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ISSN 1463-9262 CODEN GRCHFJ 25(7) 2469–2882 (2023)

Cover
See Haruo Kawamoto *et al.*, pp. 2583–2595.

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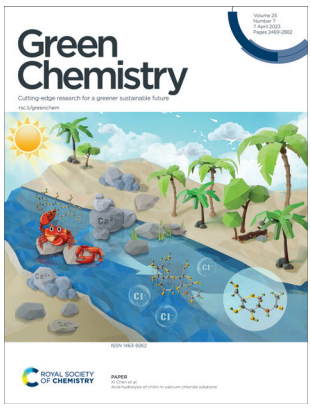

Inside cover
See Xi Chen *et al.*, pp. 2596–2607.

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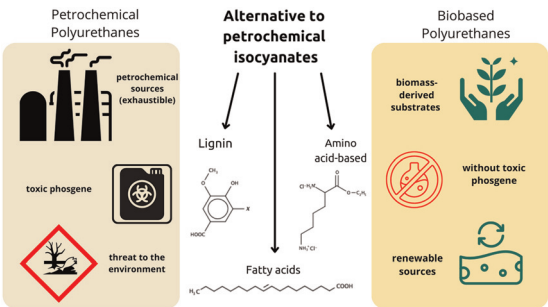
CRITICAL REVIEWS

2482

Challenges and recent advances in bio-based isocyanate production

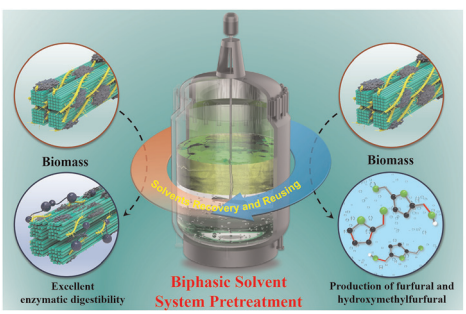
Joanna Niesiobędzka and Janusz Datta*



2505

Recent advances in biomass pretreatment using biphasic solvent systems

Ruolin Li, Yayue Zheng, Xiaoxue Zhao, Qiang Yong, Xianzhi Meng,* Arthur Ragauskas* and Caoxing Huang*



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TUTORIAL REVIEWS

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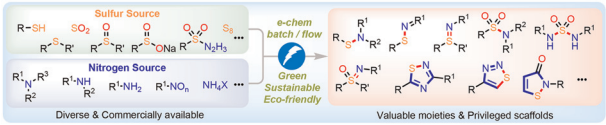
Advances in S–N bond formation *via* electrochemistry: a green route utilizing diverse sulfur and nitrogen sources

Zenghui Ye, Xi Zhang, Weiyuan Ma and Fengzhi Zhang*



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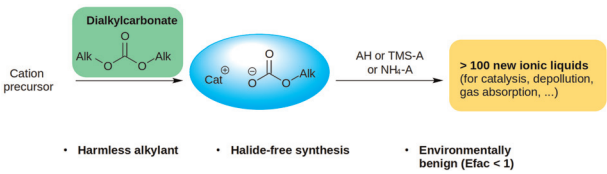
The dialkylcarbonate route to ionic liquids: purer, safer, greener?

Martin Tiano,* Ryan Clark, Laetitia Bourgeois and Margarida Costa Gomes*



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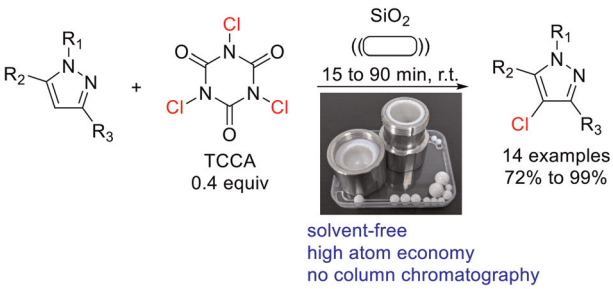
Solvent-free mechanochemical chlorination of pyrazoles with trichloroisocyanuric acid

Chi-Min Chen, Jia-Xin Chen and Ching Tat To*



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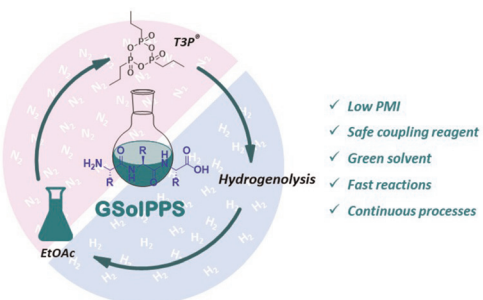
Speeding up sustainable solution-phase peptide synthesis using T3P® as a green coupling reagent: methods and challenges

Alexia Mattellone, Dario Corbisiero, Lucia Ferrazzano, Paolo Cantelmi, Giulia Martelli, Chiara Palladino, Alessandra Tolomelli* and Walter Cabri*



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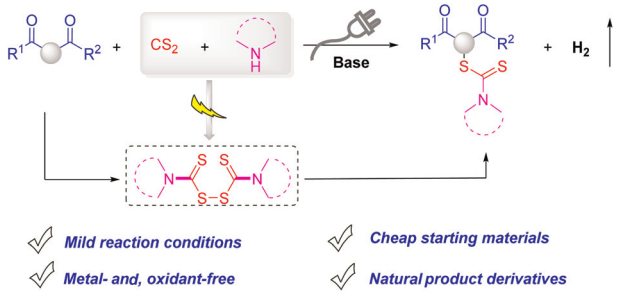

Electrochemically driven α-thiocarbamylation *via* a dehydrocoupling strategy of β-ketoesters with amines and CS_2

Qian Wang, Xiu-Jin Meng, Hai-Tao Tang, Ying-Ming Pan,* Wen-Gui Duan* and Mu-Xue He*

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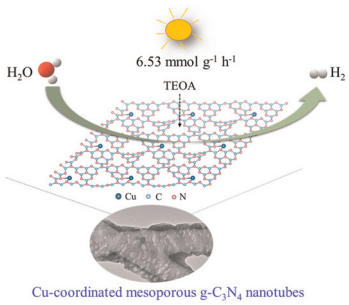

Facilitated photocatalytic H_2 production on Cu-coordinated mesoporous g-C_3N_4 nanotubes

Zhuizhui Su, Jianling Zhang,* Zhonghao Tan, Jingyang Hu, Fengtao Zhang, Ran Duan, Lei Yao, Buxing Han, Yingzhe Zhao and Yisen Yang

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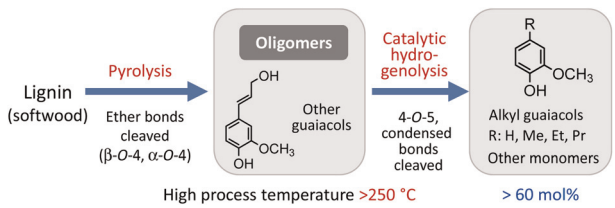

Pyrolysis-assisted catalytic hydrogenolysis of softwood lignin at elevated temperatures for the high yield production of monomers

Jiaqi Wang, Eiji Minami and Haruo Kawamoto*

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Acid hydrolysis of chitin in calcium chloride solutions

Yudi Wang, Jia Kou, Xuewei Wang and Xi Chen*

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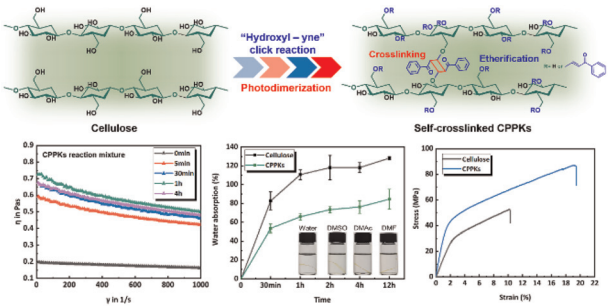
One-pot cellulose etherification and self-crosslinking *via* a mild hydroxyl–yne click reaction in a homogeneous system

Bowen Li, Chaoqun Xu, Juan Yu,* Liang Liu, Xiaofang Zhang* and Yimin Fan*



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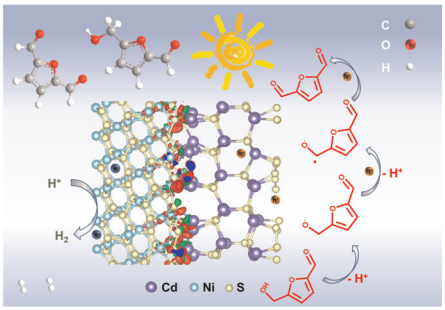
Deep eutectic solvothermal NiS_2/CdS synthesis for the visible-light-driven valorization of the biomass intermediate 5-hydroxymethylfurfural (HMF) integrated with H_2 production

Shuzi Liu, Baolong Zhang, Zhaohui Yang, Zhimin Xue* and Tiancheng Mu*



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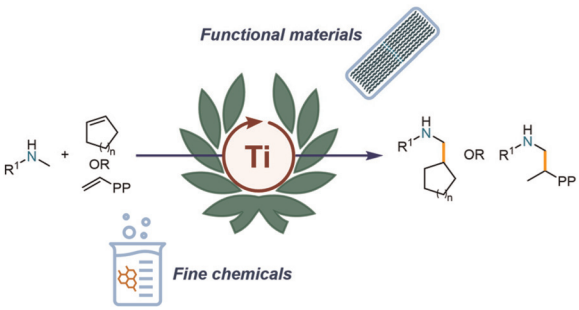
Accessing secondary amine containing fine chemicals and polymers with an earth-abundant hydroaminoalkylation catalyst

Manfred Manßen, Sabrina S. Scott, Danfeng Deng, Cameron H. M. Zheng and Laurel L. Schafer*



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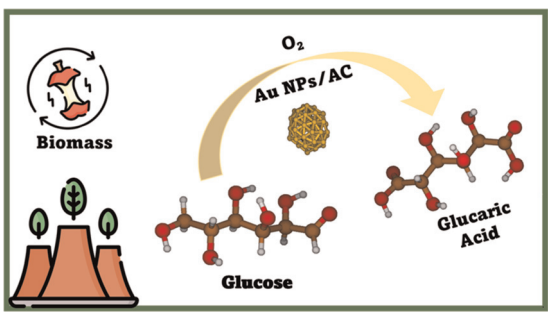
Influence of stabilisers on the catalytic activity of supported Au colloidal nanoparticles for the liquid phase oxidation of glucose to glucaric acid: understanding the catalyst performance from NMR relaxation and computational studies

E. Monti, A. Ventimiglia, L. Forster, E. Rodríguez-Aguado, J. A. Cecilia, F. Ospitali, T. Tabanelli, S. Albonetti, F. Cavani, I. Rivalta,* C. D'Agostino* and N. Dimitratos*



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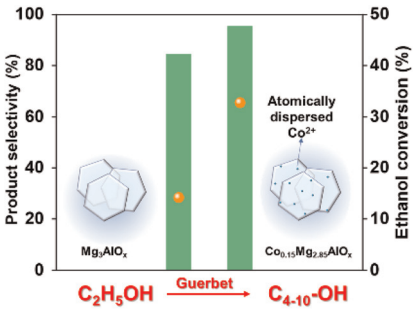
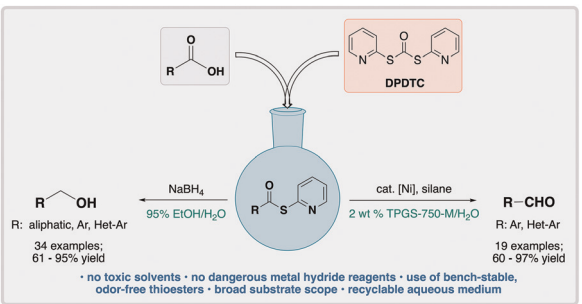


Atomically dispersed Co^{2+} on $MgAlO_x$ boosting C_{4-10} alcohols selectivity of ethanol valorization

Wen-Lu Lv, Lei He, Wen-Cui Li, Bai-Chuan Zhou, Shao-Pei Lv and An-Hui Lu*

2663



Facile, green, and functional group-tolerant reductions of carboxylic acids...in, or with, water

Karthik S. Iyer, Chandler Nelson and Bruce H. Lipshutz*

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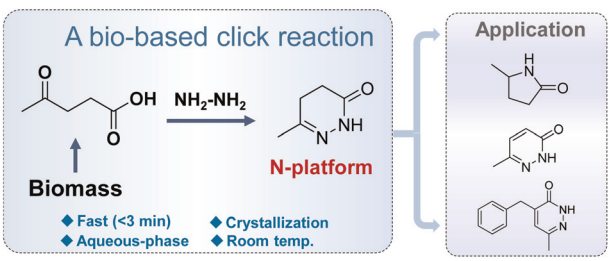

A bio-based click reaction leading to the dihydropyridazinone platform for nitrogen-containing scaffolds

Jia-Yue Chen, Yao-Bing Huang,* Bin Hu, Ke-Ming Li, Ji-Long Zhang, Xuan Zhang, Xia-Yun Yan and Qiang Lu*

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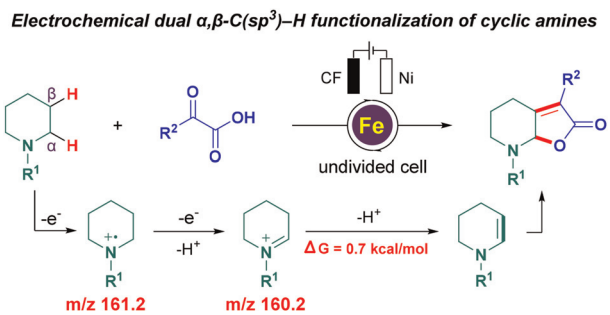

Electrochemical dual α,β-C(sp^3)–H functionalization of cyclic *N*-aryl amines

Tian Feng, Zile Zhu, Dongmei Zhang, Siyi Wang, Ruopu Li, Zhaolin Zhu, Xinxing Zhang* and Youai Qiu*

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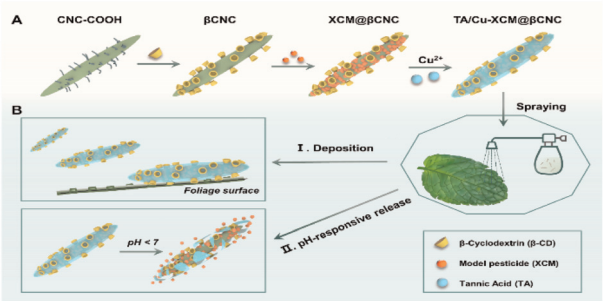
Cellulose nanocrystals for crop protection: leaf adhesion and controlled delivery of bioactive molecules

Like Ning, Chaoqun You,* Yuxin Jia, Jingqian Chen, Yu Zhang, Xun Li, Orlando J. Rojas* and Fei Wang*



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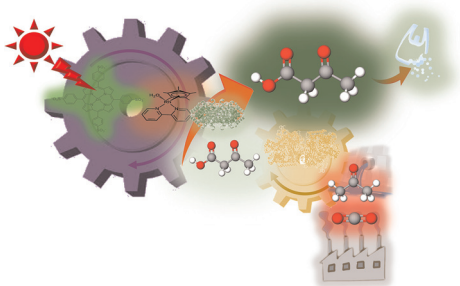
Visible-light-driven 3-hydroxybutyrate production from acetone and low concentrations of CO_2 with a system of hybridized photocatalytic NADH regeneration and multi-biocatalysts

Yu Kita and Yutaka Amao*



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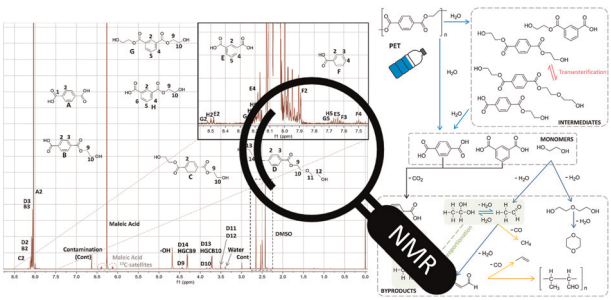
Process optimization by NMR-assisted investigation of chemical pathways during depolymerization of PET in subcritical water

Antonio Jaime-Azuara, Thomas Helmer Pedersen* and Reinhard Wimmer*



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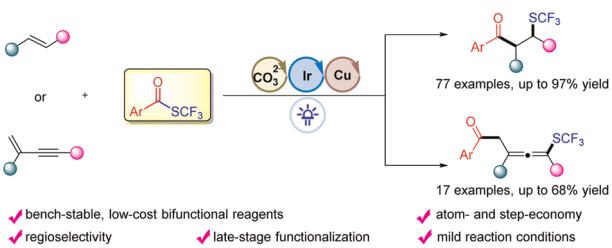
***S*-Trifluoromethyl thioesters as bifunctional reagents for acyl-trifluoromethylthiolation of alkenes and 1,3-enynes *via* photoredox/copper dual catalysis**

Zhong Zhang, Yang Tian, Xiaowei Li, Zemin Wang, Ruihua Liu, Ping Chen, Xiangqian Li, Jiajia Dai and Dayong Shi*



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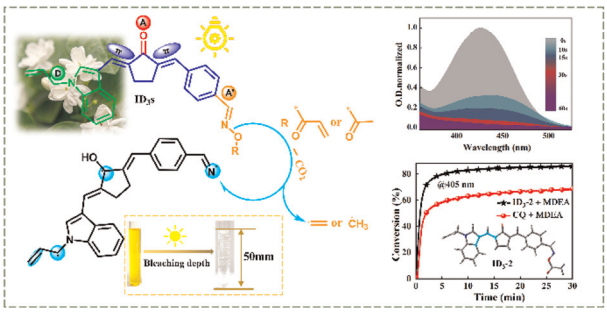

Novel multifunctional unimolecular initiators built on natural indole featuring fast photobleaching and visible light/thermal double polymerization

Shang Gong, Xiang Wu, Qiuyan Liao, Shuang Deng, Jing Hou, Kuangyu Tang, Ying Xiong, Zhen Li and Hongding Tang*

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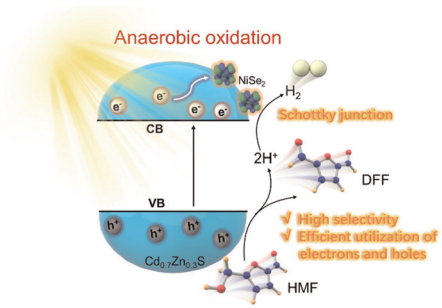

Visible-light-driven anaerobic oxidative upgrading of biomass-derived HMF for co-production of DFF and H_2 over a 1D $Cd_{0.7}Zn_{0.3}S/NiSe_2$ Schottky junction

Tao Shan, Luteng Luo, Taoran Chen, Lixun Deng, Mengqing Li, Xuhui Yang, Lijuan Shen and Min-Quan Yang*

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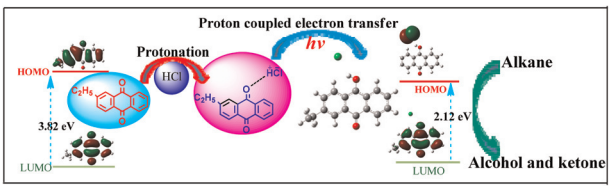

Enhanced driving force and charge separation efficiency of protonated anthraquinone for C–H photooxygenation of alkanes by proton-coupled electron transfer

Hui Yin, Yingying Yuan, Yangbin Li, Jing Tang, Wenzhou Zhong* and Liqiu Mao*

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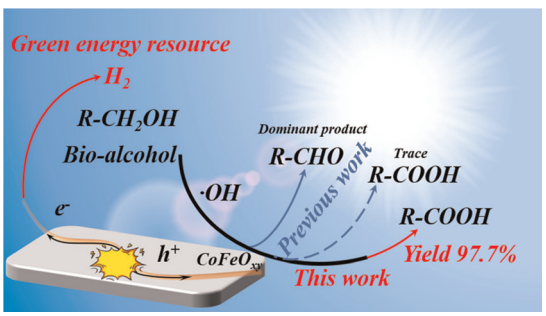

Non-quantum nanostructure-enabled hot carrier generation for enhancive photoelectrocatalytic oxidation of bio-alcohol in water coupled with hydrogen evolution

Pei-dong Wu, Lanyun Li, Keping Wang, Hu Li* and Zhen Fang*

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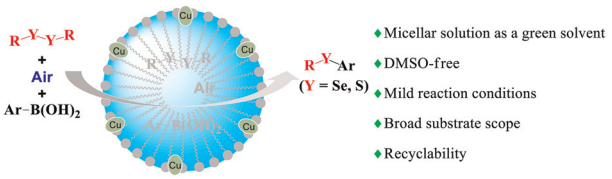
Cu-catalysed Chan–Lam synthesis of unsymmetrical aryl chalcogenides under aqueous micellar conditions

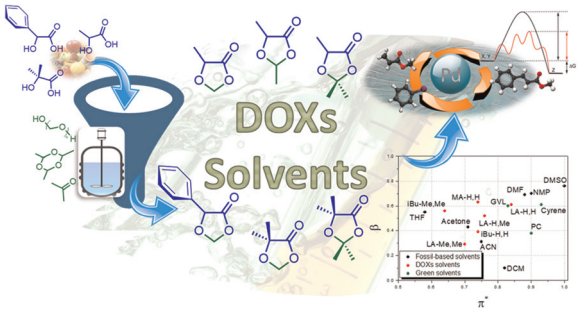
Nan Sun,* Kai Zheng, Mingqiang Zhang, Guowen Zheng, Liqun Jin, Baoxiang Hu, Zhenlu Shen and Xinquan Hu*



2790

1,3-Dioxolane compounds (DOXs) as biobased reaction media

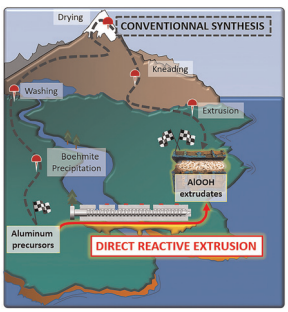
Massimo Melchiorre, Peter H. M. Budzelaar, Maria E. Cucciolito, Roberto Esposito, Emanuela Santagata and Francesco Ruffo*



2800

Coupling of solvent-free synthesis and reactive extrusion of alumina: an ecologically efficient integration for heterogenous catalyst synthesis

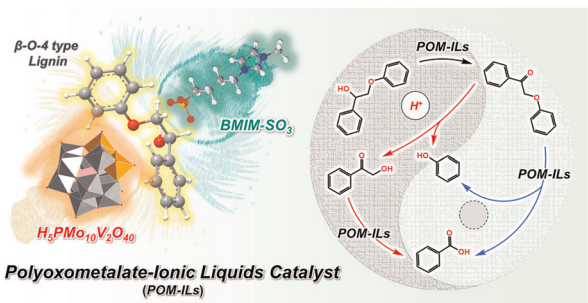
Pierre-Igor Dassie, Ryma Haddad, Maud Lenez, Alexandra Chaumonnot, Malika Boualleg, Patrick Legriel, Ales Styskalik, Bernard Haye, Mohamed Selmane, Damien P. Debecker, Clement Sanchez, Corinne Chaneac and Cedric Boissiere*



2815

A recoverable polyoxometalate-ionic liquid catalyst for selective cleavage of lignin β-O-4 models under mild conditions

Xing Xin, Zheng Li, Manzhou Chi, Mo Zhang, Yuanyuan Dong, Hongjin Lv* and Guo-Yu Yang*



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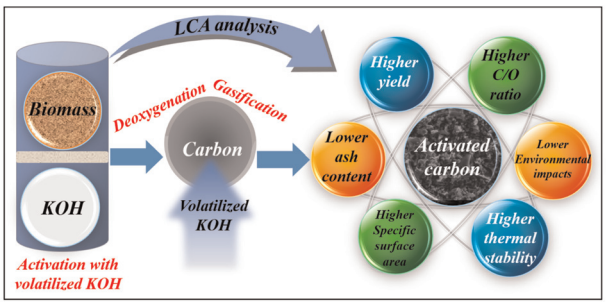
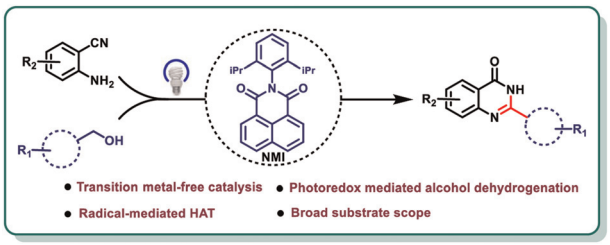


Activation of biomass with volatilized KOH

Chao Li, Yuannian Li, Yuewen Shao, Lijun Zhang, Shu Zhang, Shuang Wang, Bin Li, Zhenhua Cui, Yonggui Tang and Xun Hu*

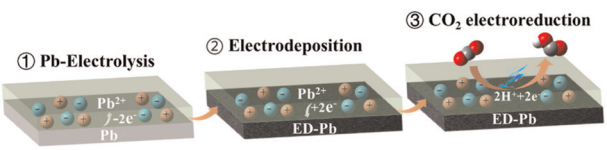
2840



Unlocking the photo-dehydrogenation ability of naphthalene monoimide towards the synthesis of quinazolinones

Supriya Halder, Sourav Mandal, Ayanangshu Biswas and Debashis Adhikari*

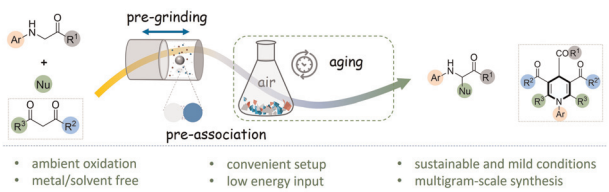
2846



Ionic liquid-based electrolysis-deposition for modulating Pb crystal facets to boost CO_2 electroreduction

Chongyang Jiang, Shaojuan Zeng,* Jiaqi Feng, Guilin Li, Zongxu Wang, Kuilin Peng, Lu Bai and Xiangping Zhang*

2853



α-C–H functionalization of glycine derivatives under mechanochemical accelerated aging en route the synthesis of 1,4-dihydropyridines and α-substituted glycine esters

Keyu Xiang, Ping Ying, Tao Ying, Weike Su and Jingbo Yu*

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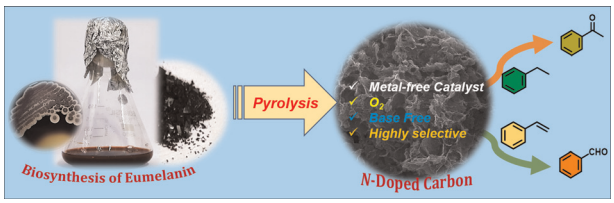
Natural eumelanin-based porous *N*-doped carbon as an active bio-catalyst for base- and initiator-free aerobic oxidation of olefins and alkyl aromatic hydrocarbons

Vishal A. Ghadge, Krishnan Ravi, Dhanaji R. Naikwadi, Pramod B. Shinde* and Ankush V. Biradar*



2872

Recycling of a thermoresponsive "catalyst pill": separation of a molecular catalyst in solid ethylene carbonate in various reactions

Jeroen T. Vossen, Noah Hülsken, Andreas J. Vorholt* and Walter Leitner