

# Green Chemistry

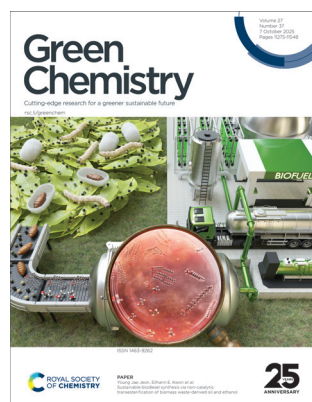
Cutting-edge research for a greener sustainable future

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### Cover

See Young Jae Jeon, Eilhann E. Kwon *et al.*, pp. 11343–11353.

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### Inside cover

See Magno Aparecido Gonçalves Trindade *et al.*, pp. 11354–11364.

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## EDITORIAL

11284

### Chemistry finds green pastures in Spain

Pedro Lozano,\* Arjan W. Kleij\* and Eduardo Garcia-Verdugo\*

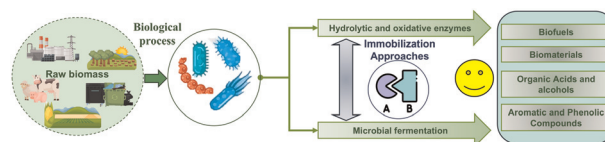


## CRITICAL REVIEW

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### Enzyme immobilization advances: a key to unlocking renewable bioenergy potential

Mohamed E. Hassan, Xuhai Zhu, Evanildo F. de Souza, Jr., Magdy M. Elnashar and Fang Lu\*



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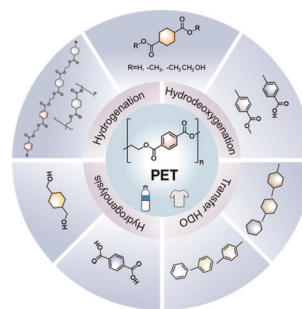
Fundamental questions  
Elemental answers

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## Catalytic reductive conversion of polyethylene terephthalate (PET) plastic waste into fuels, valuable chemicals and degradable polymers

Jingyu Liu, Shuyan Yi, Jingwen Cheng and Sibao Liu\*

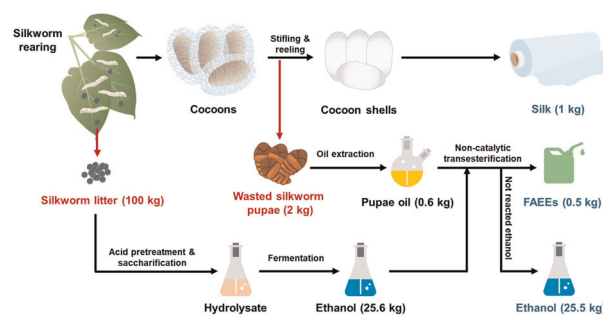


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## Sustainable biodiesel synthesis via non-catalytic transesterification of biomass waste-derived oil and ethanol

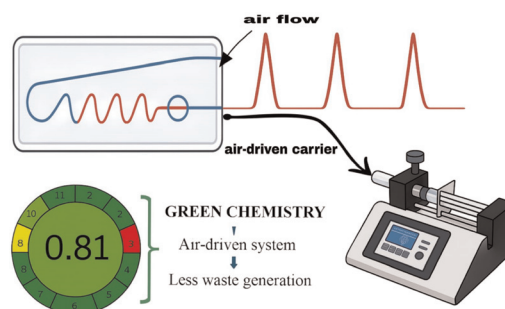
Jee Young Kim, Dohee Kwon, Jun Ho Yim, Youngju Kim, Young Jae Jeon\* and Eilhann E. Kwon\*



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## Beyond bubbles: greener flow-based electroanalysis by an air-driven carrier

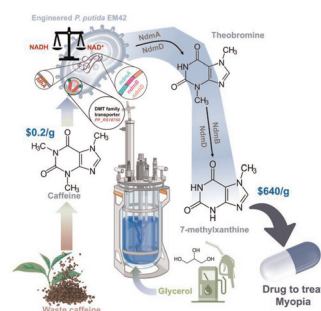
Tayná Silva Bernardino Barros, Eloise de Lima Osorio, Cláudio Teodoro de Carvalho, Raphael Rodrigues, Lucio Angnes and Magno Aparecido Gonçalves Trindade\*



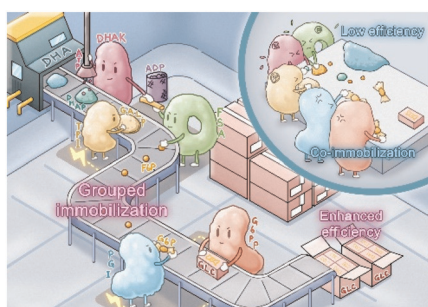
11365

Engineered *Pseudomonas putida* monoculture system for green synthesis of 7-methylxanthine

Bhagya Jayantha, Shuyuan Zhang, Ryan M. Summers, Gamini P. Mendis and Lahiru N. Jayakody\*



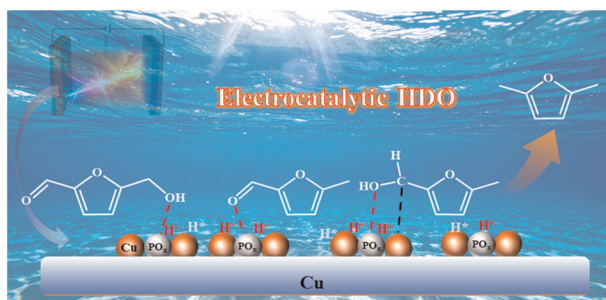
11380



### Boosting multi-enzyme cascade activity for glucose biosynthesis by kinetics-oriented grouped immobilization

Ruobing Xin, Yuyao Wang, Qiang Chen,\*  
Jiangang Yang,\* Yujun Wang\* and Guangsheng Luo

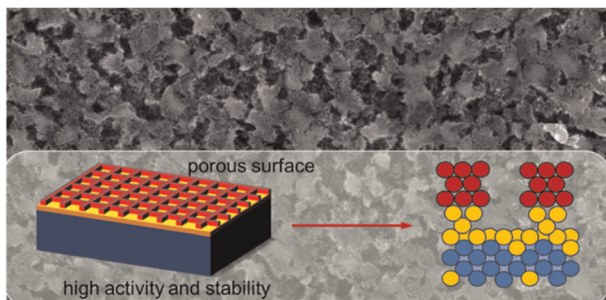
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### Electrocatalytic hydrodeoxygenation of 5-hydroxymethylfurfural to 2,5-dimethylfuran over PO<sub>x</sub> modified Cu electrocatalysts: the promoting role of PO<sub>x</sub>

Yiwei Zhao, Chao Zhang,\* Zuhang Jin, Cheng Tao and Tingting Xiao

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### Nanoporous Ti layer encapsulating stainless steel for alkaline water electrolysis: superior electrocatalytic and structural stability under industrially relevant conditions

Peizong Duan, Kai Zhao, Xiaoyi Jiang, Yuchen Liu, Le Ke, Xiude Wang, Liuyuan Ran, Xian-Zong Wang and Ning Yan\*

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### Dynamic tailoring of the gradient porosity of biomass-derived porous carbons for highly effective CO<sub>2</sub> capture

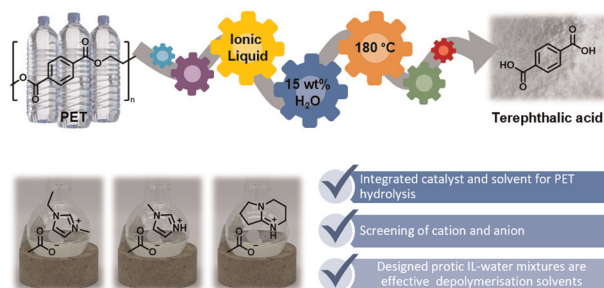
Weiwei Shi, Yanzhen Guo, Qixin Lu, Haitao Li, Yachao Liang, Faxue Ma, Baocheng Yang and Binbin Chang\*





## PAPERS

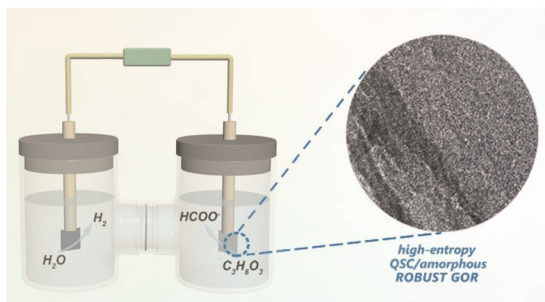
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### The acetate anion promotes hydrolysis of poly(ethylene terephthalate) in ionic liquid–water mixtures

Maariyah Y. Suleman, Harriet L. Judah, Panagiotis Bexis, Paul Fennell, Jason P. Hallett and Agnieszka Brandt-Talbot\*

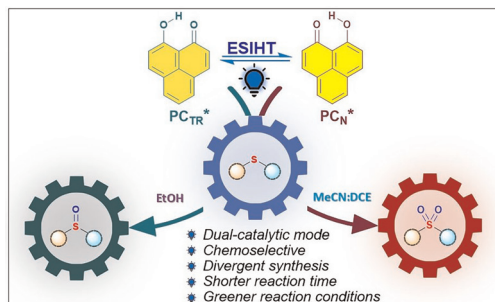
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### A quasi-single-crystalline/amorphous high-entropy layered hydroxide for robust glycerol valorization to formate

Wenqian Zheng, Xianghui Pang, Changgang Dong, Liheng Sun, Jiaqi Guo, Pin Hao, Fengcai Lei, Xu Sun\* and Junfeng Xie\*

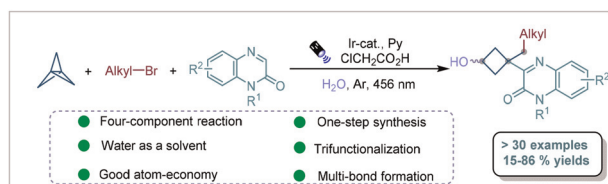
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### Insights into the excited state of a phenalenyl-based photocatalyst for facile divergent synthesis of sulfoxides and sulfones

Vishali Pathania, Mall Akanksha, Shubhangi Majumdar, Prमित K. Chowdhury and Sudipta Raha Roy\*

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### Photocatalytic synthesis of 3,3-disubstituted cyclobutanols via trifunctionalization of [1.1.1] propellane

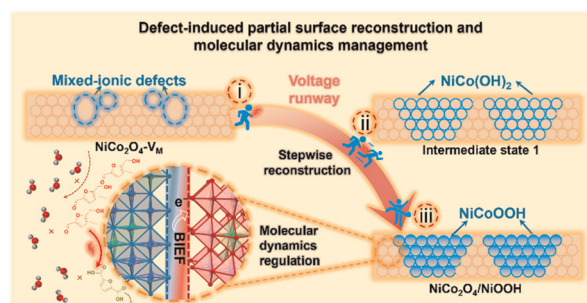
Jiacheng Li, Yue Wang, Yijun Jin, Longyi Li, Guoxiang Bao, Xingyi Zhu\* and Xinpeng Jiang\*



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### Electrochemical upgrading of 5-hydroxymethylfurfural via a defect-rich $\text{NiCo}_2\text{O}_4$ array

Xiao Zhou, Zhixian Mao, Wen Li, Zeting Gong, Wanxin Liu, Yi Li, Di Yin, Yijin Wu,\* Yongsheng Yao\* and Xiaolin Wei\*



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### Life cycle assessment and technoeconomic analysis of naphtha cracking electrification using plasma for carbon neutrality

Serang Kwon and Seong-kyun Im\*

