

Green Chemistry

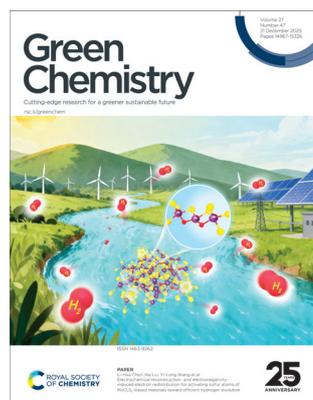
Cutting-edge research for a greener sustainable future

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IN THIS ISSUE

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Cover
See Li-Hua Chen, Kai Liu, Yi-Long Wang *et al.*, pp. 15081–15095.

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Inside cover
See Yaotian Yan, Junlei Qi *et al.*, pp. 15096–15105.

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CRITICAL REVIEW

14978

Can mixed plastics be recycled and upcycled without separation?

Jaime J. M. Pang, Yan Hui Lee, Haonan Zhao, Albert Ong* and Jason Y. C. Lim*

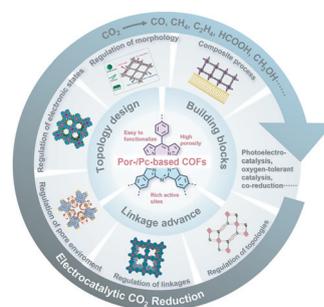


TUTORIAL REVIEWS

15002

Porphyrin and phthalocyanine-based covalent organic frameworks for electrocatalytic CO₂ reduction: from structural design to future perspectives

Yaoqian Feng and Ning Huang*



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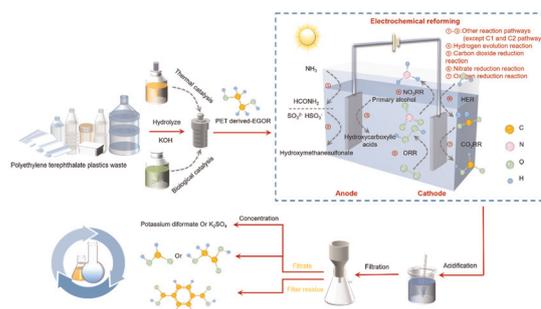
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TUTORIAL REVIEWS

15024

Electrocatalytic reforming of real PET waste plastic to value-added chemicals: mechanisms, coupling technologies, and cascade systems

Yujia Yao, Peiyu Cao, Kailin Li* and Gengxin Xie*

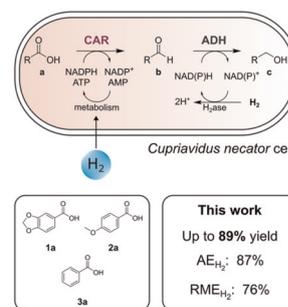


COMMUNICATIONS

15049

Hydrogen-driven, ATP-dependent biocatalytic reduction of carboxylic acids under non-explosive conditions

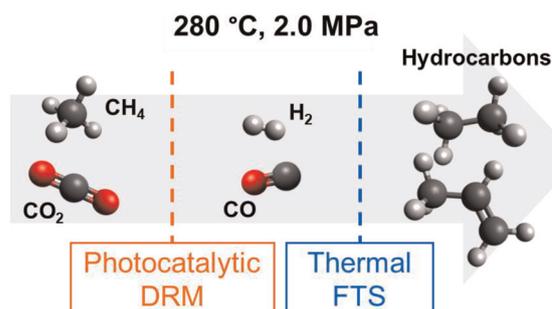
Marianna Karava, Qian Liang, Elske van der Pol, Margit Winkler and Robert Kourist*



15056

Overcoming thermodynamic incompatibilities with photons: multi-carbon hydrocarbons from methane and carbon dioxide via a hybrid photocatalytic dry reforming/Fischer–Tropsch process

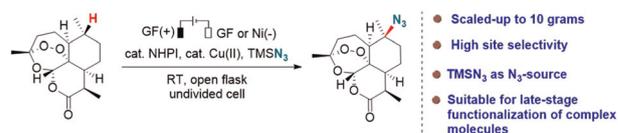
Hiroaki Kaneko, Shusaku Shoji, Yohei Cho, Tomotaka Sugimura, Ayako Hashimoto, Hideki Abe, Akira Yamaguchi and Masahiro Miyauchi*



15061

An electrochemical azidation of least hindered tertiary and benzylic C(sp³)–H bonds

Jianyou Zhao, Jiaoyang Liu, Zhe Zhang, Chengling Deng, Shengkang Qian, Zhehui Liu, Fan Wang,* Shuai Liu* and Zhong-Quan Liu*



COMMUNICATIONS

15067

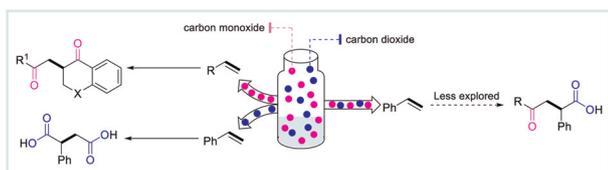
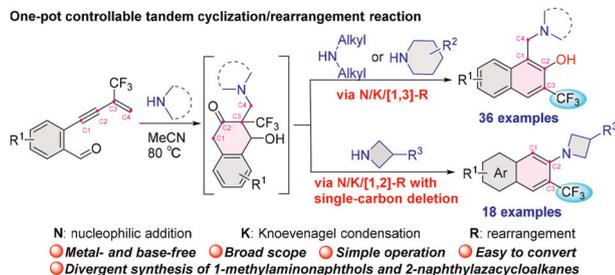


Photo-promoted carbonylative carboxylation of alkenes to synthesize β -alkyl ketocarboxylic acid derivatives with CO and CO₂ as two mixed C1 gaseous molecules

Hefei Yang, Le-Cheng Wang, Yuanrui Wang and Xiao-Feng Wu*

15074

One-pot controllable tandem cyclization/rearrangement reaction

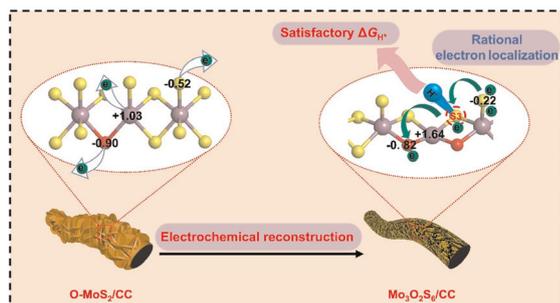


Rearrangement-driven divergent synthesis: a metal-free tandem annulation for CF₃-functionalized 1-(aminomethyl)naphthalen-2-ols and 1-(2-naphthyl)azetidines

Bin Wang, Zekun Li and Hua Cao*

PAPERS

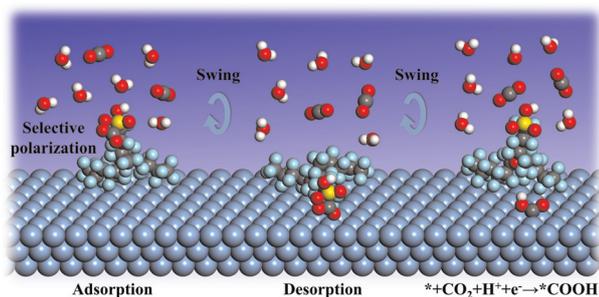
15081



Electrochemical reconstruction- and electronegativity-induced electron redistribution for activating sulfur atoms of MoO_xS_y-based materials toward efficient hydrogen evolution

Xiao-Yu Yang, Rui-Yuan Li, Zhan Liu, Chun-Mu Guo, Xiao-Yun Li, Cui-Fang Ye, Zhao Deng, Jia-Min Lyu, Ming-Hui Sun, Shen Yu, Yu Li, Yi-Yong Huang, Li-Hua Chen,* Kai Liu,* Bao-Lian Su and Yi-Long Wang*

15096



CO₂-affinitive surface of metal/Nafion attributable to selective polarization for superior CO₂RR

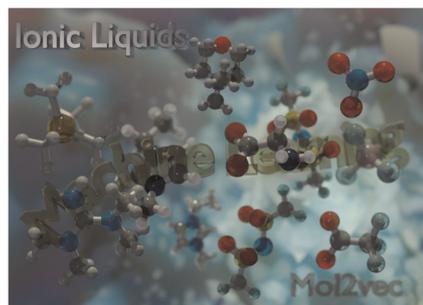
Xianda Zhang, Yaotian Yan,* Yangshuo Liu, Chun Li, Jian Cao and Junlei Qi*



15106

Molecular property prediction for very large databases with natural language processing: a case study in ionic liquid design

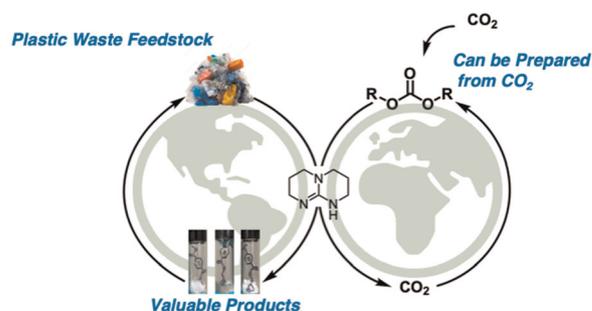
Mood Mohan,* Michelle K. Kidder and Jeremy C. Smith*



15124

Upcycling of polyethylene terephthalate to high-value chemicals by carbonate-interchange deconstruction

Nicholas J. Galan, Isaiah T. Dishner, Bobby G. Sumpter, Vilmos Kertesz, Nabihan B. Abdul Rahman, Felipe Polo-Garzon, Zoriana Demchuk, Tomonori Saito* and Jeffrey C. Foster*



15135

Electrosynthesis of H₂O₂ aqueous solution beyond 30 wt% using sunlight, water and air

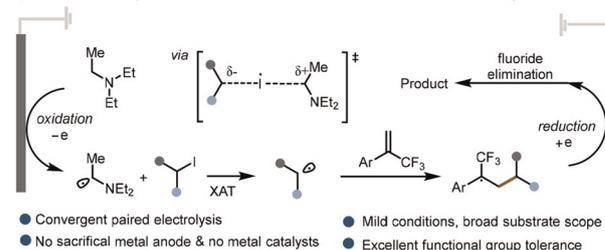
Yuefeng Qiu, Peng Jiang, Wenkai Ye, Jiahao Hu, Wenjie She, Bin Zhang, Tuo Ji, Liwen Mu, Xin Feng, Xiaohua Lu and Jiahua Zhu*



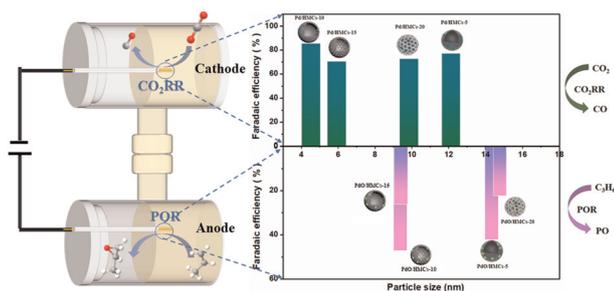
15142

Sequential paired electrolysis-enabled synthesis of antifungal-active *gem*-difluoroalkenes via electrochemical halogen atom transfer

Fuyang Yue, Jiayi Li, Hongjian Song, Yuxiu Liu and Qingmin Wang*

Synthesis of Antifungal-Active *gem*-Difluoroalkenes via Sequential Paired Electrolysis

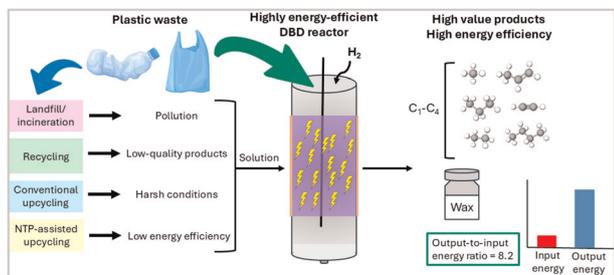
15149



Pore-tailored hollow mesoporous carbon spheres confined with Pd/PdO nanoparticles enable the coupling of efficient CO₂ reduction and propylene oxidation

Man Zhao, Ze Wang, Jiamin Ma, Qinyun Yan, Liwu Qiang, Wei Wen, Lifang Shi, Shuai He, Na Gao, Aiqin Hao, Junming Zhang, Xiaoli Li,* He Xiao* and Jianfeng Jia*

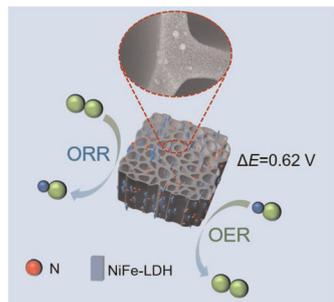
15161



Highly energy-efficient hydrogenolysis of high-density polyethylene via hydrogen nonthermal plasma reaction engineering

Parsa Pishva, Jinyao Tang, Yanlin Zhu, Jochen Lauterbach and Zhenmeng Peng*

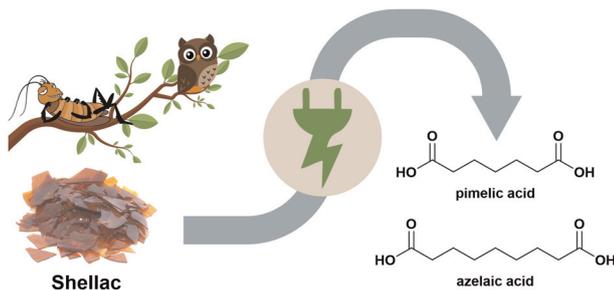
15174



NiFe-LDH loaded on N-doped *Paulownia*-derived carbon as a bifunctional oxygen electrocatalyst for rechargeable zinc-air batteries

Ning Duan, Pengxiang Zhang, Xiaofeng Zhang, Pan Li, Xianli Wu,* Yanyan Liu, Guosheng Han* and Baojun Li

15186



Sustainable electro-organic synthesis of dicarboxylic acids from biogenic shellac

Edward P. Rayner, Tomas Horsten and Siegfried R. Waldvogel*

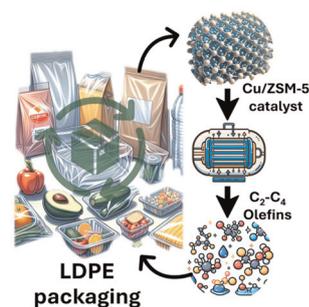


PAPERS

15192

Conversion of waste plastic into low-carbon olefins: directly producing C₂–C₄ light olefins from low-density polyethylene waste using a Cu/ZSM-5 catalyst

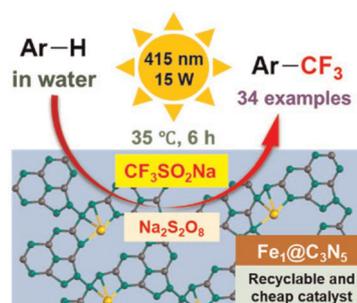
Himanshu Raghav, Laxmi Sah, Bhanu Joshi, Rahul Tiwari, Prem Lama, Bipul Sarkar* and Rajaram Bal*



15200

Single-atom iron-anchored graphitic C₃N₅ for photocatalytic trifluoromethylation of aromatics and N-heterocycles in water

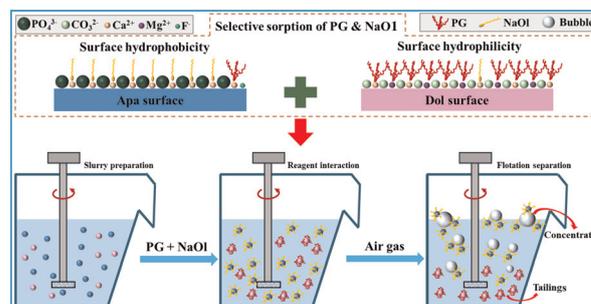
Xiaolong Li, Xueping Zhang, Mei Hong, Weihao Zhou, Yamei Lin and Guo-Ping Lu*



15211

Differentiated regulation of mineral interface properties using an eco-friendly polysaccharide depressant for enhanced apatite–dolomite sustainable flotation separation

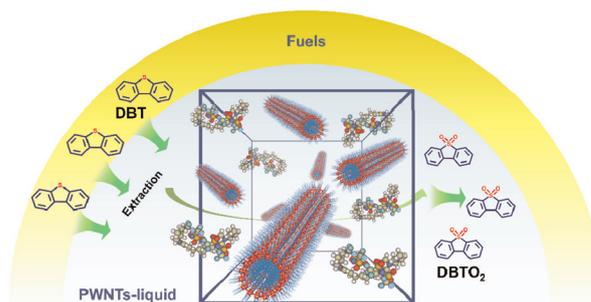
Bin Yang,* Jing Li, Jingfeng He,* Lingtao Zhu, Shihai Guo and Song Zhang



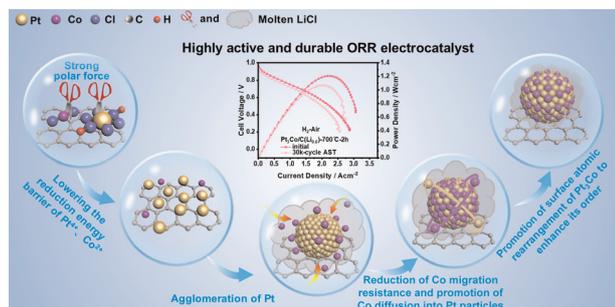
15225

A porous liquid constructed from single-walled polyoxometalate nanotubes for sustainable extractive–oxidative desulfurization

Jing He, Weitai Zhang, Haiyan Huang, Ruyu Cai, Yingxue Cui, Yingcheng Wu, Xiantai Zhou,* Huaming Li and Wei Jiang*



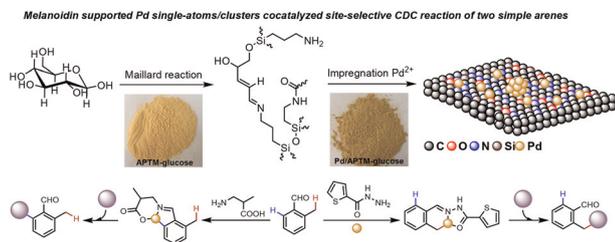
15236



Trace-LiCl-assisted synthesis of high-loading ordered Pt₃Co intermetallic catalysts for the oxygen reduction reaction in fuel cells

Yutao Ni, Jiahui Song, Huiying Lan, Xue Jing, Wenwen Shi,* Ruimin Ding* and Xi Yin*

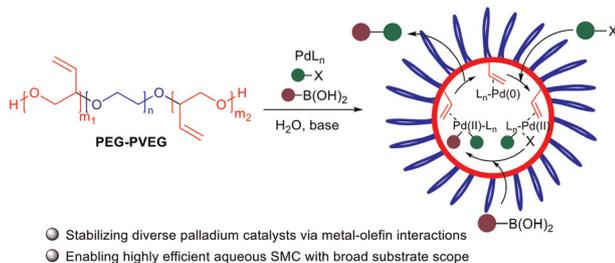
15249



Glucose-based melanoidin-supported palladium single-atoms/clusters cocatalyst for site-selective cross-dehydrogenative coupling of two simple arenes

Yuanyuan Yan, Wunengerile Zhang, Tegshi Muschin, Agula Bao, Chaolumen Bai, Dan Liu and Yong-Sheng Bao*

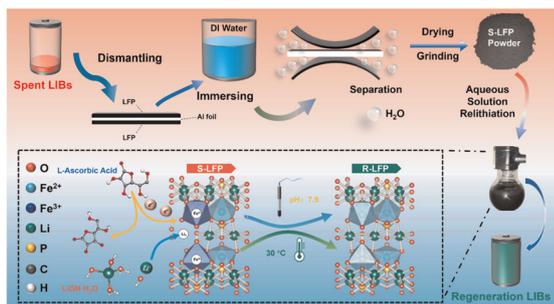
15262



A micellar palladium catalyst stabilized by PEG-PVEG as a vinyl-functionalized amphiphilic polymer for Suzuki–Miyaura coupling in water

Qiong Chai, Babar Hussain Shah, Fengming Zhang, Meiqi Li* and Yong Jian Zhang*

15271



A green chemical protocol for the separation of spent LiFePO₄ cathode material from Al foil and regeneration

Kuangjia Tian, Jiali Zhang,* Jiayi Bai, Yi Liang, Wenzhuo Shen, Min Zhong and Shouwu Guo*

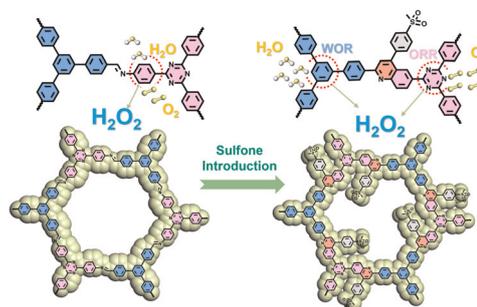


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15283

Electron-withdrawing group in covalent organic frameworks induced separated redox centers toward enhanced overall H_2O_2 photosynthesis in pure water

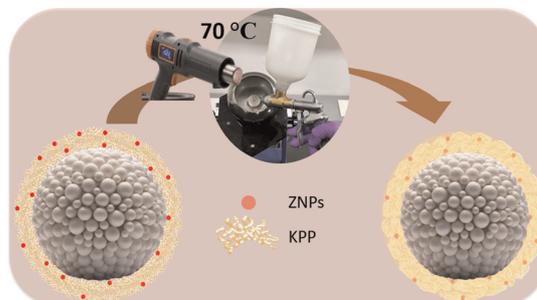
Lijun Liao, Wenjiao Wang, Wei Qin, Hongqi Chu,*
Xuepeng Wang,* Liping Guo, Zhenzi Li, Fuquan Bai* and
Wei Zhou*



15291

Industry-friendly urea coating by interlocking waste proteins and nanoparticles *via* a glass transition approach

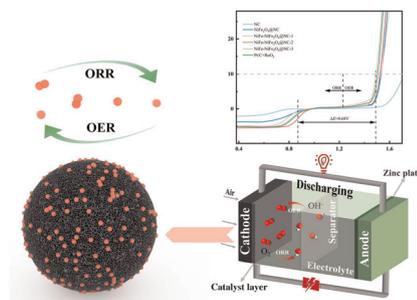
Kanchan Swami, Mona Nagargade, Parul Sharma,
Prem Kumar, Bandana Kumari Sahu, Vishal Tyagi,
Sarita Kataria, Navjot Singh and
Vijayakumar Shanmugam*



15305

In situ reduction engineering of NiFe–NiFe₂O₄ heterojunctions for interfacial coupling toward efficient bifunctional zinc–air batteries

Yi Hu, Ning Han, Yiting Wu, Cong Han and Lizi He*



15316

Green polymerisation of a renewable lignin-derived vinyl ketone monomer to form UV-degradable polymers

Thomas J. Neal,* Arturo J. Ledezma Fierro,
Fanny Coumes, Giovanni Poli, Alexandre Pradal and
Jutta Rieger*

