenes with unactivated C/Si-H bonds

Lanfen Wang, Xiangyu Huo, Xiaozhi He, Lutz Ackermann* and Dingyi Wang*

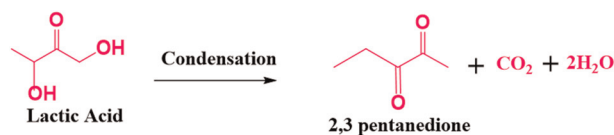
8323



Electrochemically enabled cobalt catalyzed enantioselective C-H acyloxylation of aryl phosphamide with carboxylic acid

Xuying Xia, Changdi Zheng, Yunfei Hang, Jiyuan Guo, Tao Liu, Dingguo Song, Zhiwei Chen, Weihui Zhong and Fei Ling*

8330



Highly efficient production of 2,3-pentanedione from condensation of bio-derived lactic acid over polymorphic ZrO₂

Neha Dhiman, B. Moses Abraham, Deepti Agrawal, Sudhakara Reddy Yenumala, Jyoti Porwal and Bipul Sarkar*



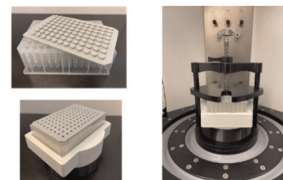
PAPERS

8341

Nickel-catalyzed cross-coupling aminations via high-throughput mechanochemistry enabled by resonant acoustic mixing

Alice Nanni, Deshen Kong, Chen Zhu and Magnus Rueping*

- ✓ Media-free mixing
- ✓ Reliable and safe
- ✓ Easy scale-up
- ✓ 96-well plate compatible
- ✓ suitable for HTE



8348

Steam-assisted electro-reduction of NiO: a sustainable alternative to conventional hydrogen reduction

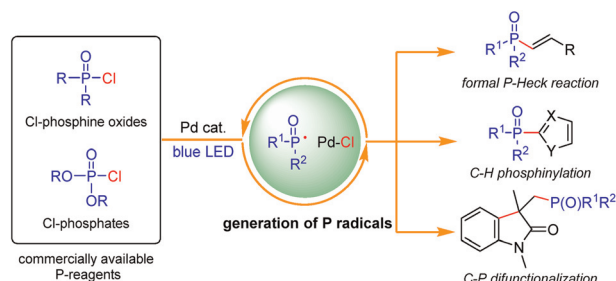
Kaiyu Xie and Ali Reza Kamali*



8360

A general platform for phosphorylation reactions enabled by photoinduced palladium catalysis

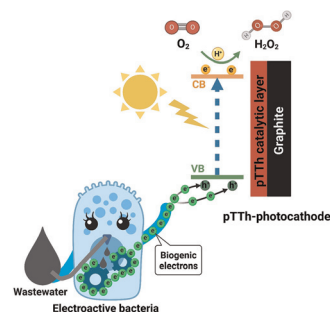
Yu-Jie Zhang, Xue-Song Wang, Jian Cao* and Li-Wen Xu*



8367

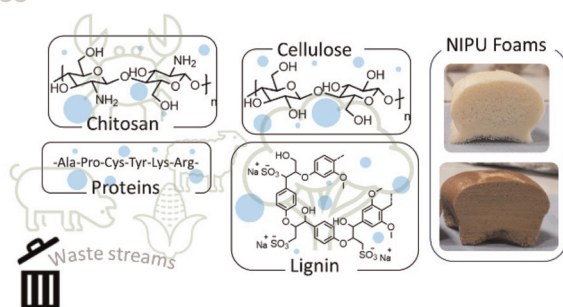
Novel bio-solar hybrid photoelectrochemical synthesis for selective hydrogen peroxide production

Rusen Zou, Babak Rezaei, Xiaoyong Yang, Wenjing Zhang, Stephan Sylvest Keller and Yifeng Zhang*



PAPERS

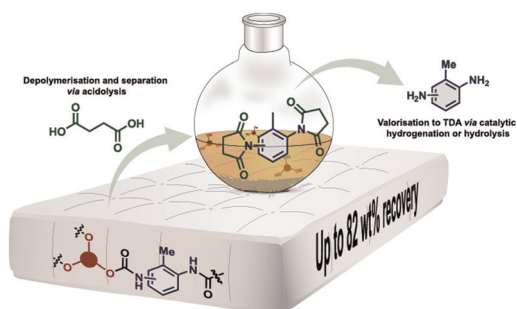
8383



Valorization of waste biomass for the fabrication of isocyanate-free polyurethane foams

Dagmara Trojanowska, Florent Monie, Giovanni Perotto,* Athanassia Athanassiou, Bruno Grignard, Etienne Grau, Thomas Vidil, Henri Cramail* and Christophe Detrembleur*

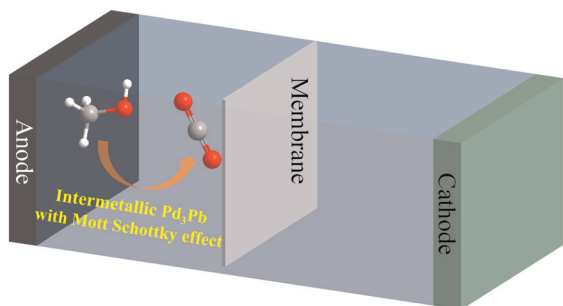
8395



Chemical separation of polyurethane via acidolysis – combining acidolysis with hydrolysis for valorisation of aromatic amines

Thomas B. Bech, Bjarke S. Donslund, Steffan K. Kristensen* and Troels Skrydstrup*

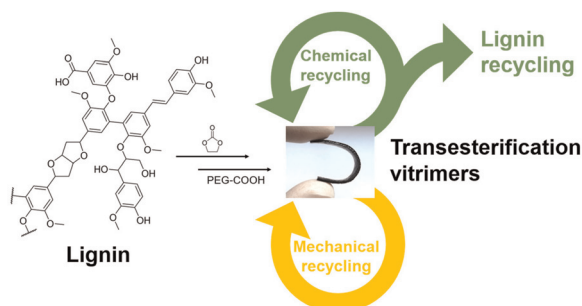
8405



Ultrafine Pd₃Pb intermetallic nanowires with Mott–Schottky effect achieve a complete oxidation pathway for methanol oxidation catalysis

Shuanglong Zhou, Zuochao Wang, Mo Zhang, Xiaoming Mou, Yu Dai, Lei Wang and Jianping Lai*

8414



Turning lignin into a recyclable bioresource: transesterification vitrimers from lignins modified with ethylene carbonate

Antoine Duval,* Wissam Benali and Luc Avérous*



CORRECTION

8428

Correction: Comparative environmental assessment of zeolites synthesized from chemicals and natural minerals

Xiaoling Chen, Guoxi Xiao, Tiesen Li,* Chan Wang, Qingyan Cui, Xiaojun Bao and Yuanyuan Yue*

