

# Green Chemistry

Cutting-edge research for a greener sustainable future

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## IN THIS ISSUE

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### Cover

See Daipayan Roy,  
Imad A. Haidar Ahmad *et al.*,  
pp. 109–119.

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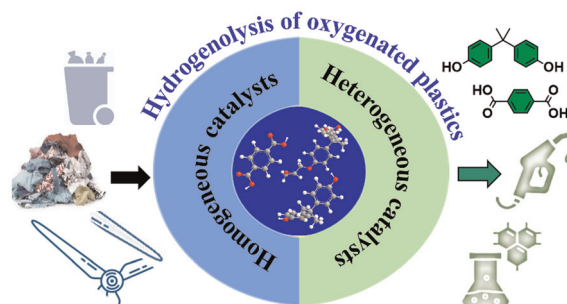
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## CRITICAL REVIEW

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### Challenges and opportunities in catalytic hydrogenolysis of oxygenated plastics waste: polyesters, polycarbonates, and epoxy resins

Harisekhar Mitta, Lingfeng Li,  
Mohammadhossein Havaei, Dambarudhar Parida,  
Elias Feghali, Kathy Elst, Annelore Aerts,  
Karolien Vanbroekhoven and Kevin M. Van Geem\*

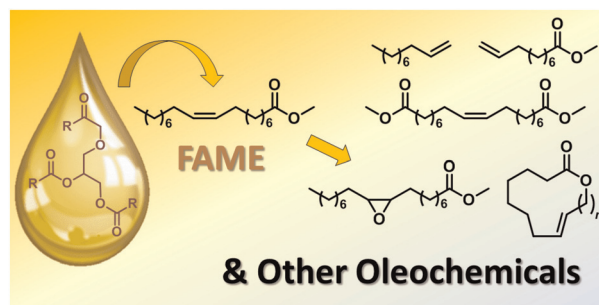


## TUTORIAL REVIEW

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### The chemistry of oleates and related compounds in the 2020s

Pavel V. Ivchenko\* and Ilya E. Nifant'ev



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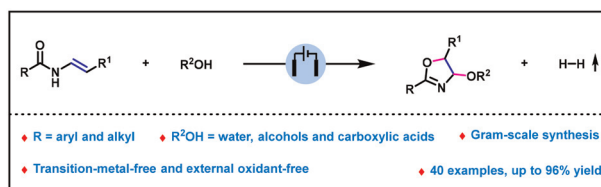
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## COMMUNICATIONS

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**Electrochemical dehydrogenative annulation for the synthesis of 4-oxo-oxazolines**

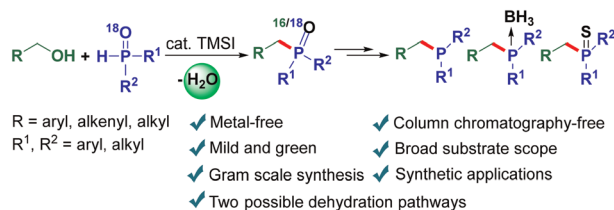
Yong Yuan,\* Xincong Liu, Feng Zhang, Chunyan Bai, Yuyan Tao, Xiazhen Bao, Dongsheng Ji and Congde Huo



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**Metal-free catalytic nucleophilic substitution of primary alcohols with secondary phosphine oxides**

Xiantao Ma,\* Xiaoyu Yan, Jing Yu, Jiarui Guo, Jiakun Bian, Ran Yan, Qing Xu\* and Li-Biao Han\*

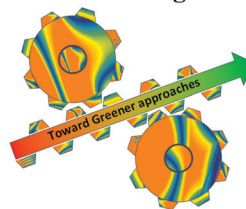


## PAPERS

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**In silico modeling enables greener analytical and preparative chromatographic methods**

Troy T. Handlovic, Daipayan Roy,\* Muhammad Qamar Farooq, Gabriel Mazzi Leme, Kevin Crossley and Imad A. Haidar Ahmad\*

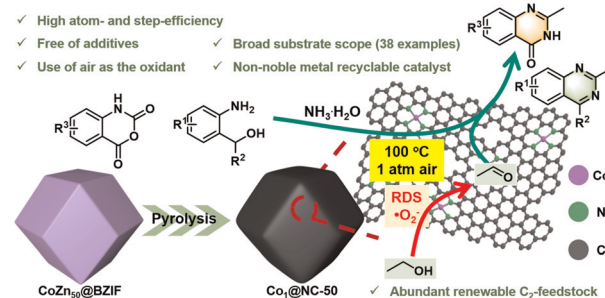
**In Silico Modeling Enables “Greener” Methodology**

- Applied to chromatographic methods at
  - ✓ Analytical scale
  - ✓ Preparative scale
- Less waste generated
- Switch to greener solvents & additives
- Scientific and Robust

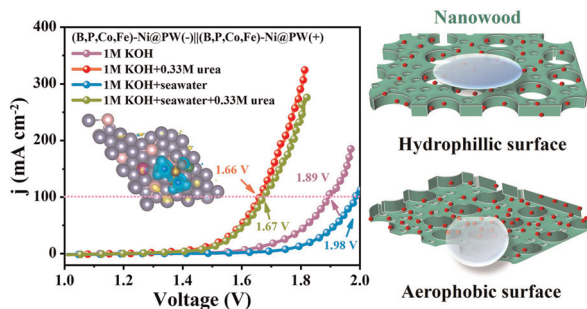
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**Single cobalt atom catalysis for the construction of quinazolines and quinazolinones via the aerobic dehydrocyclization of ethanol**

Xueping Zhang, Kai Xu, Yi Zhuang, Shihao Yuan, Yamei Lin and Guo-Ping Lu\*



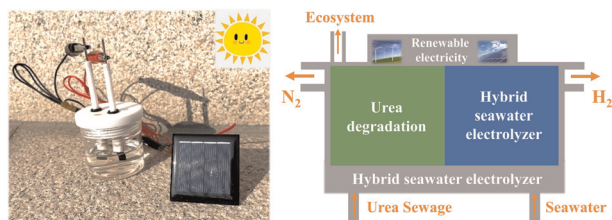
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### (B,P,Co,Fe)-Ni modified on nanowood for boosting seawater urea electro-oxidation

Hongjiao Chen, Kewei Zhang, Yanzhi Xia, Jian Li and Bin Hui\*

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### Crystalline/amorphous c-NiMo/a-NiMoO<sub>x</sub> nanoarrays for urea-assisted energy-saving H<sub>2</sub> production in alkaline seawater

Dongxue Guo,\* Yi Ping, Chuanjiao Wang, Changan Hou and Danhong Wang\*

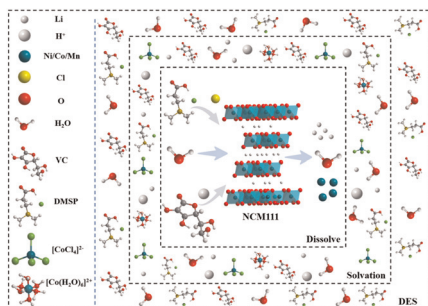
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Hangcen Xie, Rui Xu, Bin Huang, Pingping Lou, Hua-Feng Fei\* and Zhijie Zhang\*

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### High-efficiency leaching of valuable metals from waste lithium-ion ternary batteries under mild conditions using green deep eutectic solvents

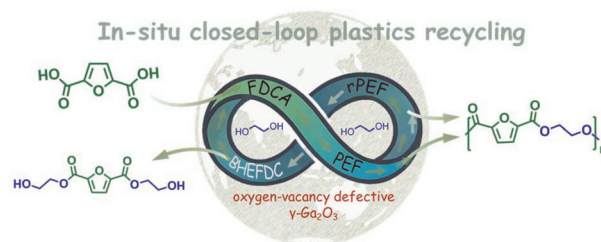
Bo Li, Chengping Li, Jinsong Wang, Rundong Wan, Jiangzhao Chen, Ying Liu, Zhengfu Zhang,\* Yuejing Bin,\* Xiaoping Yang,\* Chongjun Bao and Shaohua Ju



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### A simple, efficient and selective catalyst for closed-loop recycling of PEF *in situ* towards a circular materials economy approach

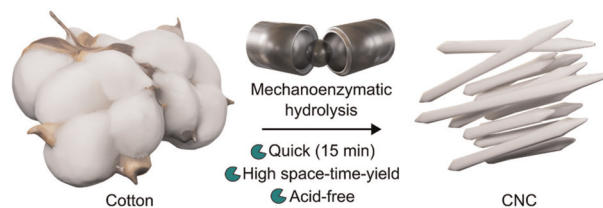
Shaowei Wu, Lu Li,\* Lei Song, Guannan Zhou, Lixin Liu, Hailan Kang,\* Guangyuan Zhou and Rui Wang



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### Mechanoenzymatic hydrolysis of cotton to cellulose nanocrystals

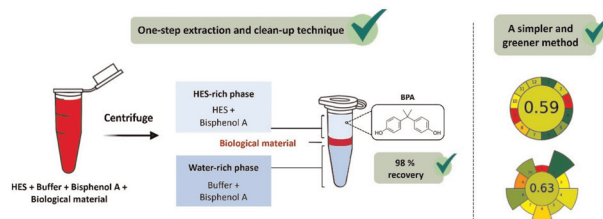
Sandra Kaabel,\* Inge Schlapp-Hackl, Eero Kontturi and Mauri A. Kostiainen



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### Sustainable pretreatment of blood samples using hydrophobic eutectic solvents to improve the detection of bisphenol A

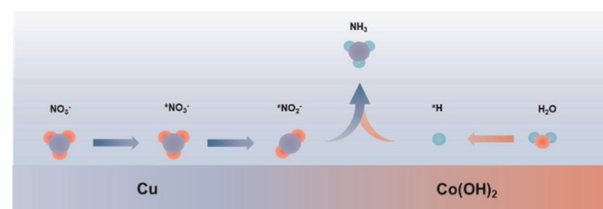
Cariny Polesca, Helena Passos, Ana C. A. Sousa,\* Nguyen Minh Tue, João A. P. Coutinho, Tatsuya Kunisue and Mara G. Freire\*



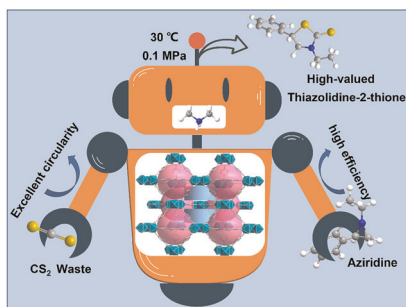
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### Active hydrogen tuning by copper–cobalt bimetal catalysts for boosting ammonia electrosynthesis from simulated wastewater

Chunqi Yang, Chang Liu, Jingwen Zhuang, Ziyang Yang, Aiping Chen, Yuhang Li\* and Chunzhong Li\*



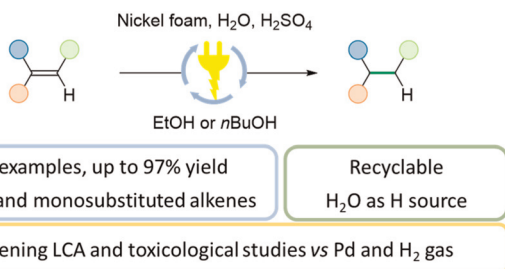
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### High-efficiency green catalytic conversion for waste CS<sub>2</sub> by non-noble metal cage-based MOFs: an access pathway to high-value thiazolidine-2-thione

Wenyu Ding, Xinyu Tang, Sheng Jin, Zhao Li, Dongwei Xu, Xiaomin Kang\* and Zhiliang Liu\*

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### Electrochemical hydrogenation of alkenes over a nickel foam guided by life cycle, safety and toxicological assessments

Pedro J. Tortajada, Therese Kärnman, Pablo Martínez-Pardo, Charlotte Nilsson, Hanna Holmqvist, Magnus J. Johansson and Belén Martín-Matute\*

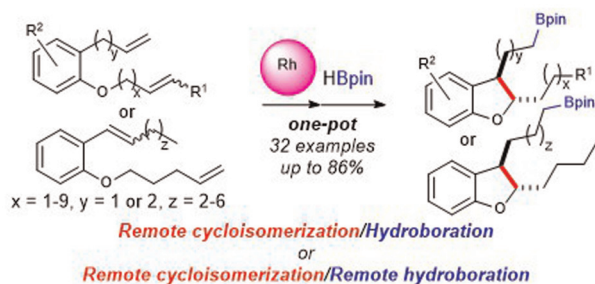
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### A green and efficient strategy to utilize spent SCR catalyst carriers: *in situ* remediation of Cu@TiO<sub>2</sub> for photocatalytic hydrogen evolution

Zhuo Wang, Ling Ma, Bingzhang Chen, Yubo Zhang, Kai Hong Wong, Wei Zhao, Chunxia Wang,\* Guoyong Huang\* and Shengming Xu

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### Multitasking rhodium-catalyzed remote C(sp<sup>3</sup>)-H functionalization reactions of acyclic dienes to yield benzene-fused heterocycles

Yuta Sato, Momoko Nagafuchi, Masaharu Takatsuki, Tsuyoshi Matsuzaki, Takeyuki Suzuki, Makoto Sako and Mitsuhiro Arisawa\*



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## Halogen-bond-assisted radical remote difunctionalization of bicyclo[1.1.1]butane skeletons

Hui Liu, Zhenda Fu, Xingwei Li\* and Songjie Yu\*

