

Green Chemistry

Cutting-edge research for a greener sustainable future

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Cover
See Baojun Yi, Yong Sik Ok
et al., pp. 6320–6341.

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Inside cover
See Klaus Müller-Buschbaum
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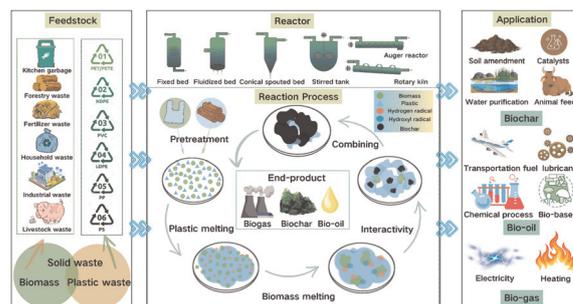
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CRITICAL REVIEWS

6320

Co-pyrolysis of biomass and plastic waste into carbon materials with environmental applications: a critical review

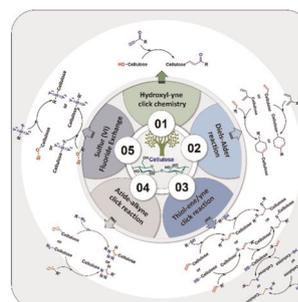
Jiaqi Deng, Baojun Yi,* Ondřej Mašek, Xiangzhou Yuan, Sung Yeon Hwang, Hwai Chyuan Ong, Zewen Hua and Yong Sik Ok*



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Green chemistry perspectives on click chemistry approaches for cellulose functionalization: a critical review

Bowen Li, Chaoqun Xu, Xinyi Zhu, Juan Yu,* Xiaofang Zhang* and Yimin Fan*



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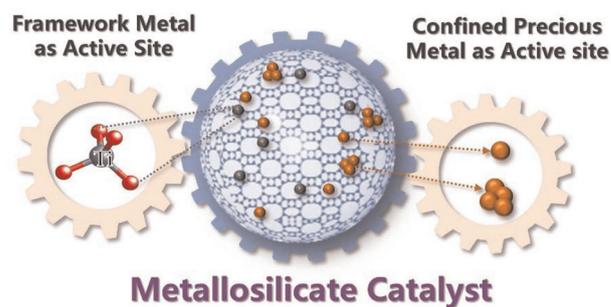
Fundamental questions
Elemental answers

TUTORIAL REVIEW

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Green reactions by metallosilicate catalysts

Hao Xu,* Jie Tuo, Longkang Zhang, Yue Ma, Yejun Guan and Peng Wu*

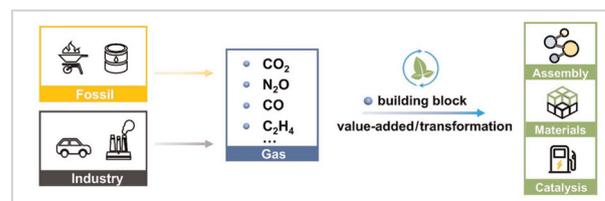


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Gas-constructed assembled materials: a sustainable way for transforming gas into value-added products

Yulian Zhang and Qiang Yan*

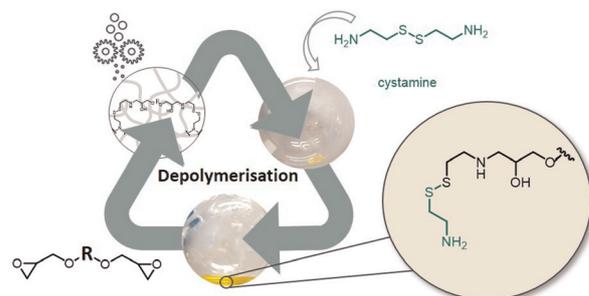


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Closed-loop recycling of bio-based disulfide vitrimer *via* a solvent-and waste-free strategy

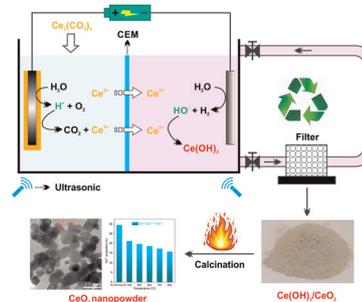
Solène Guggari, Fiona Magliozzi, Samuel Malburet, Alain Graillot, Mathias Destarac and Marc Guerre*



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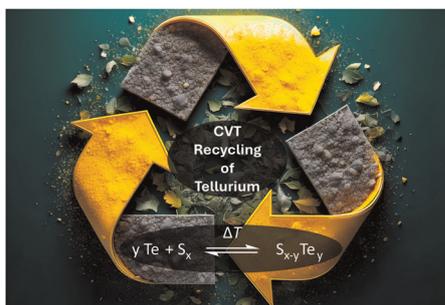
Green electrochemical synthesis of CeO₂ nanopowders *via* an electrolysis–calcination process

Xiaohui Zhang, Xiaodong Liu, Xuan Xu,* Kunyuan Zhao, Haifeng Sun, Peng Jing,* Peng Xu, Baocang Liu and Jun Zhang*



PAPERS

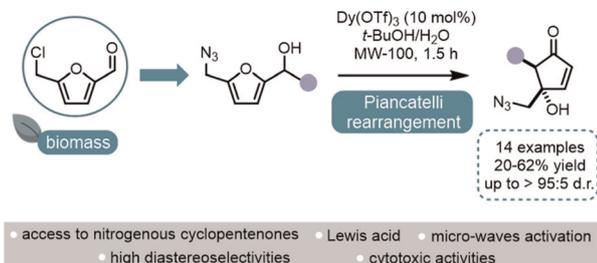
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Tellurium recovery from the thermoelectric materials bismuth telluride and antimony telluride by chemical vapour transport

Julian Burkhart, Lucas H. Bemfert, Eliane L. Mitura, Moritz Maxeiner, Ruben Maile, Alexander E. Sedykh and Klaus Müller-Buschbaum*

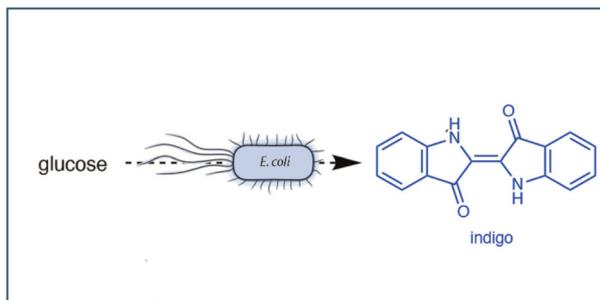
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The Piancatelli rearrangement of AMF (5-azidomethylfurfural) derivatives: a biobased opportunity for the synthesis of nitrogenous cyclopentenones

Clémentine Mayet, Jérôme Bignon and Jean-François Betzer*

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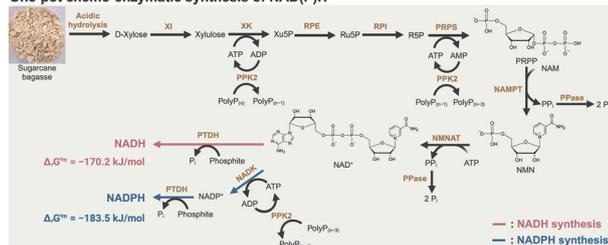


A microbial factory for bio-indigo synthesis: demonstration of sustainable denim dyeing

Matteo Planchestainer,* Lin Chen, Tsvetan Kardashliev, Sven Panke and Martin Held*

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One-pot chemo-enzymatic synthesis of NAD(P)H



Sustainable chemo-enzymatic NAD(P)H synthesis from biomass-derived xylose, polyphosphate, and nicotinamide

Kai-Cheng Wang, Shota Nishikawa, Wan-Wen Ting, Xue-Hong Luo, Takumi Takahashi, Tony Z. Jia, Min-Hsuan Huang, Kosuke Fujishima, I-Son Ng* and Po-Hsiang Wang*

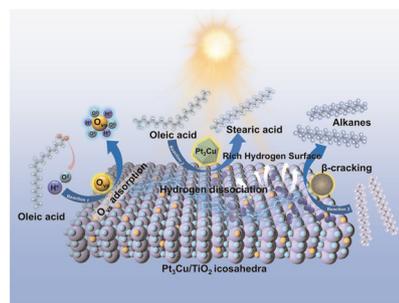


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Rational design of an efficient Pt₃Cu/TiO₂ icosahedral catalyst for bio-aviation fuel production under mild conditions

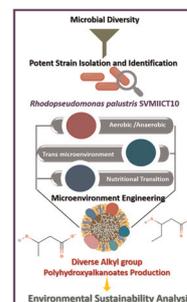
Yichen Nie, Xingyong Li,* Misbah Uddin, Na Liu, Senshen Yu, Phidsavard Keomeesay, Olajide-rasheed Olalekan, Shuaizhe Li, Yubao Chen,* Xuebing Zhao,* Longlong Ma, Zhifeng Zheng and Shijie Liu



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Metabolic channelling in *Rhodospseudomonas palustris* for diversification and sustainability assessment of polyhydroxyalkanoates

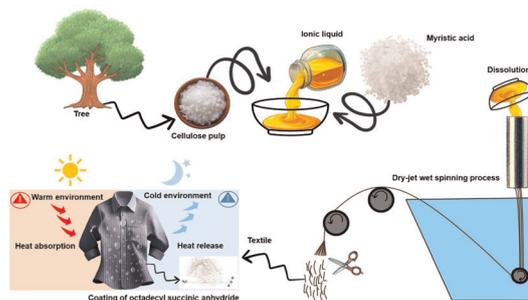
Poonam Kumari and S. Venkata Mohan*



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Multifunctional thermoregulating and water repellent cellulosic textile

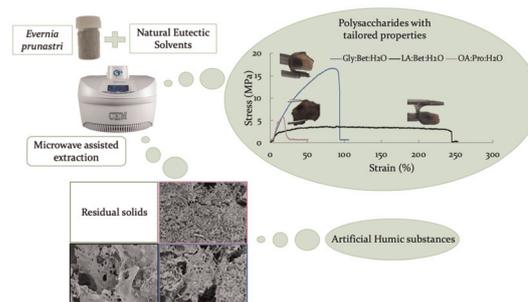
Zahra Madani, Hossein Baniasadi, Pedro E. S. Silva, Maija Vaara, Marike Langhans, Inge Schlapp-Hackl, Lars Evenäs, Michael Hummel and Jaana Vapaavuori*



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Tailoring the extraction process and properties of polysaccharides from the lichen *Evernia prunastri* using natural eutectic solvents following a biorefinery approach

Julie Queffelec,* Maria Dolores Torres Pérez,* Herminia Domínguez, Giulia Ischia and Svitlana Filonenko



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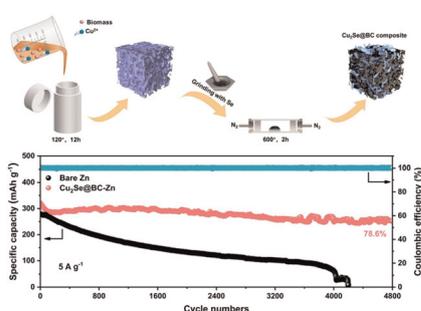
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Electronic structure and interfacial microenvironment engineering over the Ni(OH)₂ nanoarray for boosted electrocatalytic upcycling of polyethylene terephthalate

Xinci Hu, Wei Qiao, Yuxin Hu, Fengli Li, Yuting Yang, Zhihong Jiang, Yu Yu, Jingyun Fang and Ping Li*

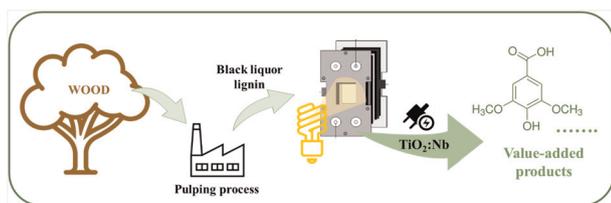
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Building a multifunctional Cu₂Se@biomass carbon composite interfacial layer on a zinc anode for stable aqueous zinc-ion batteries

Wenjing Zheng, Tieran Zhou, Hao Zhou, Jie Guan, Fei Wang, Lin Zhu,* Zhongti Sun* and Kan Zhang*

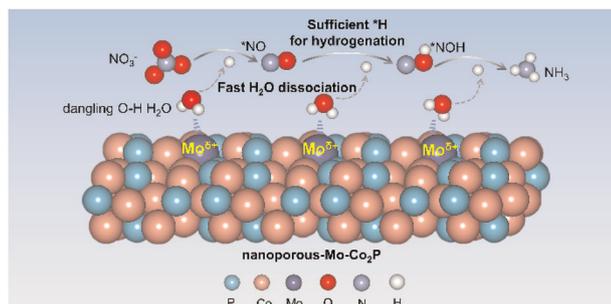
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Insights into photoelectrocatalytic lignin oxidation to value-added products using a niobium-doped titanium dioxide photoanode

Daniela F. S. Morais, Luiza M. G. Sena, Joana M. Ribeiro, Telmo da Silva Lopes, Paula Dias, Adélio Mendes, Carina A. E. Costa, Alírio E. Rodrigues, Susana R. S. Pereira, Paula C. Pinto, Rui A. R. Boaventura, Carlos J. Tavares, Vítor J. P. Vilar* and Francisca C. Moreira*

6556



Electron-deficient Mo sites enhance electrochemical nitrate reduction to ammonia by promoting water dissociation

Xue Zhou, Wence Xu,* Yunduo Huang, Zhonghui Gao, Yanqin Liang, Hui Jiang, Zhaoyang Li, Fang Wang,* Shengli Zhu* and Zhenduo Cui

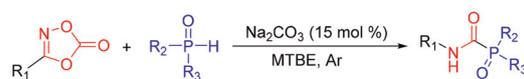


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Metal-free carboxamidation of P(O)H compounds with *in situ* formed isocyanates from dioxazolones: a convenient access to carbamoylphosphine oxides

Yong Zhao, Longyang Chen, Guohao Xu, Shanshan Meng, Chuan Fu, Pengxiang Xu,* Yuxing Gao* and Yufen Zhao



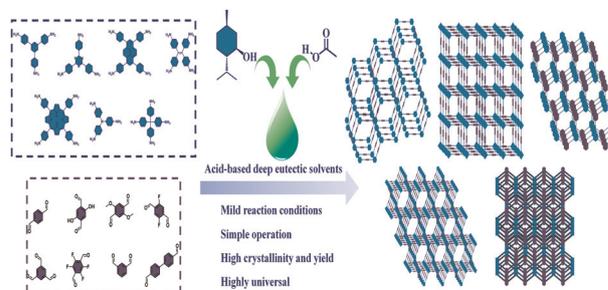
R₁ = aryl, alkyl; R₂, R₃ = aryl, alkyl, alkoxy

- mild, metal-free, additive-free conditions
- broad scope and easy-to-handle
- modification of drug molecules
- 45 examples, up to 91% yield
- no toxic reagents
- C-P formation

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Gentle and rapid synthesis of imine-linked covalent organic frameworks in acetic acid-based deep eutectic solvents

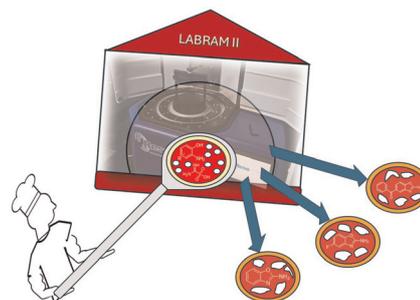
Quanyuan Qiu, Guanwei Li, Chenxi Shi, Yueren Zeng, Kunchi Xie, Ke Wang, Zhen Song, Zhenjie Zhang and Xiaoqing Lin*



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Oxidized thiourea derivatives: uncovering new frontiers with resonant acoustic mixing (RAM)

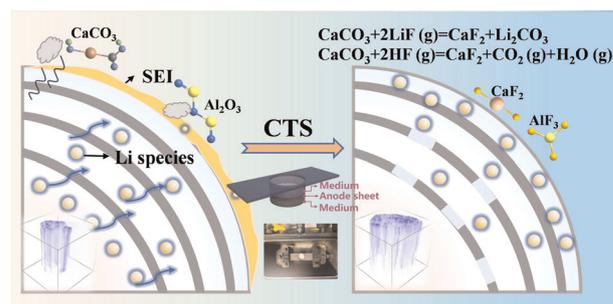
Pietro Caboni, Francesco Basoccu, Shyamal Kanti Bera and Andrea Porcheddu*



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Flash recovery of lithium from spent anode graphite by carbothermal shock and water leaching

Duanmei Song, Beikai Zhang, Hongbiao Du, Jing Wu, Jiadong Yu* and Jinhui Li



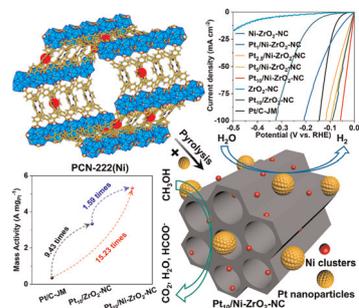
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Bio-waste derived Ni single-atom catalysts with Ni-pyridine-N₄ active sites for efficient *N*-alkylation of alcohols and amines

Yuxin Zhu, Qiudi Zhu, Youjuan Tan, Hongqin Wang, Xuefei Liu, Wei Gong,* Dongdong Ye* and Xianglin Pei*

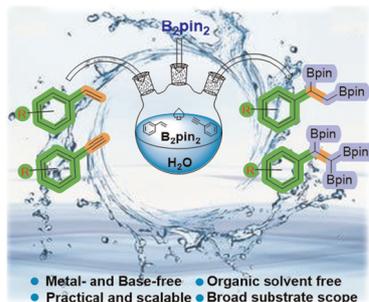
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Synergism of tiny Ni clusters and Pt nanoparticles promoting efficient and stable electrocatalytic methanol oxidation and hydrogen evolution by water electrolysis

Jie Huang, Min Tian, Liang Tong, Lihua Zhu,* Lingling Li, Xianping Liao, Qingsheng Gao, Weizhen Wang, Zhiqing Yang, Tongxiang Liang and Hengqiang Ye

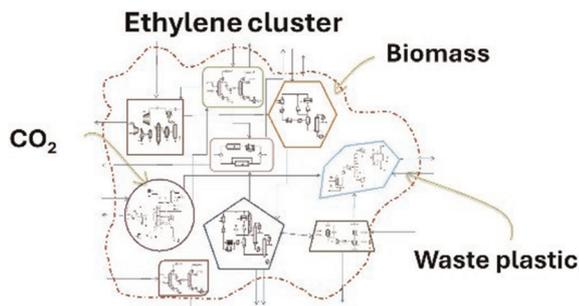
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Water-assisted diboron activation: efficient synthesis of alkyl 1,2-bis(boronates) and 1,1,2-tris(boronates)

Kiran S. Patil, Shivakumar Reddappa, Maruti Suryavansi, Srinivasa Budagumpi, D. H. Nagaraju, Manoj V. Mane* and Shubhankar Kumar Bose*

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Re-wiring petrochemical clusters: impact of using alternative carbon sources for ethylene production

James Tonny Manalal,* Mar Pérez-Fortes and Andrea Ramírez



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Design of environmentally degradable polyethylene-like polyesters and eco-friendly recycling via commercial enzymes

Hanxu Zhu, Han Hu,* Xingyu Ouyang, Xiaokun Hong, Qingyang Luan, Jiayi Li,* Jinggang Wang,* Dong-Qing Wei and Jin Zhu

