

# Green Chemistry

Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

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**Inside cover**  
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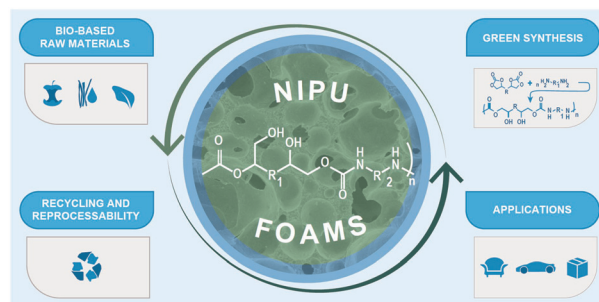
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7403

### Cutting-edge development of non-isocyanate polyurethane (NIPU) foams: from sustainable precursors to environmental impact evaluation

Federica Orabona, Federica Recupido, Giuseppe Cesare Lama, Krzysztof Polaczek, Francesco Taddeo, Tapio Salmi, Martino Di Serio, Letizia Verdolotti\* and Vincenzo Russo\*

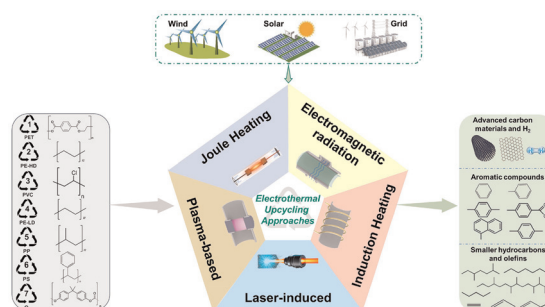


## TUTORIAL REVIEWS

7445

### Electrothermal upcycling of plastic waste

Chunlin Luo, Shuai Liu, Tao Wu, Jianli Hu and Yuxin Wang\*



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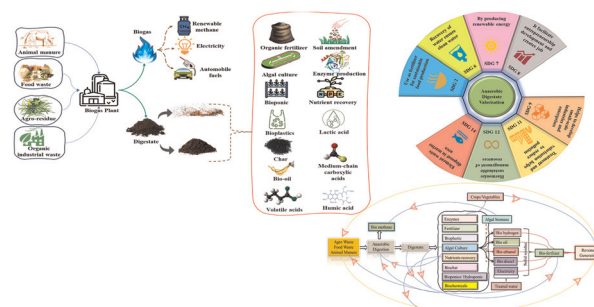


## TUTORIAL REVIEWS

7472

# Anaerobic digestion-derived digestate valorization: green chemistry innovations for resource recovery and reutilization

Samuel Jacob, Debajyoti Kundu,\*  
Anjani Devi Chintagunta, Sampath Kumar N. S,  
Palas Samanta, Chandan Mahata, Sukhendu Dey,  
R. G. Shibirathna, Arun Barathi, Sunil Kumar,  
Zhiwu Wang and Gaurav Goel

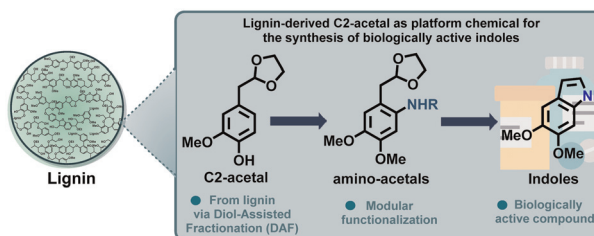


## COMMUNICATIONS

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# Modular synthetic routes to biologically active indoles from lignin

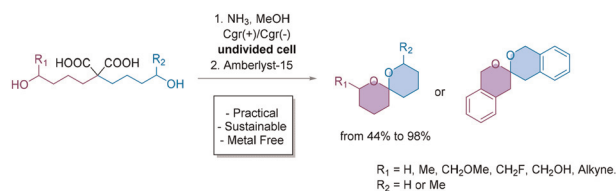
Antonio A. Castillo-Garcia, Jörg Haupenthal, Anna K. H. Hirsch and Katalin Barta\*



7513

# eSpiro: A scalable and sustainable electrosynthetic route to spiroketals via anodic oxidation of malonic acids

Marylise Triacca, Carl D. Reens, Hamish Stephen and Kevin Lam\*

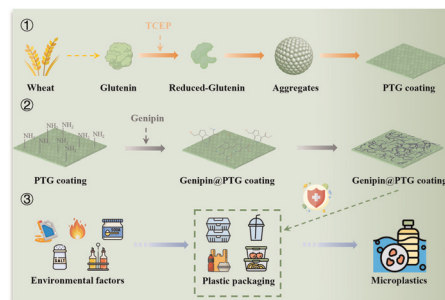


## PAPERS

7518

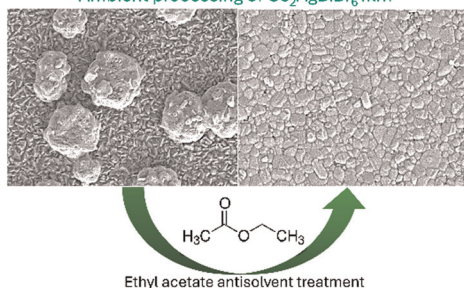
# A self-adhesive glutenin-based coating cross-linked by genipin for suppressing microplastic shedding in harsh environments

Yulun Chen, Qingrun Liu, Jianjun Ding, Shaofeng Yuan,  
Hang Yu, Yahui Guo, Yuliang Cheng, He Qian and  
Weirong Yao\*



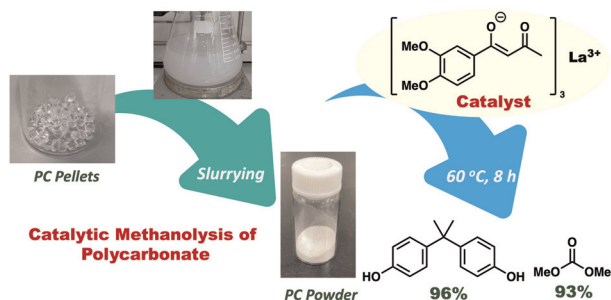
## PAPERS

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Ambient processing of  $\text{Cs}_2\text{AgBiBr}_6$  filmAmbient and green processing of lead-free double perovskite  $\text{Cs}_2\text{AgBiBr}_6$  films

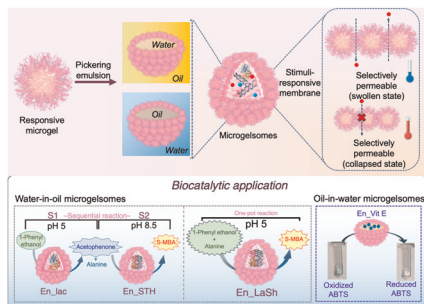
Qian Chen,\* Abhinav K. Singh, Hissah Alghathami, Xuzhao Liu, Kun Huang, Andrew G. Thomas, Richard J. Curry, Laurie J. Phillips and Amanda J. Hughes\*

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Efficient low-temperature depolymerization of polycarbonate catalyzed by lanthanum  $\beta$ -diketonate complexes

Yuhō Kinbara, Haruro Ishitani\* and Shū Kobayashi\*

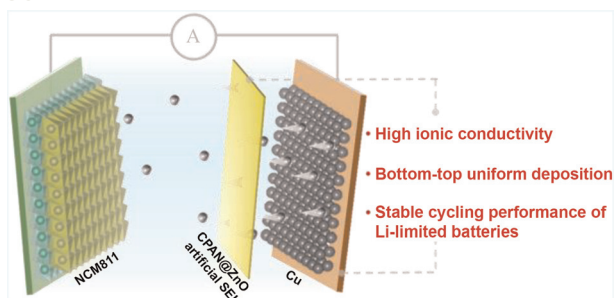
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## Microgel-engineered temperature-responsive microcapsules at liquid interfaces for sequential biocatalytic reactions

Divya Gaur, Wasia Khanam, Nidhi C. Dubey and Bijay P. Tripathi\*

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## High ionic conductivity conjugated artificial solid electrolyte interphase enabling stable lithium metal batteries

Dong Yan, Yuhao Ma, Hao Wang, Weishang Jia, Xiaobin Niu, Haibo Wang,\* Wei Zou\* and Liping Wang\*



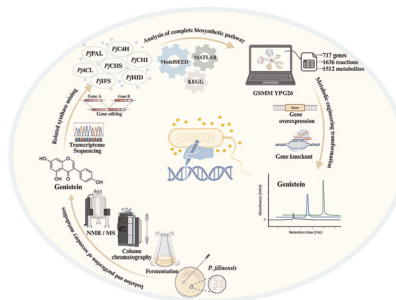


## PAPERS

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# Discovery and green metabolic engineering of a self-sufficient genistein pathway in *Paenibacillus jilinensis*

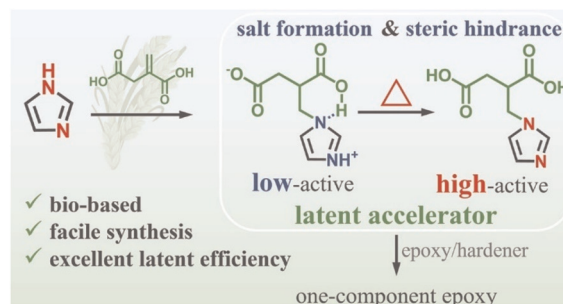
Jia Bao Zhang, Wei Chen, Yong Jun Yang\* and Zhen Zhen Liu\*



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# Bio-based, high-latent-efficiency cross-linking accelerator with steric hindrance and salt formation effects

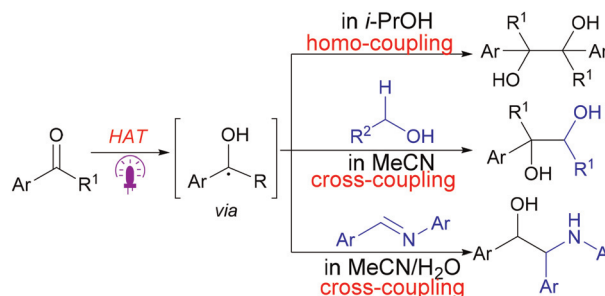
Changhui Jing, Falin Li, Shuai Du, Xin Wang, Fengyuan Zhang and Songqi Ma\*



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# Direct metal-free homo-/cross-coupling of carbonyls with alcohols or imines under ambient light

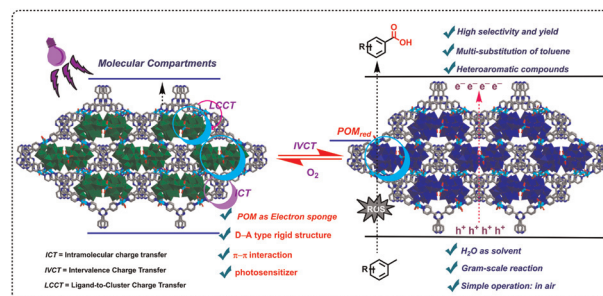
Tongyu Han, Shiqian Zhang, Jinya Li, Quansheng Mou, Jian Gao, Bowen Cao, Chao-Jun Li\* and Mingxin Liu\*



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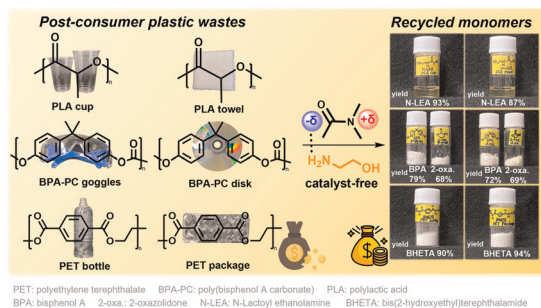
# Photocatalytic oxidation of various C–H bonds by a polyoxometalate nanocluster-dominated compartmentalized metal–organic framework

Jiachen Jiao, Chuanbao Zhang, Hui Sun, Haina Hu, Ziqing Xu, Junwei Zhao, Qiuxia Han\* and Pengtao Ma\*



## PAPERS

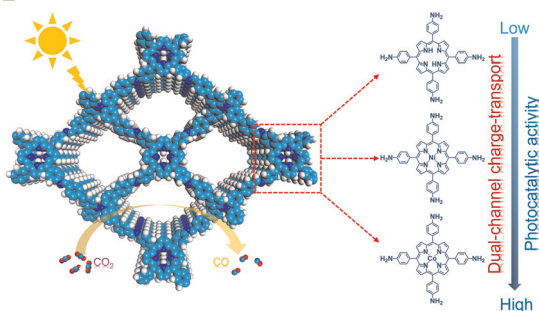
7620



### Solvent-promoted catalyst-free aminolytic degradation for chemical recycling of single and mixed plastic wastes

Kai Cheng, Yu-I. Hsu\* and Hiroshi Uyama\*

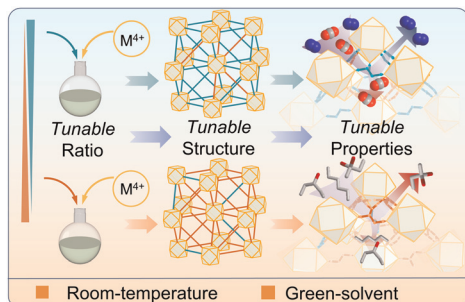
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### Tuning charge-carrier transport in isostructural covalent organic frameworks for enhanced photocatalytic $CO_2$ reduction

Yize Zhang, Haobo Xu, Hangshuai Li, Junrong Jiao,\*  
Xin Wen, Qinggang Meng and Xingwang Lan\*

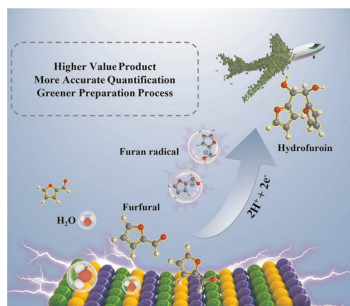
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### Pore tuning in multivariate Zr/Ce-MOFs utilizing C4 natural linkers through room-temperature synthesis for customized adsorptive separation of gases and vapours

Bochun Zhang, Qingqing Yan and Sujing Wang\*

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### Efficient radical-driving electrocatalytic dimerization of furfural to jet fuel precursors using WMoB nanoflakes

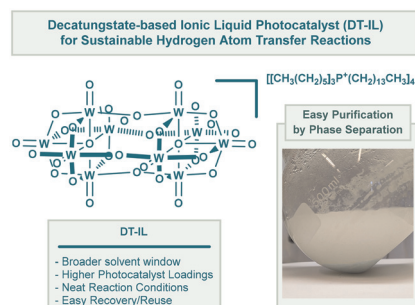
Xiaodie Zhang, Bin Liu, Yuchen Wang, Ying Long,\*  
Zhenhao Xu, Hua-Tay Lin, Rafael Luque\* and Kai Yan\*

## PAPERS

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# Design and application of a decatungstate-based ionic liquid photocatalyst for sustainable hydrogen atom transfer reactions

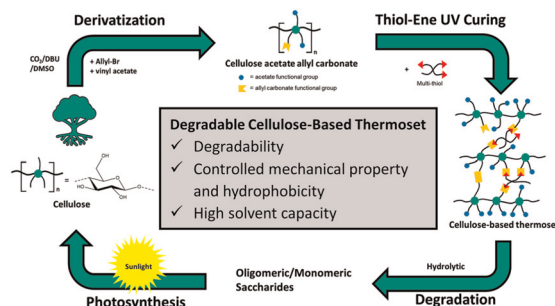
Miguel Claros, Julian Quévarec, Sara Fernández-García and Timothy Noël\*



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# Degradable thermosets from cellulose acetate allyl carbonate *via* thiol–ene click chemistry

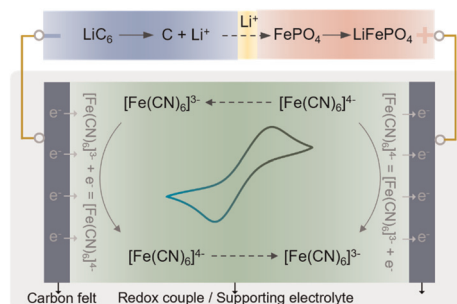
Jaeheon Kim, Emily A. Prebihalo, Mayuri K. Porwal, Nathan B. Rackstraw, Tyler J. Weinstein, Ben Reiner, Lyndsay Leal, Kelli Ogawa, Paul J. Dauenhauer\* and Theresa M. Reineke\*



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# An electrochemical resistor for discharging spent lithium-ion batteries: discharging mechanism and environmental impact analysis

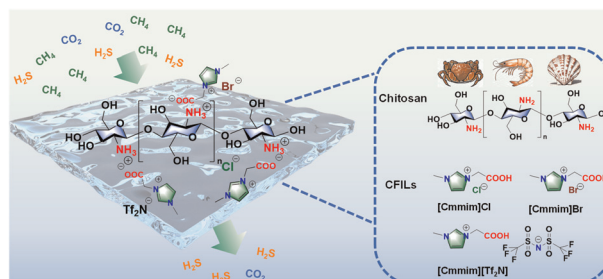
Xin Qu, Fangzhao Pang, Shiyu Wang, Xiang Chen,\* Xinyu Li, Fengyin Zhou, Danfeng Wang, Shuaibo Gao, Dihua Wang and Huayi Yin\*



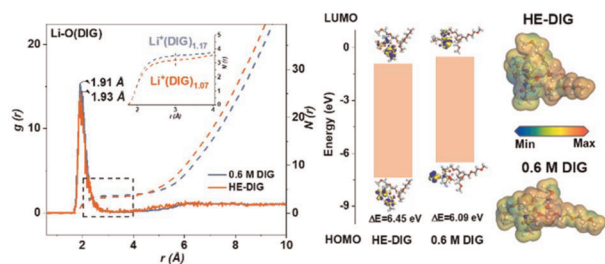
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# Carboxyl-functionalized ionic liquids enable green preparation of chitosan-based ionic gel membranes for H<sub>2</sub>S separation

Ping Zhang, Hao Zhu, Zhuoheng Tu,\* Xingbang Hu and Youting Wu\*



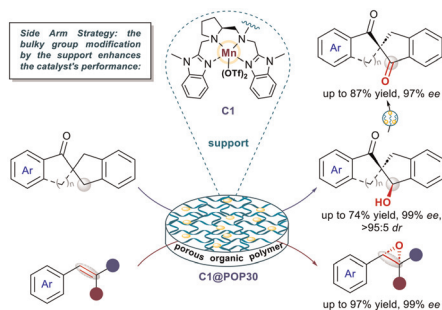
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### An entropy-driven multi-anionic electrolyte for Li-ion batteries with high voltage stability and superior temperature adaptability

Jia-Zhen Zhao, Fu-Da Yu,\* Hai-Nan Wang, Ji-Huai Wu, Zhang Lan, Yi-Ming Xie and Lan-Fang Que\*

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### Supported manganese catalysts achieve highly efficient C–H bond oxidation and olefin epoxidation

Yirui Chen, Yuqi Cheng, Wanting Tong, Hangtao Wu, Chuhan Zhao, Dingguo Song, Fei Ling\* and Weihui Zhong\*

