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Green Chemistry

Cutting-edge research for a greener sustainable future

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Cover
See Sara Iborra, Avelino Corma *et al.*, pp. 9118–9131.

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Inside cover
See Xiujuan Li *et al.*, pp. 9132–9141.

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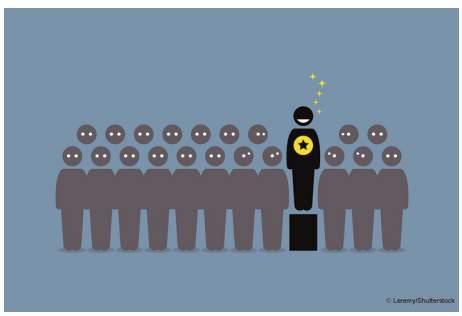
EDITORIAL

8893

Outstanding Reviewers for *Green Chemistry* in 2023

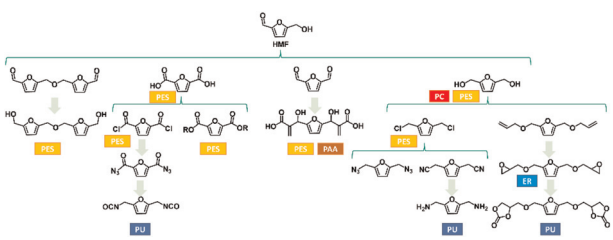


CRITICAL REVIEWS

8894

Beyond 2,5-furandicarboxylic acid: *status quo*, environmental assessment, and blind spots of furanic monomers for bio-based polymers

Mattia Annatelli, Julián E. Sánchez-Velandia, Giovanna Mazzi, Simão V. Pandeirada, Dimitrios Giannakoudakis, Sari Rautiainen, Antonella Esposito, Shanmugam Thiyagarajan, Aurore Richel, Konstantinos S. Triantafyllidis, Tobias Robert, Nathanael Guigo, Andreia F. Sousa, Eduardo García-Verdugo* and Fabio Aricò*



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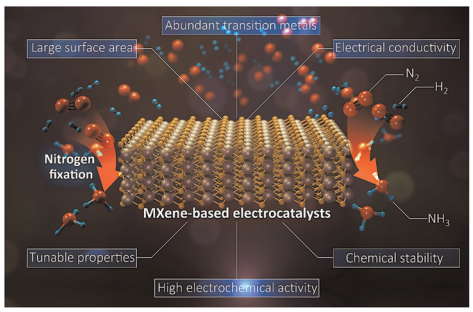
CRITICAL REVIEWS

8942

Next-generation nitrogen fixation strategy: empowering electrocatalysis with MXenes

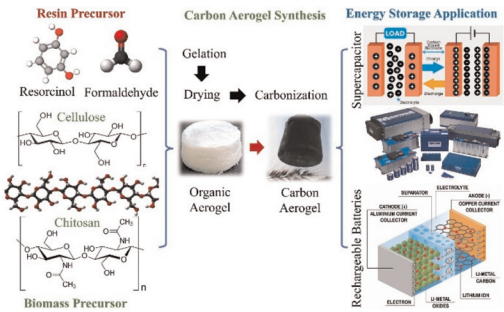
Siavash Iravani,* Atefeh Zarepour, Arezoo Khosravi, Rajender S. Varma* and Ali Zarrabi*



8969

Progress in the synthesis of carbon aerogels for advanced energy storage applications

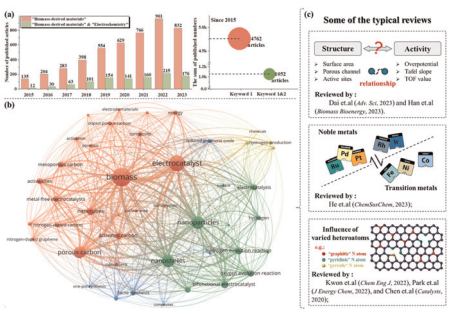
Yafei Shen* and Jinbei Yang



9005

Rational design of biomass-derived electrocatalysts for hydrogen/oxygen evolution reactions: a synthetic strategy for multiple components and their corresponding properties

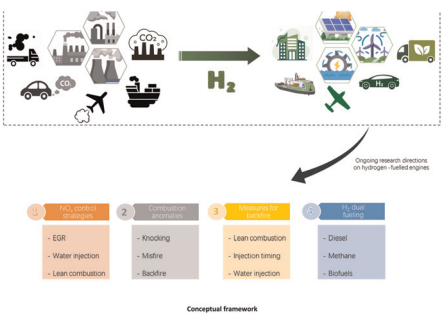
Xiuzheng Zhuang, Huiyi Liang, Xiaohong Hu, Song Li, Xinghua Zhang, Qi Zhang and Longlong Ma*



9025

Race towards net zero emissions (NZE) by 2050: reviewing a decade of research on hydrogen-fuelled internal combustion engines (ICE)

Jeffrey Dankwa Ampah, Chao Jin,* Sandylove Afrane, Abdulfatah Abdu Yusuf, Haifeng Liu* and Mingfa Yao



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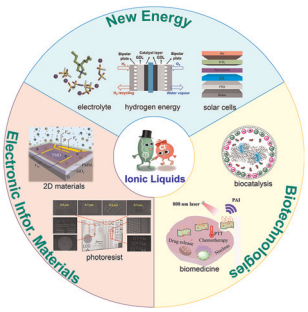
TUTORIAL REVIEWS

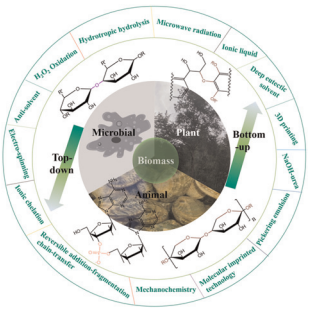
9048



The advanced applications of ionic liquids in new energy, electronic information materials, and biotechnologies

Suojiang Zhang,* Yuhong Huang, Lan Zhang, Yanrong Liu, Qingqing Miao, Ruixia Liu, Weizhen Zhao, Yanyan Diao and Kun Dong

9075



Towards the sustainable production of biomass-derived materials with smart functionality: a tutorial review

Ruibin Wang, Youguang Feng, Dongqi Li, Kaixin Li* and Yong Yan*

COMMUNICATIONS

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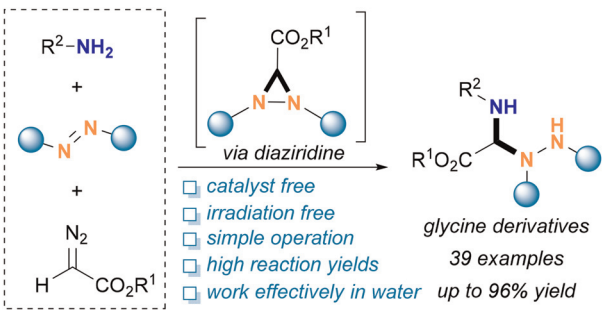
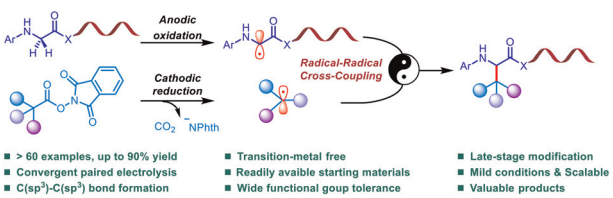


Catalyst-free synthesis of hydrazino-containing glycine derivatives *via* a diaziridine *in situ* formation/ring-opening cascade

Chang-Long Rong, Qiang-Qiang Li* and Jun Xuan*

9110



Metal-free decarboxylative C(sp^3)–C(sp^3) bond formation for the synthesis of unnatural amino acids and peptides *via* convergent paired electrolysis enabled radical–radical cross-coupling

Zenghui Ye, Na Chen, Hong Zhang, Yanqi Wu and Fengzhi Zhang*

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PAPERS

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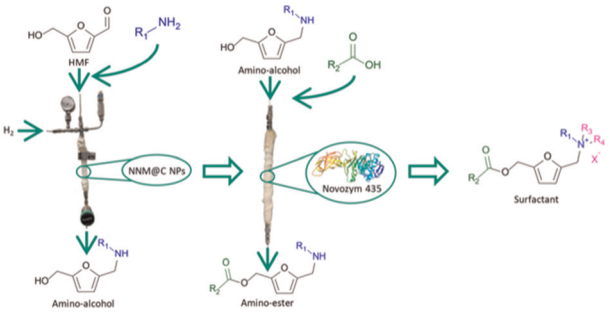
Chemoenzymatic synthesis of amino-esters as precursors of ammonium salt-based surfactants from 5-hydroxymethylfurfural (HMF)

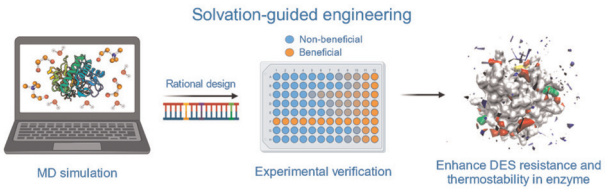
Carlos Moriana Herraiz, Karen S. Arias, Maria J. Climent, Sara Iborra* and Avelino Corma*



9132

Harnessing solvation-guided engineering to enhance deep eutectic solvent resistance and thermostability in enzymes

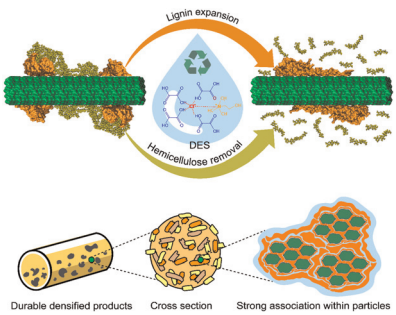
Yijie Sheng, Haiyang Cui, Xinyue Wang, Minghui Wang, Ping Song, He Huang and Xiujuan Li*



9142

Molecular origins of enhanced bioproduct properties by pretreatment of agricultural residues with deep eutectic solvents

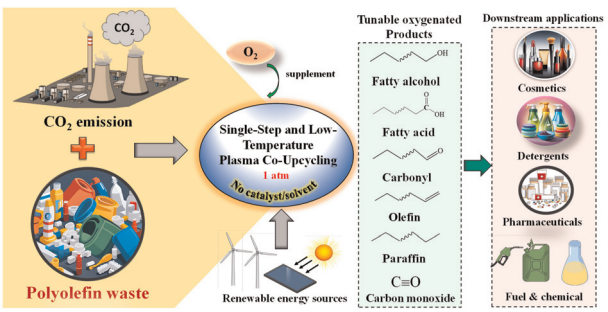
Yan Yu, Zhangmin Wan, Jerry M. Parks, Shahabaddine Sokhansanj, Orlando J. Rojas* and Jeremy C. Smith*



9156

Non-equilibrium plasma co-upcycling of waste plastics and CO_2 for carbon-negative oleochemicals

Harish Radhakrishnan, Samirah Gnangbe, Alif Duereh, Sultan Ul Iffat Uday, Lusi A, Haiyang Hu, Hui Hu, Mark Mba Wright* and Xianglan Bai*



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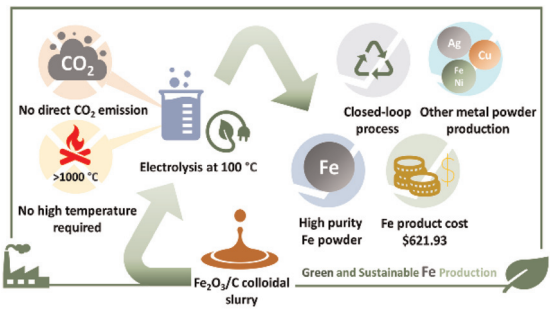
9176



Sustainable iron production *via* highly efficient low-temperature electrolysis of 3D conductive colloidal electrodes

Panya Thanwisai, Zeyi Yao, Muntasir Shahabuddin, Jiahui Hou, Jinzhao Fu, Adam C. Powell IV and Yan Wang*

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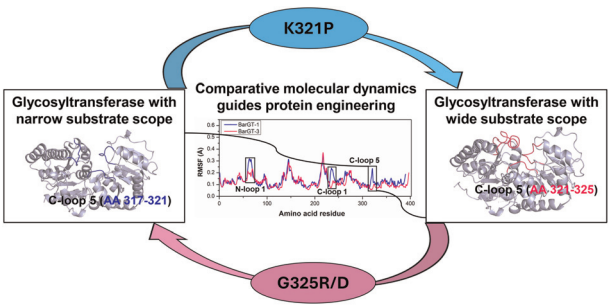

A comparative molecular dynamics approach guides the tailoring of glycosyltransferases to meet synthetic applications

Peng Zhang, Shuaiqi Meng, Zhongyu Li, Dennis Hirtz, Lothar Elling, Leilei Zhu, Yu Ji* and Ulrich Schwaneberg*

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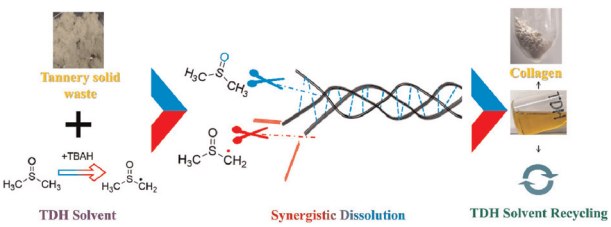

Extraction of collagen from bovine tannery solid waste preserving original conformation *via* radical initiation and hydrogen bond reformation

Fang Luo, Zhuo Liu, Peng Zhou, Siqi Wang, Lingzhi He, Yi Wu, Lidan Du, Mengjie Jiao, Zhuwei Liao and Zhuqi Chen*

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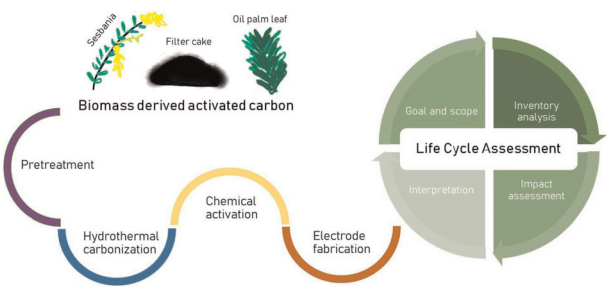

Comparative environmental impact assessment of activated carbon electrodes for supercapacitors

Santamon Luanwuthi, Thanyapak Akkharaamnuay, Arisa Phukhrongthung and Channarong Puchongkawarin*

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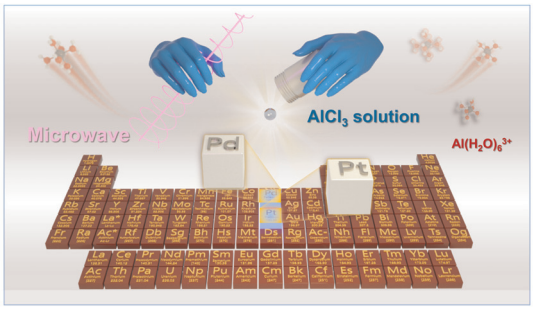
Green palladium and platinum recovery by microwave-assisted aluminum chloride solution

Anting Ding, Chuanying Liu and Chengliang Xiao*



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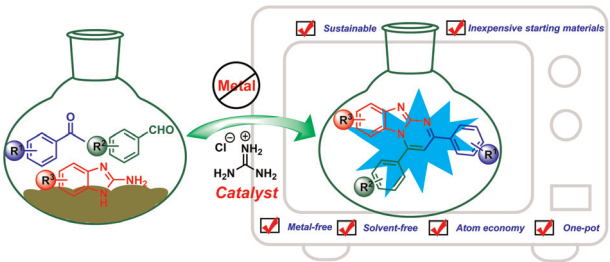
Guanidine hydrochloride (GuHCl)-catalysed microwave-mediated solvent- and metal-free synthesis of pyrimido[1,2-*a*]benzimidazole from aryl aldehyde and aryl methyl ketone

Rushikant Jagdale, Mohammad Zahid Hussain, Koushik Goswami, Ramalingam Peraman and Anupam Jana*



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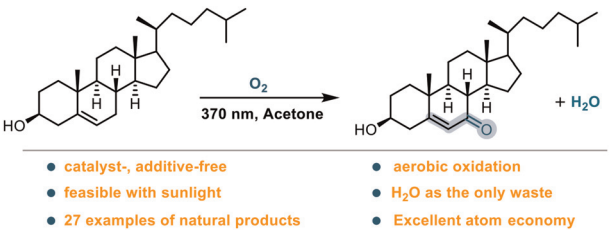
Selective C(sp^3)–H bond aerobic oxidation enabled by a π-conjugated small molecule-oxygen charge transfer state

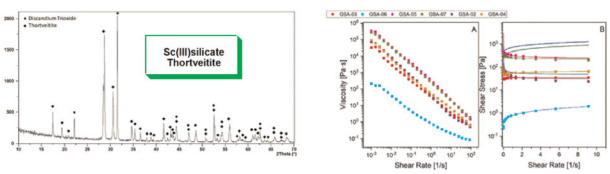
Panyi Huang, Yan Xu, Haijing Song, Jiayin Wang, Jiayang Wang, Jianjun Li, Bin Sun* and Can Jin*



9250

A new scandium based catalyst for the green synthesis of polyols-polyesters starting from waste raw materials

Onofrio Losito, Lorenzo Veronico, Alessia De Cataldo, Michele Casiello, Caterina Fusco, Luigi Gentile, Ernesto Mesto, Emanuela Schingaro and Lucia D'Accolti*



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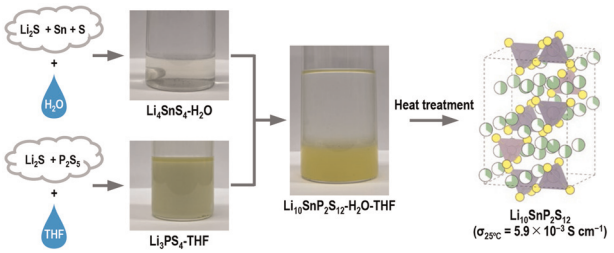

Aqueous solution synthesis of lithium-ion conductive tin-based sulphide electrolytes

Takuya Kimura, Hayata Tanigaki, Atsushi Sakuda, Masahiro Tatsumisago and Akitoshi Hayashi*

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