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IN THIS ISSUE

ISSN 1463-9262 CODEN GRCHFJ 26(10) 5585–6220 (2024)

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See Indrajit Ghosh, Burkhard König *et al.*, pp. 5845–5851.

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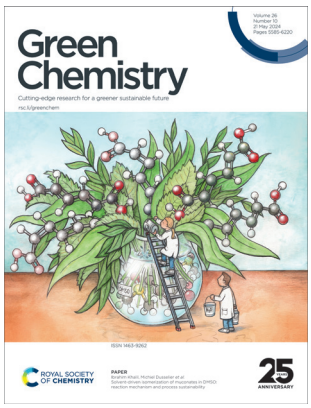

Inside cover
See Ibrahim Khalil, Michiel Dusselier *et al.*, pp. 5852–5861.

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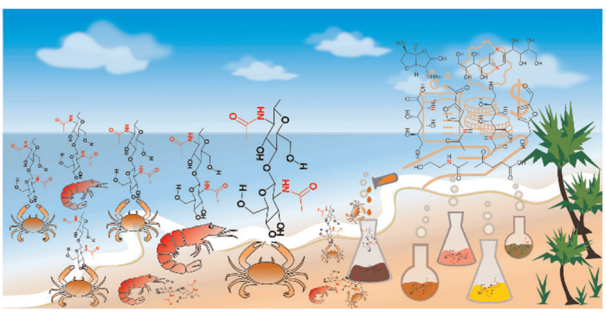
CRITICAL REVIEWS

5601

Shell waste valorization to chemicals: methods and progress

Lavanya Korampattu, Neha Ghosh and Paresh L. Dhepe*



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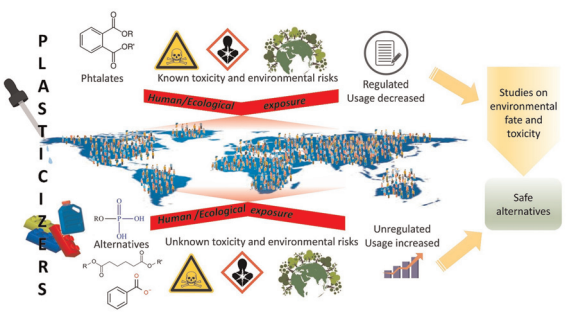
Global environmental and toxicological data of emerging plasticizers: current knowledge, regrettable substitution dilemma, green solution and future perspectives

Abdul Qadeer,* Muhammad Anis, Genoa R. Warner, Courtney Potts, Georgios Giovanoulis, Samia Nasr, Denisse Archundia, Qinghuan Zhang, Zeeshan Ajmal,* Anthony C. Tweedale, Wang Kun, Pengfei Wang, Ren Haoyu, Xia Jiang* and Wang Shuhang*



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CRITICAL REVIEWS

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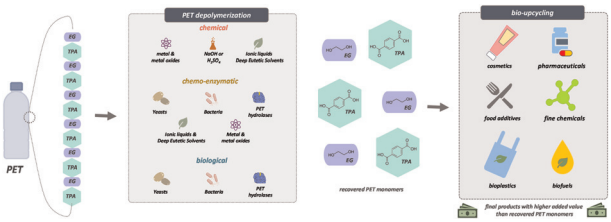
Trash or treasure? Sustainable noble metal recovery

Yicui Wei, Weibo Zhang and Jiao Gao*

5708

From trash to cash: current strategies for bio-upcycling of recaptured monomeric building blocks from poly(ethylene terephthalate) (PET) waste

Adriano Carniel, Nathália Ferreira dos Santos, Filipe Smith Buarque, João Victor Mendes Resende, Bernardo Dias Ribeiro, Isabel M. Marrucho, Maria Alice Zarur Coelho and Aline M. Castro*

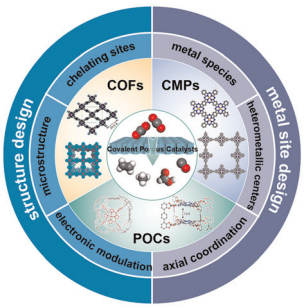


TUTORIAL REVIEWS

5744

Covalent porous catalysts for electrochemical reduction of CO_2

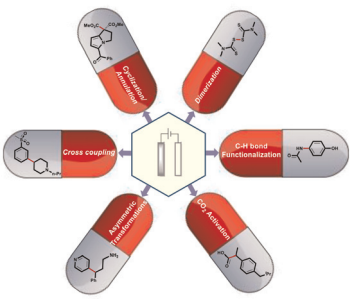
Shuanglong Lu, Hongyin Hu, Huimin Sun, Fulin Yang, Han Zhu, Mingliang Du, Yinghua Jin and Wei Zhang*



5770

Challenges and opportunities on sustainable electrochemical transformations: application towards the synthesis of pharmaceuticals and precursors of drug-like molecules

Adrija Ghosh, Vishal Kumar Parida and Debasis Banerjee*



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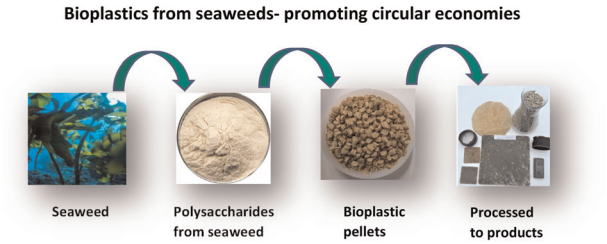
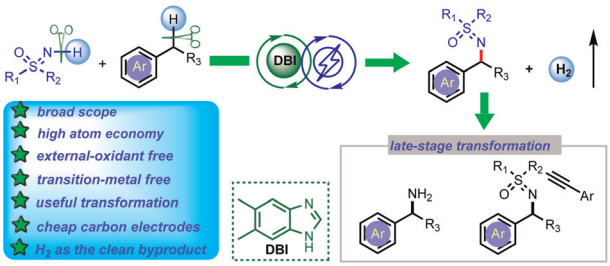


Seaweed-based polysaccharides – review of extraction, characterization, and bioplastic application

Lakshmi Krishnan, Nandhini Ravi, Anjon Kumar Mondal, Farjana Akter, Manoj Kumar, Peter Ralph and Unnikrishnan Kuzhiumparambil*

COMMUNICATIONS

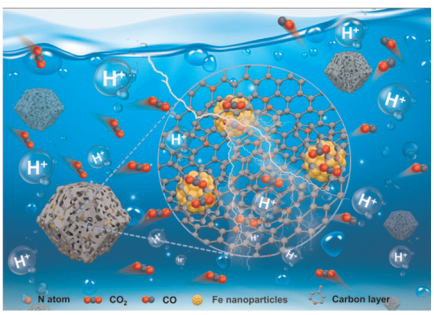
5824



Electrochemical N(sp^2)–H/C(sp^3)–H cross-coupling reaction between sulfoximines and alkylarenes

Qing-Ru Zhu, Peng-Zhan Zhang, Xiang Sun, Hui Gao, Pei-Long Wang* and Hongji Li*

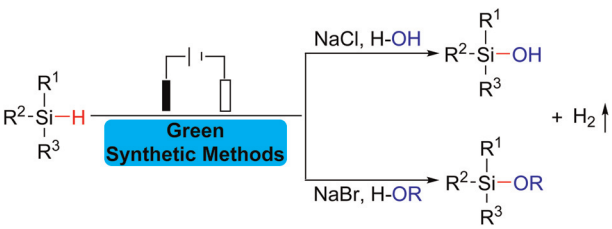
5832



Efficient electrochemical CO_2 reduction in acidic electrolytes using armor-like iron nanoparticles/porous nitrogen-doped carbon

Wenli Hao, Li Peng,* Rongxing Qiu, Tianwei Xue, Ruiqing Li, Qing-Na Zheng, Jia Yu, Tongxin Qiao, Linxiao Cui, Yuzhong Su, Yanzhen Hong, Hongtao Wang, Shuliang Yang* and Jun Li*

5838



Electrochemical strategies for NaX-mediated hydrolysis and alcoholysis of hydrosilanes under mild conditions

Zhengjiang Fu,* Fei Xiao, Jian Yin, Fei Tong, Shengmei Guo and Hu Cai*

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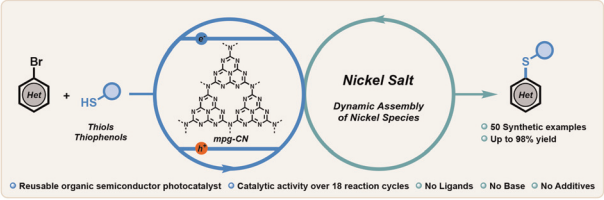
C(sp^2)–S cross-coupling reactions with nickel, visible light, and mesoporous graphitic carbon nitride

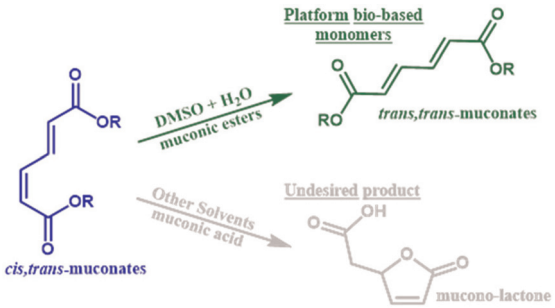
Maksim Nikitin, Florence Babawale, Sena Tastekin, Markus Antonietti, Indrajit Ghosh* and Burkhard König*



5852

Solvent-driven isomerization of muconates in DMSO: reaction mechanism and process sustainability

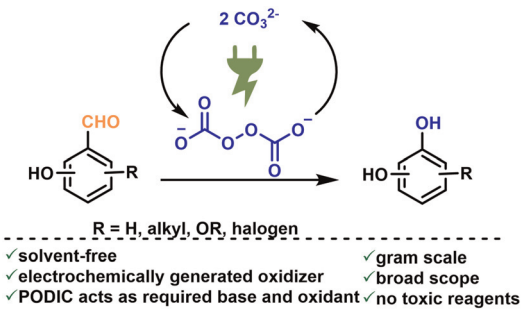
Ibrahim Khalil,* Fatima Rammal, Lisa De Vriendt, An Sofie Narmon, Bert F. Sels, Sebastian Meier and Michiel Dusselier*



5862

***E*-Dakin reaction: oxidation of hydroxybenzaldehydes to phenols with electrochemically generated peroxodicarbonate as sustainable *ex-cell* oxidizer**

Fiona Sprang, Niclas Schupp, Philipp J. Kohlpaintner, Lukas J. Gooßen and Siegfried R. Waldvogel*



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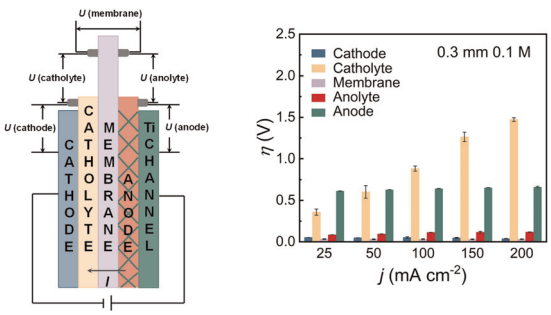
Low-cell-voltage electrosynthesis of hydrogen peroxide

Junyu Yan, Jing Xia and Kai Wang*



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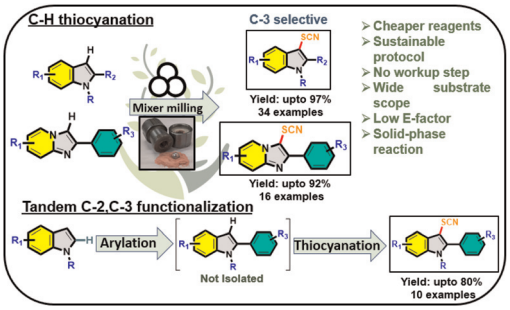
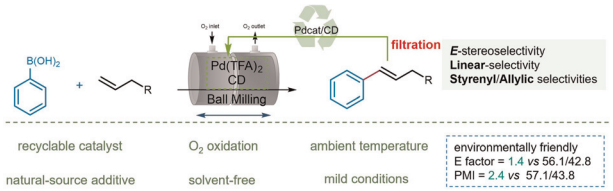


A solvent-free mechanochemical electrophilic C–H thiocyanation of indoles and imidazo[1,2-*a*] pyridines using a cost-effective combination of *N*-chlorosuccinimide-NaSCN and tandem C–C and C–S bond formation

Soumik Saha, Abigail B. Pinheiro, Amrita Chatterjee,* Zigmee T. Bhutia and Mainak Banerjee*

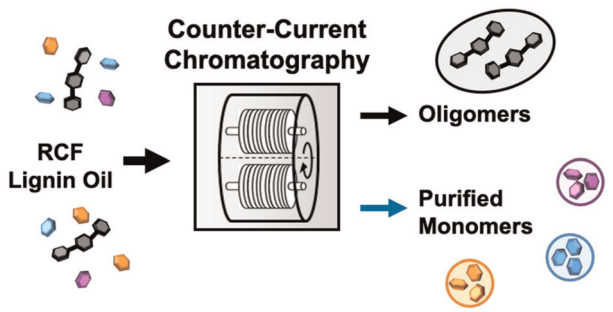
5890



Mechanochemical aerobic oxidative Heck coupling by polymer-assisted grinding: cyclodextrin additive facilitating regioselectivity control

Keyu Xiang, Haowen Shou, Chenhui Hu, Weike Su and Jingbo Yu*

5900



Counter-current chromatography for lignin monomer–monomer and monomer–oligomer separations from reductive catalytic fractionation oil

Hoon Choi, Manar Alherech, Jun Hee Jang, Sean P. Woodworth, Kelsey J. Ramirez, Eric M. Karp and Gregg T. Beckham*

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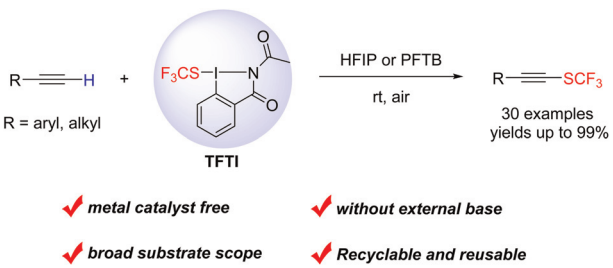

Direct trifluoromethylthiolation of terminal alkynes mediated by a hypervalent trifluoromethylthio-iodine(III) reagent; boosting effect of fluorinated alcohol

Yu-Xin Cheng, Xiao-Guang Yang, Feng-Huan Du and Chi Zhang*

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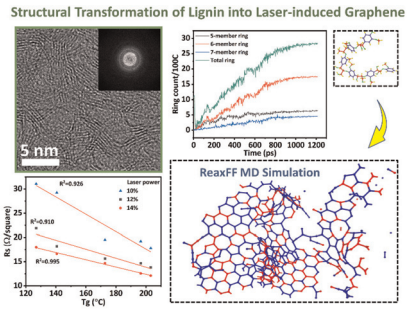
5921

Probing laser-induced structural transformation of lignin into few-layer graphene

Hanwen Zhang, Qianwei Li, Karl D. Hammond, Xiaoqing He, Jian Lin and Caixia Wan*



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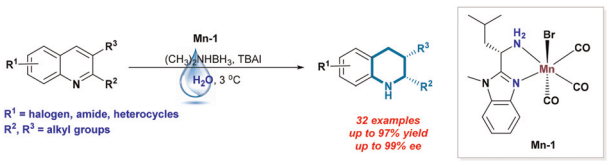
Manganese-catalyzed asymmetric transfer hydrogenation of quinolines in water using ammonia borane as a hydrogen source

Wenhao Mao, Dingguo Song, Jiyuan Guo, Kali Zhang, Changdi Zheng, Jie Lin, Lian Huang, Lizhou Zheng, Weihui Zhong* and Fei Ling*



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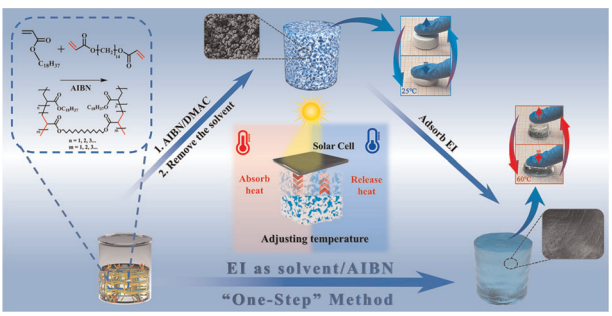
Octadecyl acrylate-based self-supporting elastic phase change framework materials for the enhancement of photovoltaic conversion efficiency

Yongqiang Qian, Lei Tan, Wentao He, Liling Liao, Yongjia Wu, Yiyang Chen, Dan Li, Xu Zhang, Guxia Wang, Yen Wei and Shengwei Guo*



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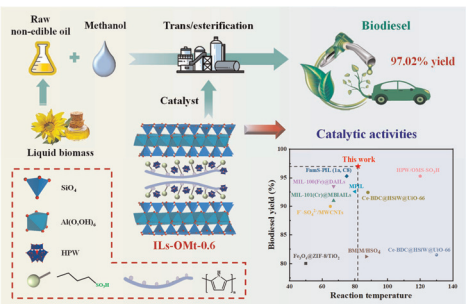
A practical approach for enhanced biodiesel production using organic modified montmorillonites as efficient heterogeneous hybrid catalysts

Lijuan He, Long Chen, Yingxia Nie, Minglu He, Guixiang Wu, Yan Li, Hanjing Tian* and Heng Zhang*



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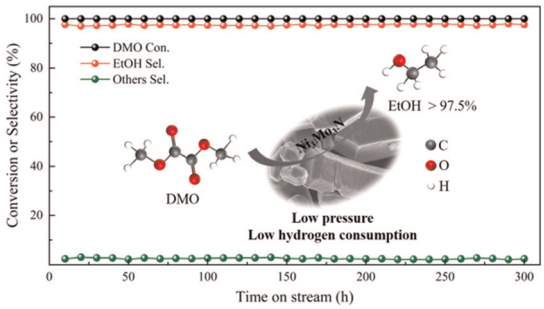

Bimetallic nickel molybdenum nitride catalyst with low pressure and reduced hydrogen consumption for hydrogenation of dimethyl oxalate to ethanol: the impact of reduction temperature on catalytic performance

Jiang Gong, Hanqing Zhang, Weihan Shu, Fengling Zheng, Chuancai Zhang,* Hao Wang, Ni Zhang and Bin Dai*

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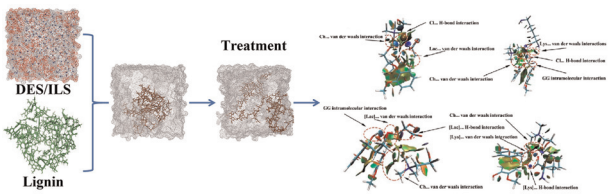

Tailoring a suitable partner system for cholinium cation to build effective solvents for biomass deconstruction

Xuedan Hou, Guojian Feng, Zishi Chen, Hongjie Wu, Hengyun Zhao, Shilin Cao* and Jason P. Hallett*

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Upcycling spent lithium-ion battery cathodes into cobalt-polyphenol networks by DES dissolution and solvent-induced crystallization

Zeyu Wang, Yu Chen, Fengyi Zhou, Rui Qin, Yurun Tian, Zhimin Xue and Tiancheng Mu*

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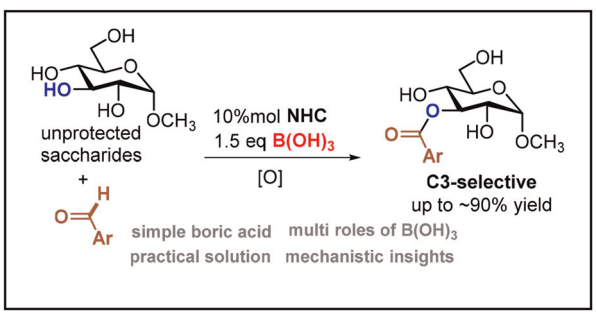

NHC/B(OH)$_3$-mediated C3-selective acylation of unprotected monosaccharides: mechanistic insights and toward simpler/greener solutions

Jiamiao Jin, Jiangtao Guo, Feng Xu, Ya Lv, Guanjie Wang, Jia Song, Wen-Xin Lv, Tingting Li* and Yonggui Robin Chi*

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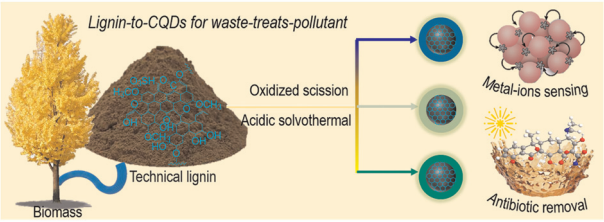
PAPERS

6005

Driving multicolor lignin-based carbon quantum dots into selective metal-ion recognition and photocatalytic antibiotic decomposition

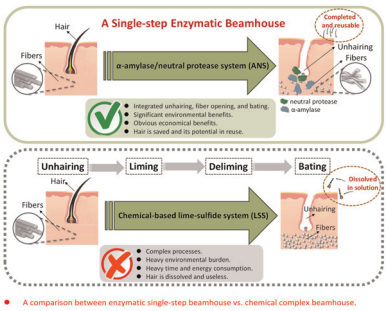
Pengfei Zhou, Jikun Xu,* Jun Guo, Xinyan Hou, Lin Dai, Xiao Xiao and Kaifu Huo



6019

Optimization of a single-step enzymatic beamhouse: toward eco-friendly leather manufacturing

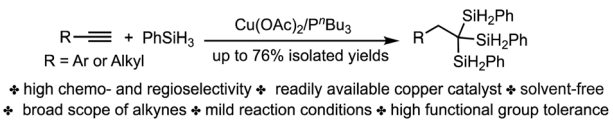
Mingrui Zhang, Chao Tang, Hui Liu, Shufa Qin, Jie Liu, Mădălina Georgiana Albu Kaya and Keyong Tang*



6032

Solvent-free copper-catalyzed trisilylation of alkynes: a practical and atom-economical approach for accessing 1,1,1-trisilylalkanes

Jia Li and Shaozhong Ge*



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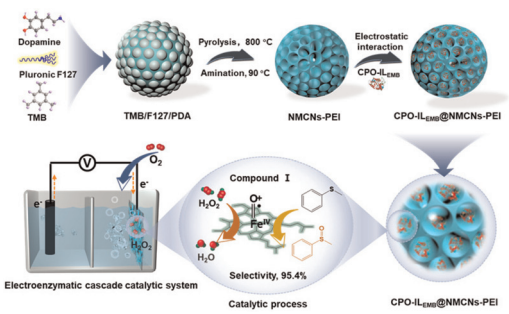
The selective oxidation of thioanisole to sulfoxide using a highly efficient electroenzymatic cascade system

Xuefang Zhu, Xiyue Liu, Yu Ding, Shuni Li, Yucheng Jiang* and Yu Chen*



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PAPERS

6046

Visible light-induced oxidative esterification of mandelic acid with alcohols: a new synthesis of α-ketoesters

Zechuan Mao, Kun Xia, Kaifa Zhang, Hui Chen, Mingqiang Li, Ablimit Abdukader* and Weiwei Jin*

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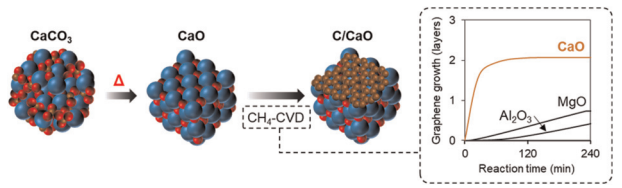


A thermodynamically favorable route to the synthesis of nanoporous graphene templated on CaO *via* chemical vapor deposition

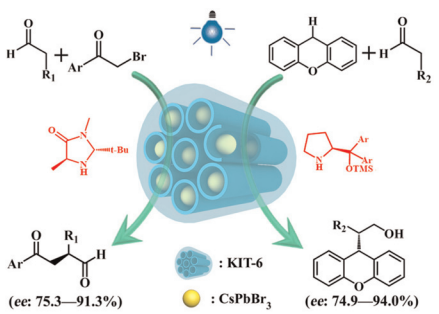
Kritin Pirabul, Qi Zhao, Shogo Sunahiro, Zheng-Ze Pan,* Takeharu Yoshii, Yuichiro Hayasaka, Eddie Hoi-Sing Pang, Rachel Crespo-Otero, Devis Di Tommaso,* Takashi Kyotani and Hirotomo Nishihara*

6063

Photoredox catalytic aminomethylation of sulfonylthiazoles

Li Meng, Jun Dong, Yan Tang, Hekun Yang, Long Sun, Jingchao Chen* and Baomin Fan*

6068



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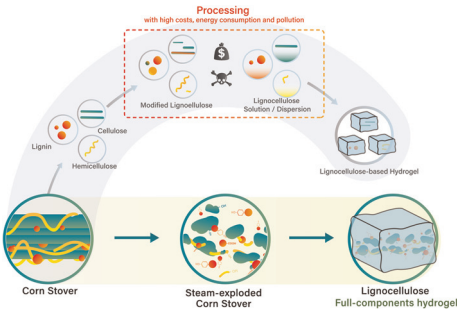
Lignocellulosic full-components hydrogelation using steam-exploded corn stover

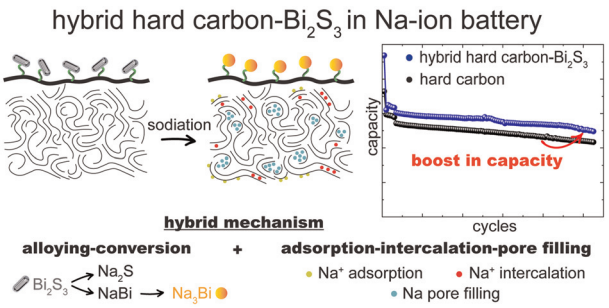
Tairan Pang, Lan Wang* and Hongzhang Chen



6089

Exploring hybrid hard carbon/Bi_2S_3-based negative electrodes for Na-ion batteries

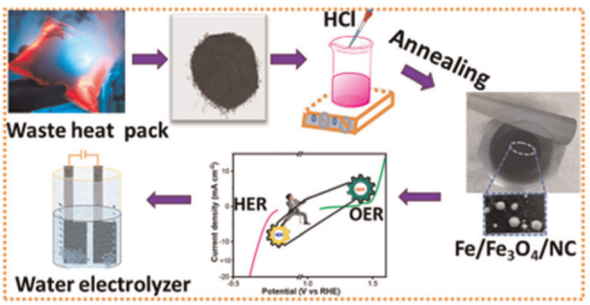
Blaž Tratnik, Sergio Aina, Elena Tchernychova, Matej Gabrijelčič, Gregor Mali, Maria Pilar Lobera, Maria Bernechea, Mathieu Morcrette, Alen Vizintin* and Robert Dominko



6100

Waste iron-based disposable chemical warmer derived electrocatalyst for water splitting

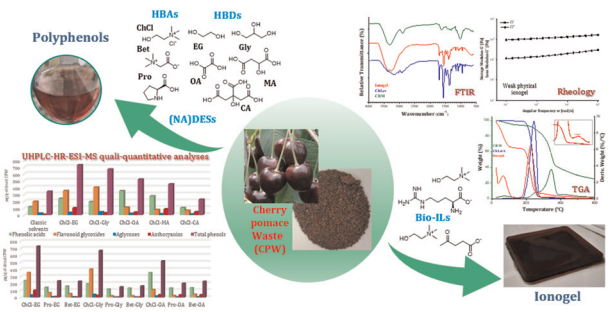
Keyru Serbara Bejigo, Raaju Sundhar Arul Saravanan, Kousik Bhunia and Sang-Jae Kim*



6109

Sustainable valorization of cherry (*Prunus avium* L.) pomace waste *via* the combined use of (NA)DESs and bio-ILs

Angelica Mero, Andrea Mezzetta, Marinella De Leo,* Alessandra Braca and Lorenzo Guazzelli*



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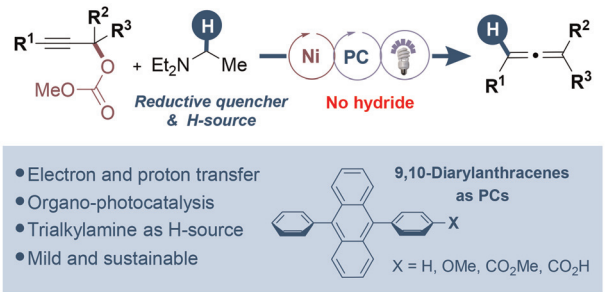
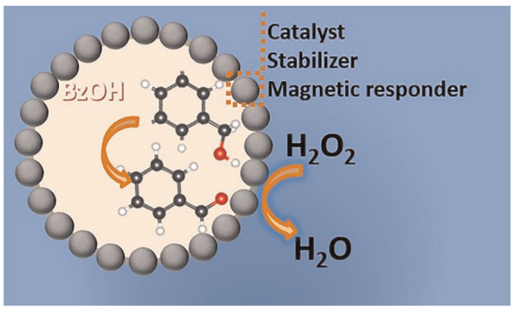
6124



Hydride-free reduction of propargyl electrophiles: a nickel-catalyzed photoredox strategy for allene synthesis

Tingjun Hu, Vincent Fagué, Didier Bouyssi, Nuno Monteiro and Abderrahmane Amgoune*

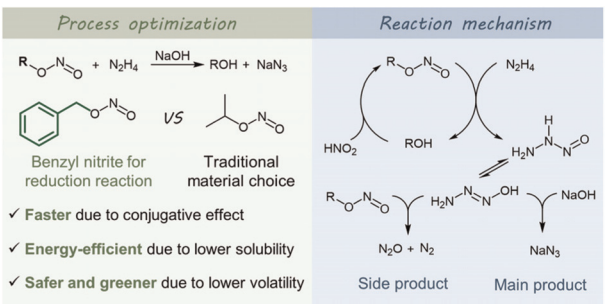
6131



Magnetic-responsive Pickering emulsions based on MFe_2O_4 (M = Mn, Fe, Co, Ni, Cu, Zn) for green and efficient oxidation of benzyl alcohol

Yan Wang, Xuan Wang, Yonghao Dong, Mingli Peng,* Lina Guo, Mengyao Cui, Yuan He, Jiabao Yi, Huijun Ma, Huan Zhang and Haiming Fan

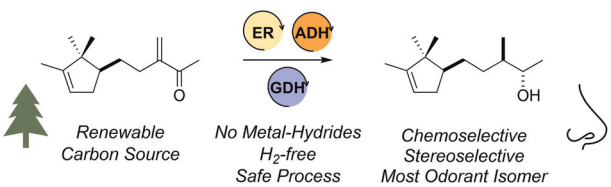
6139



A safer, greener and faster synthesis process of sodium azide by simply altering the alcohol reactant

Zifei Yan, Jian Deng, Jiaxin Tian and Guangsheng Luo*

6150



Biocatalytic approaches for a more sustainable synthesis of sandalwood fragrances

Maria C. Cancellieri, Davide Maggioni, Lorenzo Di Maio, Daniele Fiorito, Elisabetta Brenna, Fabio Parmeggiani and Francesco G. Gatti*

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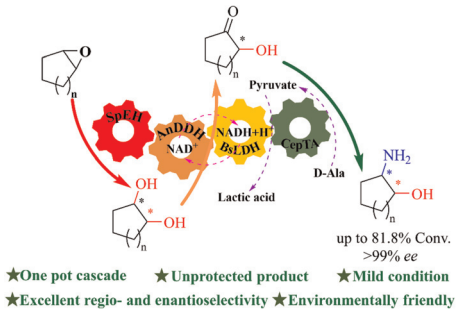
6160

Biocatalytic asymmetric ring-opening of *meso*-epoxides to enantiopure cyclic *trans*-β-amino alcohols involving a key amine transaminase

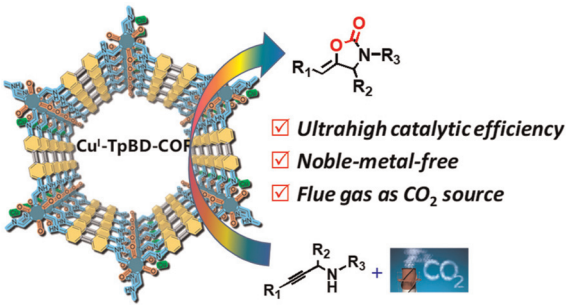
Jingqi Zhang, Hang Gao, Lili Gao,* Mengyi Chen, Shuangping Huang and Jiandong Zhang*



6172

Cu^I-anchored porous covalent organic frameworks for highly efficient conversion of propargylic amines with CO_2 from flue gas

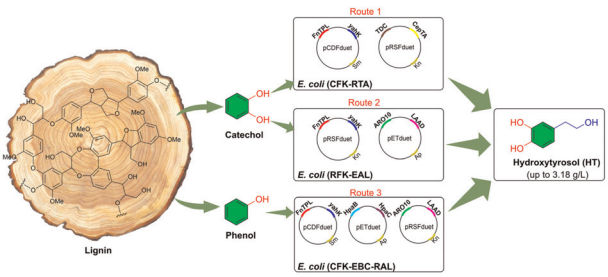
Jikuan Qiu, Xiaoqing Qi, Keping Zhu, Yuling Zhao, Haiyan Wang, Zhiyong Li, Huiyong Wang, Yang Zhao and Jianji Wang*



6180

One-pot biocatalytic upgrading of lignin-derived phenol and catechol to hydroxytyrosol

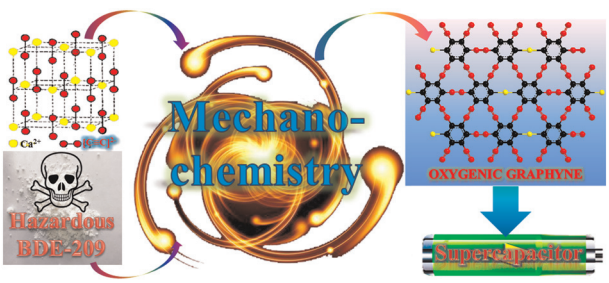
Rui-Yan Zhao, Shuang-Ping Huang, Li-Li Gao and Jian-Dong Zhang*



6190

Green synthesis of oxygenic graphyne with high electrochemical performance from efficient mechanochemical degradation of hazardous decabromodiphenyl ether

Yingjie Li,* Xiaoyu Wang, Bo Qiang, Shenao Xu, Jing Gu, Xiaojun He and Chunxi Li*



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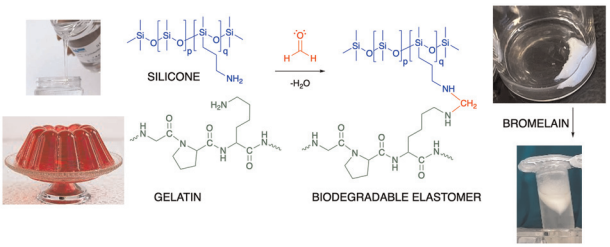
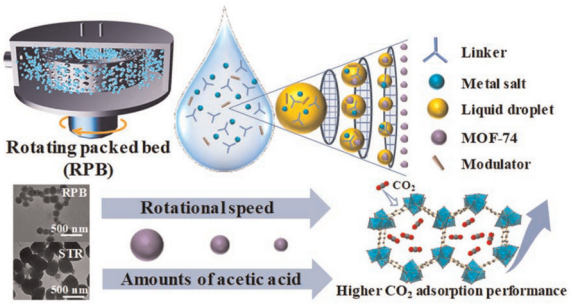


Biodegradable, crosslinked silicone-gelatin hydrogels

Kaitlyn E. C. Silverthorne, Erin M. Donahue-Boyle, Ana Pricu, Angela Yayun Li and Michael A. Brook*

6209



Green, efficient and controllable synthesis of high-quality MOF-74 with high gravity technology

Xin-Ran Shi, Meng Qiao, Yan Wei, Ling-Xia Yun, Jie-Xin Wang* and Jian-Feng Chen

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