

Green Chemistry

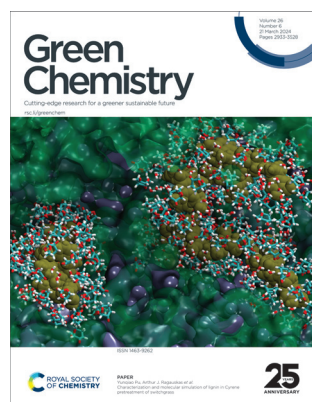
Cutting-edge research for a greener sustainable future

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Cover

See Yunqiao Pu,
Arthur J. Ragauskas *et al.*,
pp. 3170–3182.

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Shalini Jayaraman Rukmani,
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Arthur J. Ragauskas from
Green Chem., 2024, **26**,
3170.



Inside cover

See Wolfgang Kroutil *et al.*,
pp. 3183–3189.

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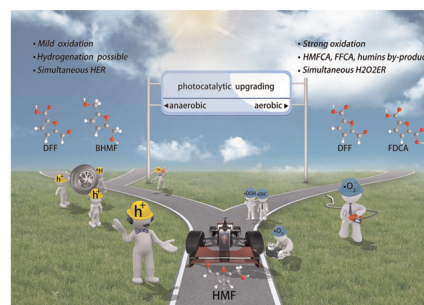
The authors acknowledge
Verena Resch for the artwork.

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Yingchuan Zhang, Guangri Jia, Wenchao Wang,
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A systematic study on the processes of lignin extraction and nanodispersion to control properties and functionality

Ekaterina Sheridan, Svitlana Filonenko*,
Alexander Volikov, Juho Antti Sirviö and
Markus Antonietti*



GOLD
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**The application of polymers,
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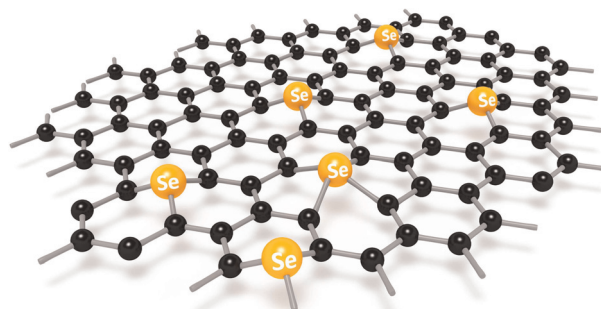
**Fundamental questions
Elemental answers**

CRITICAL REVIEWS

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Selenium-doped carbon materials: synthesis and applications for sustainable technologies

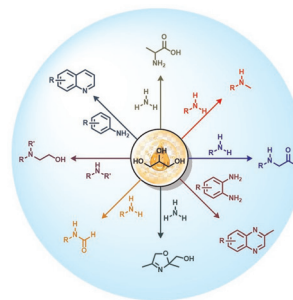
Stawomir Dyjak,* Bartłomiej J. Jankiewicz,
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Valorization of bio-renewable glycerol by catalytic amination reactions

Sandeep Kumawat, Sunidhi Singh, Tarun Bhatt,
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and Rajenahally V. Jagadeesh*

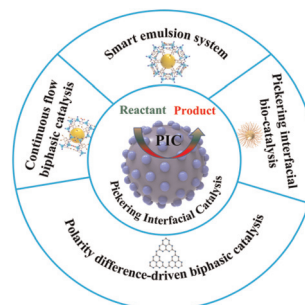


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Pickering emulsion-derived nano/microreactors for unconventional interfacial catalysis: state-of-the-art advances and perspectives in green reactions

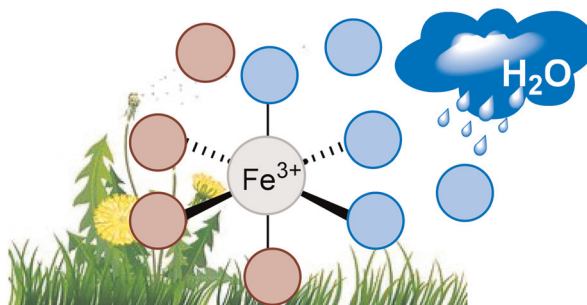
Ansar Abbas, Sameer Hussain,* Muhammad Asad,
Asma Khatoon, Ali Raza and Silong Xu*



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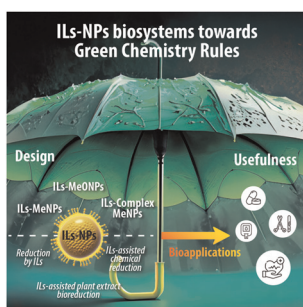
A survey of the iron ligand-to-metal charge transfer chemistry in water

Jessica Stahl and Burkhard König*



TUTORIAL REVIEWS

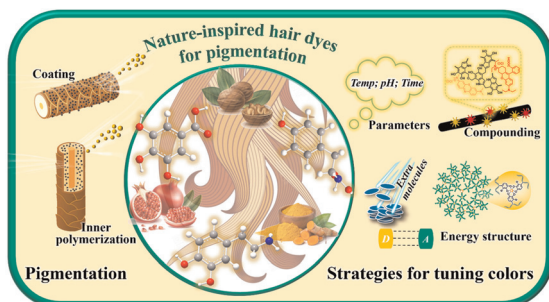
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Principles and practice of greener ionic liquid–nanoparticles biosystem

Joanna Feder-Kubis,* Anna Wirwis, Małgorzata Policht, Jagpreet Singh and Ki-Hyun Kim*

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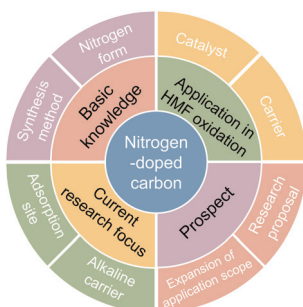


Nature-inspired safe and efficient hair dyes: beyond the traditional hair dyes

Ting Zhang, Junfei Hu, Linghong Guo, Zhipeng Gu, Xian Jiang and Yiwen Li*

PERSPECTIVE

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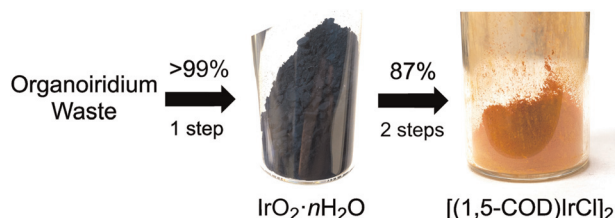


A perspective on nitrogen-doped carbon in 5-hydroxymethylfurfural oxidation

Wen Guan, Tingfeng Fang, Yunlei Zhang,* Siwei Xu, Meilin Jia, Bing Liu* and Zehui Zhang*

COMMUNICATIONS

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Recycling organoiridium waste to [(1,5-cyclooctadiene)IrCl]₂

Valeriy Cherepakhin and Travis J. Williams*

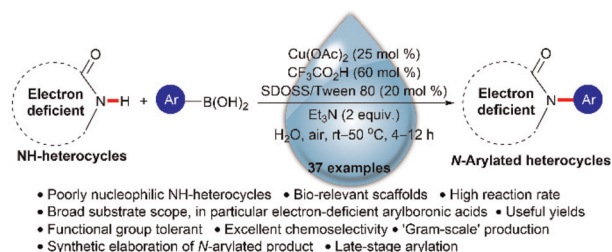


COMMUNICATIONS

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Cu(II)-catalyzed 'in-water' *N*-arylation of electron-deficient NH-heterocycles

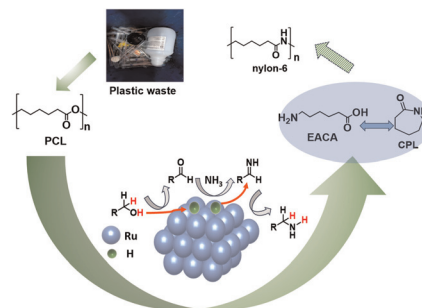
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Valorization of polycaprolactone for the production of nylon-6 monomers

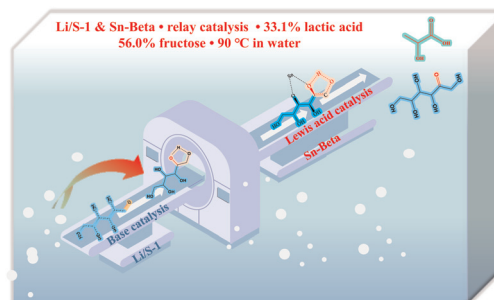
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Synergistic catalysis of tandem Li/S-1 and Sn-Beta catalysts for the conversion of glucose to fructose and lactic acid at 90 °C in water

Yanfei Zhang, Wanting Li, Wenqian Li, Yanfeng Zhu, Longfei Chen, Gai Miao, Hu Luo,* Xinqing Chen* and Lingzhao Kong*

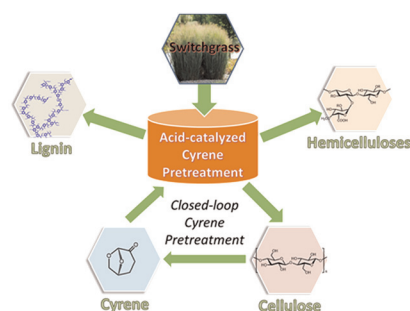


PAPERS

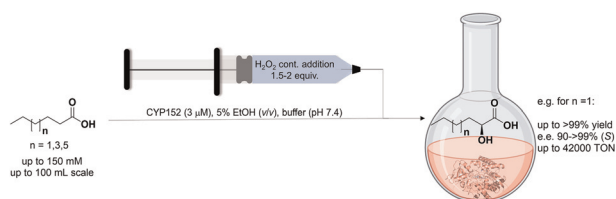
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Characterization and molecular simulation of lignin in Cyrene pretreatment of switchgrass

Yun-Yan Wang, Yunxuan Wang, Luna Liang, Micholas Dean Smith, Xianzhi Meng, Yungqiao Pu,* Mitra Mazarei, Rupesh Agarwal, Shalini J. Rukmani, Brian H. Davison and Arthur J. Ragauskas*



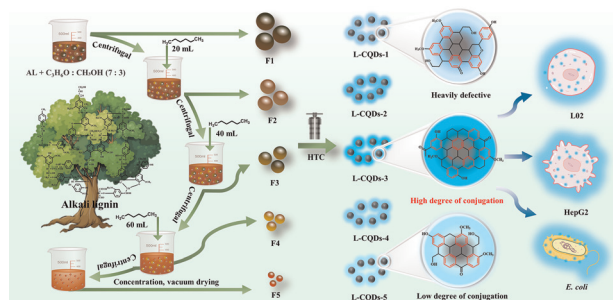
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Preparative regio- and stereoselective α -hydroxylation of medium chain mono- and dicarboxylic fatty acids

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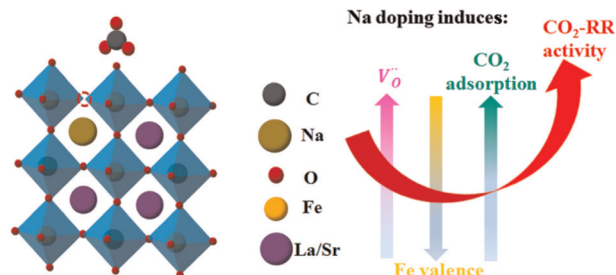
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The effect of lignin molecular weight on the formation and properties of carbon quantum dots

Xiaoli Liu, Siyu Zhao, Xinrui Chen, Xing Han, Junhua Zhang, Min Wu, Xueping Song* and Zhanyang Zhang

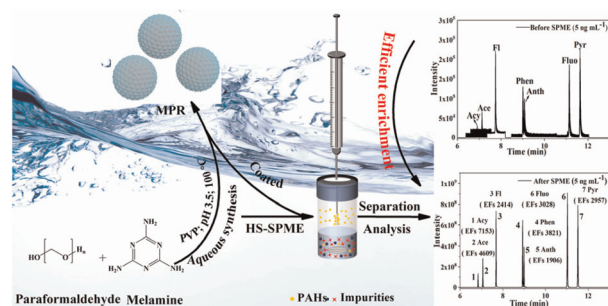
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Electronic engineering and oxygen vacancy modification of $\text{La}_{0.6}\text{Sr}_{0.4}\text{FeO}_{3-\delta}$ perovskite oxide by low-electronegativity sodium substitution for efficient CO_2/CO fueled reversible solid oxide cells

Wanbin Lin, Yihang Li,* Manish Singh, Huibin Zhao, Rui Yang, Pei-Chen Su* and Liangdong Fan*

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Development of a high-efficiency and environmentally friendly melamine-formaldehyde resin-based solid phase microextraction fiber for enhanced extraction of polycyclic aromatic hydrocarbons from environmental water

Pengfei Li, Yehong Han, Dandan Han and Hongyuan Yan*

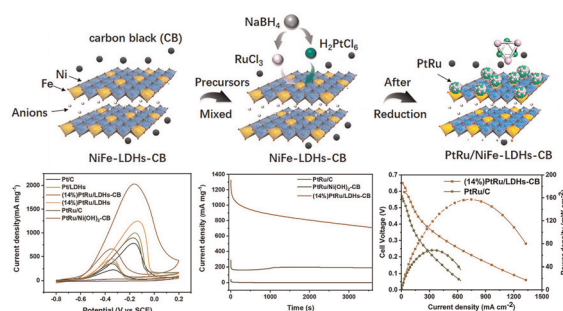


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Stable and active methanol oxidation via anchored PtRu alloy nanoparticles on NiFe layered double hydroxides

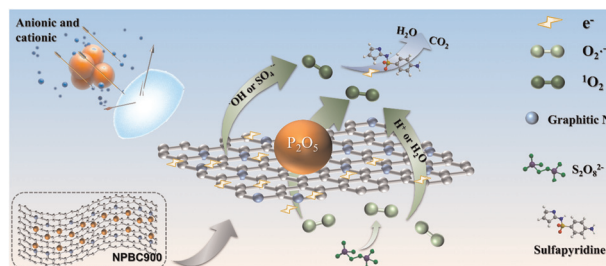
Linbo Jin, Qingcheng Meng, Mengze Ma, Xueqing Gao, Aibing Chen, Xiaoming Sun* and Daojin Zhou*



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Efficient removal of sulfonamides in complex aqueous environments by an N, P-co-doped graphitic biochar: the crucial role of P₂O₅

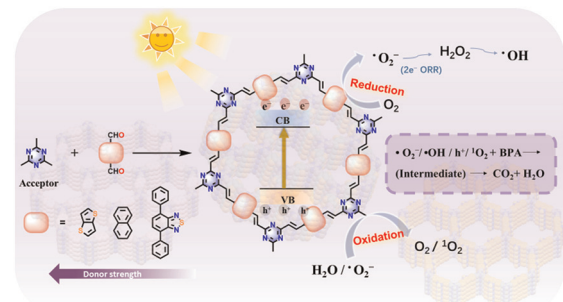
Wei Tang, Daniel S. Alessi, Tongshuai Wang, Jingqi Wu, Shijia Li, Kurt O. Konhauser, Zhixiong Li and Jiawei Chen*



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Donor-acceptor sp² covalent organic frameworks for photocatalytic H₂O₂ production and tandem bisphenol-A degradation

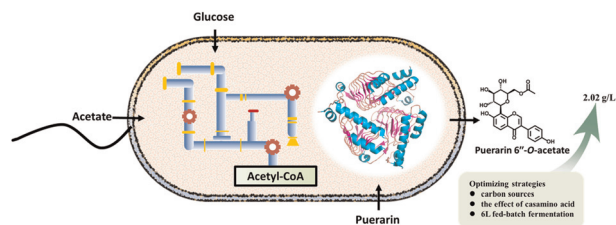
Maojun Deng, Linyang Wang, Zhongliang Wen, Jeet Chakraborty, Jiamin Sun, Guizhen Wang and Pascal Van Der Voort*



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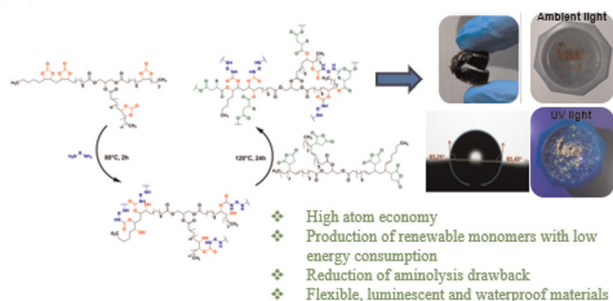
Green acetyl modification of puerarin to form puerarin 6''-O-acetate using engineered *Escherichia coli* with favorable pathways and elevated acetyl-CoA supply

Xue-Ning Wang, Li Sheng, Xin-Yi Guo, Hua Sun and Jian-Qiang Kong*



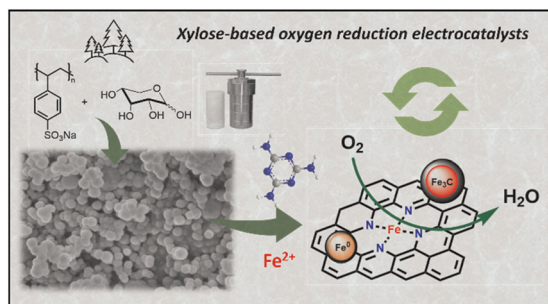
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Greener preparation of a flexible material based on macaw palm oil derivatives and CO₂

Rafael Turra Alarcon,* Caroline Gaglieri, Gilbert Bannach and Éder Tadeu Gomes Cavalheiro*

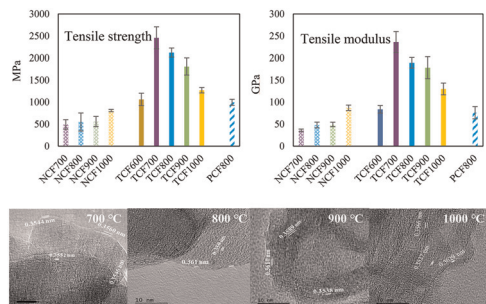
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Inducing porosity in xylose-derived FeNC electrocatalysts for alkaline oxygen reduction

Lorenzo Mazzoli, Angus Pedersen,* Simon Kellner, Robert D. Hunter, Rongsheng Cai, Mengnan Wang, Kevin Sivula, Sarah J. Haigh and Jesús Barrio*

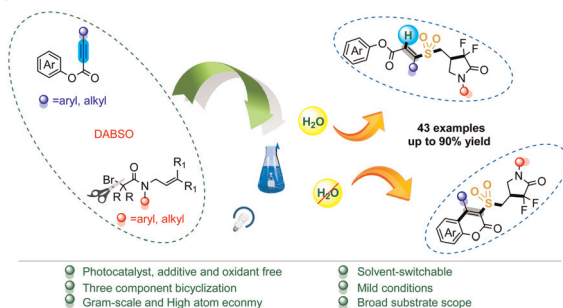
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Introducing thermo-mechanochemistry of lignin enabled the production of high-quality low-cost carbon fiber

Yixin Luo, Moham Ed Abdur Razzaq, Wangda Qu, Abdulrahman A. B. A. Mohammed, Alvina Aui, Hamidreza Zobeiri, Mark Mba Wright, Xinwei Wang and Xianglan Bai*

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Photocatalyst-free H₂O-regulated and regiodivergent multicomponent hydrogenation/bifunctional sulfonylation of alkynes

Jie Sun, Chaodong Wang, Chunlei Wu, Wenjian Wang, Yue Zeng, Shengjie Song, Zhiwei Chen* and Jianjun Li*

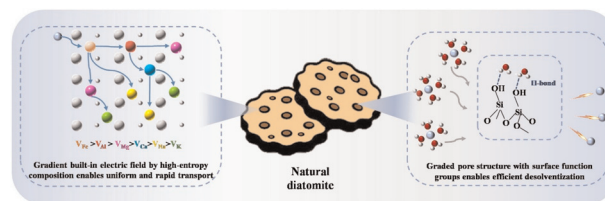


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Natural high-entropy interfaces with kinetics-boosted and water-desolventized effects for high-performance aqueous zinc ion batteries

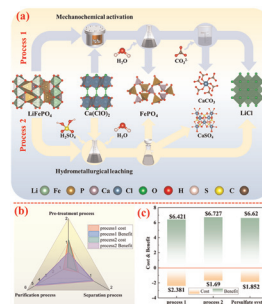
Yanxin Li, Hongfeng Jia, Usman Ali, Bingqiu Liu, Lu Li,*
Lingyu Zhang, Tingting Wang and Chungang Wang*



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Facile and sustainable recovery of spent LiFePO₄ battery cathode materials in a Ca(ClO)₂ system

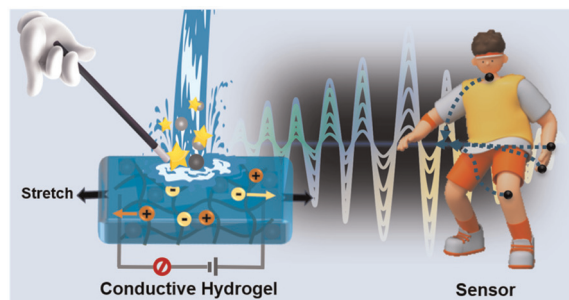
Gongqi Liu, Zejian Liu, Jing Gu, Shujia Wang,
Yufeng Wu,* Haoran Yuan* and Yong Chen



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Natural polyphenolic nanodot-knotted conductive hydrogels for flexible wearable sensors

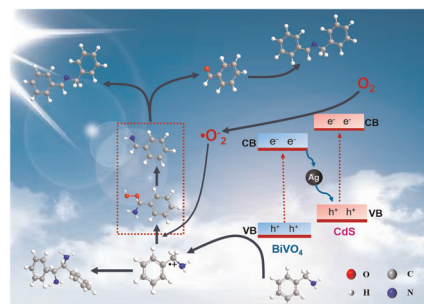
Peng Yang, Jianhua Zhang, Rong Zhang, Gaigai Duan,
Yiwen Li* and Zhan Li*



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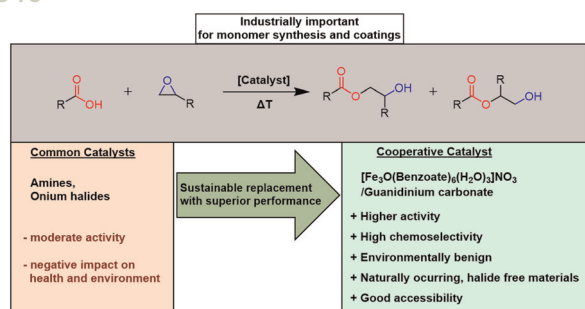
Fabricating CdS/Ag/BiVO₄ Z-heterojunction for solvent-free photocatalytic oxidation of amines

Ting Zhang, Weitao Wang,* Xulu Jiang, Huan Wang,
Zhen-Hong He, Yang Yang, Kuan Wang, Zhao-Tie Liu*
and Buxing Han*



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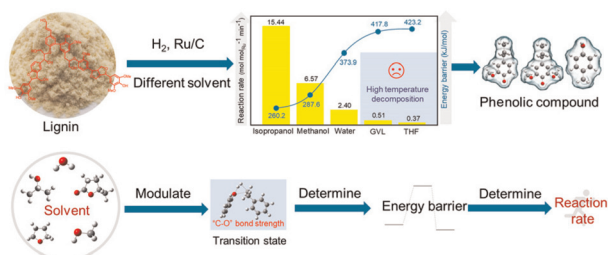
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A highly efficient and sustainable catalyst system for terminal epoxy-carboxylic acid ring opening reactions

Tizian-Frank Ramspoth,* Jitte Flapper, Keimpe J. van den Berg, Ben L. Feringa* and Syuzanna R. Harutyunyan*

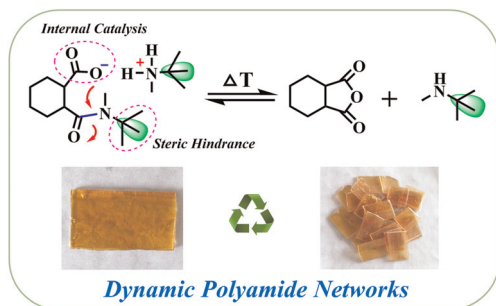
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Investigation into the effect of solvents on lignin hydrogenation for the production of phenolic compounds

Chao Liu, Yiqiang Wu,* Tingting Cai, Yuwei Chen, Shuya Jia, Xiaolei Zhang, Zhaoshuang Li, Zhiping Wu, Yan Qing, Jianchun Jiang* and Kui Wang*

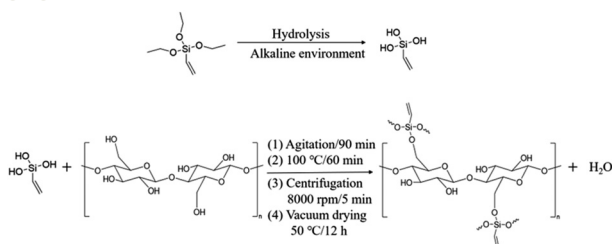
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Reprocessing of cross-linked polyamide networks via catalyst-free methods under moderate conditions

Jinshuai Zhang, Yonghong Zhou,* Shuanhong Ma* and Feng Zhou

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Green liquid marble-based hydrogels as pesticidal pyrethrin slow-release carriers

Qin Li, Changhong Wang, Jiayuan He, Dandan Yang, Ting Li, Huixian Xu, Weifeng Shen, Liandi Zhou,* Saimeng Jin,* Qihui Zhang* and James H. Clark

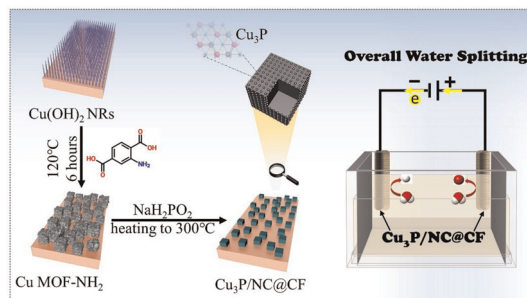


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Highly dispersed copper phosphide nanoparticles accelerate the electrolytic water oxidation process

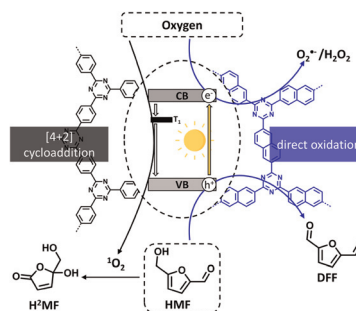
Haishun Jiang, Jihua Shi, Xiangyue Liu and Jing Tang*



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Covalent triazine-based frameworks – switching selectivity in HMF photooxidation

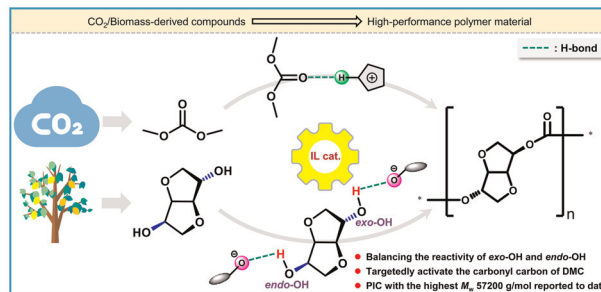
Daniel Ditz, Nina M. Sackers, Felix Müller, Mirijam Zobel, Sebastian Bergwinkl, Patrick Nuernberger, Leonie Sophie Häser, Sarah Brettschneider, Florian M. Wisser, Christoph Bannwarth and Regina Palkovits*



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Tailoring the molecular weight of isosorbide-derived polycarbonates *via* regulating the H-bond donor/acceptor ability of task-specific ionic liquid catalysts

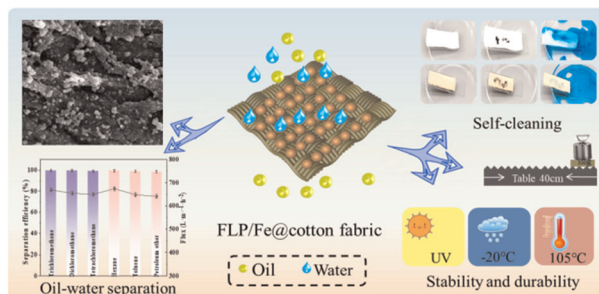
Wei Qian,* Xifei Ma, Mengqian Fu, Minggong Chen, Zhonglian Yang, Qian Su* and Weiguo Cheng*



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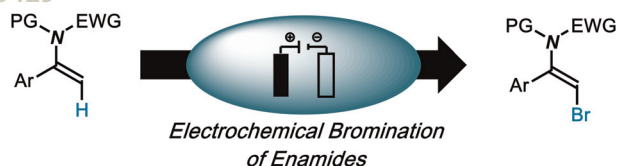
Green fabrication of fabric by ethanol/water solvent-mediated self-assembly of homogeneous lignin for oil–water separation

Xinlu Liu, Shuzhen Ni,* Xiaoqian Chen,* Zongquan Li, Yingjuan Fu, Menghua Qin and Fengshan Zhang



PAPERS

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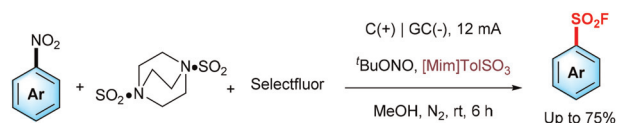


- + Sustainable approach
- + NaBr as a brominating agent
- + Broad substrate scope
- + Good to excellent yields (56-85%)
- + Extension to chlorination (NaCl)
- + Postfunctionalization

Electrochemical bromination of enamides with sodium bromide

Shinan Luan, Thomas Castanheiro* and Thomas Poisson*

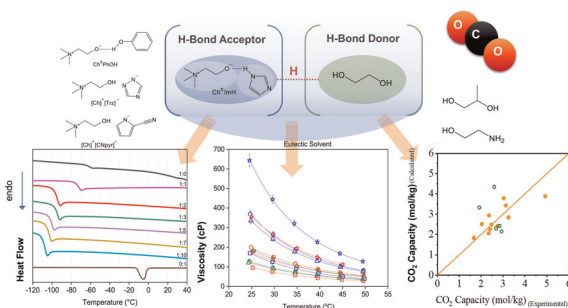
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Direct electrochemical synthesis of arenesulfonyl fluorides from nitroarenes: a dramatic ionic liquid effect

Xianqiang Kong,* Qianwen Liu, Yiyi Chen, Wei Wang, Hong-Fa Chen, Wenjie Wang, Shuangquan Zhang, Xiaohui Chen* and Zhong-Yan Cao*

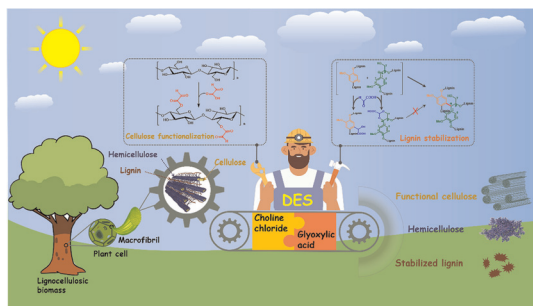
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Composition–property relationships of choline based eutectic solvents: impact of the hydrogen bond donor and CO₂ saturation

Ruth Dikki, Vaishali Khokhar, Muhammad Zeeshan, Sanchari Bhattacharjee, Oguz Kagan Coskun, Rachel Getman and Burcu Gurkan*

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Functional deep eutectic solvent for lignocellulose valorization via lignin stabilization and cellulose functionalization

Zhen Zhang, Pingli Lv, Hairui Ji,* Xingxiang Ji, Zhongjian Tian and Jiachuan Chen

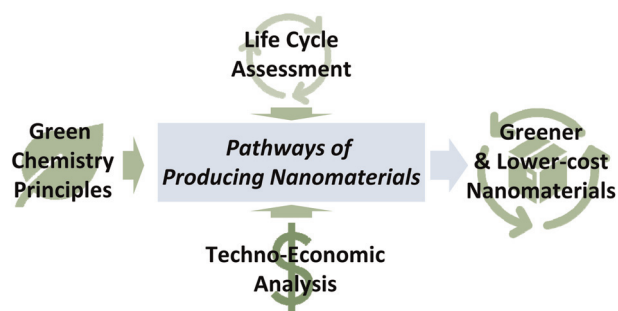


PAPERS

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A modeling framework to identify environmentally greener and lower-cost pathways of nanomaterials

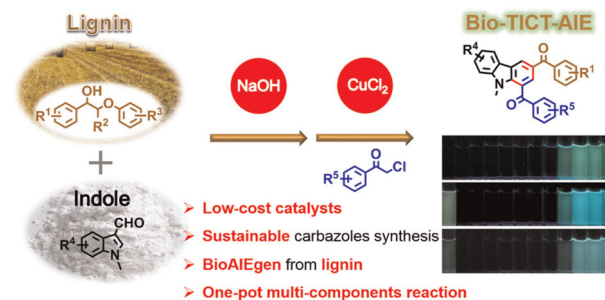
Kai Lan, Hannah Szu-Han Wang, Tessa Lee, Camilla Abbati de Assis, Richard A. Venditti, Yong Zhu and Yuan Yao*



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Sustainable production of carbazole-based BioAIEgens from lignin major motifs

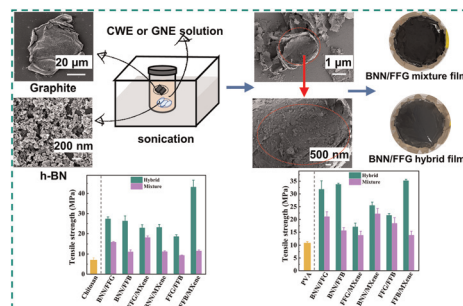
Jianwei Ji, Chuangchi Ding, Shouji Li, Tenglong Guo, Julian Skagfjörd Reinhold, Sen Meng, Wenqing Zhu, Xiaohui Ji, Xu-Min Cai* and Bo Zhang*



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Plant extract-based liquid phase exfoliation enables one-step green production of two-dimensional heterostructure nanohybrids capable of dramatic improvement in polymer properties

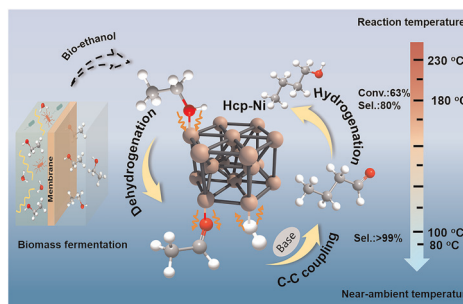
Yingjie Bu, Rhudith B. Cabulong and Beom Soo Kim*



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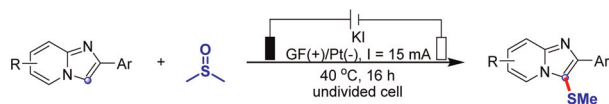
Ultra-low temperature direct reconstruction of biomass fermentation of ethanol to higher alcohols in water over thermostable hcp-Ni

Xinqi Zheng, Bo Chen, Juwen Gu, Songbai Qiu, Xiaoping Wu, Qian Zhang* and Tiejun Wang*



PAPERS

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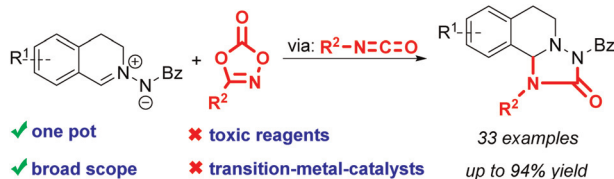


- DMSO as both solvent and methylthio source
- Reagent: non-toxic, cheap and readily available
- Good functional group compatibility and high yields

Electrochemical C3-methylthiolation of imidazopyridines with dimethyl sulfoxide

Zhaoyue Feng, Yingsibing Fan, Congcong Qiang, Ping Liu* and Peipei Sun*

3522



- ✓ one pot
 - ✓ broad scope
 - ✓ 1st cycloaddition of dioxazolones via isocyanates formed *in situ*
 - ✗ toxic reagents
 - ✗ transition-metal-catalysts
- 33 examples
up to 94% yield

Transition-metal-free [3 + 2] cycloaddition of C,N-cycloazomethylimines with *in situ* formed isocyanates from dioxazolones: a facile synthesis of triazolinones

Lei Chen, Peiyao Yang, Qiuying Wang, Zhongxiang Zhao,* Hui Cui* and Liping Zhu*

