



Front Cover

Novel Cs–Mg–Al mixed oxide with improved mobility of oxygen species for passive NO_x adsorption

*Yimeng Yin, Chizhong Wang, Lei Qiu, Xing Li, Feilin Zhao, Jie Yu, Jinchi Han, Huazhen Chang**

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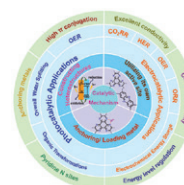
Researchers expect through this review to inspire innovative and reliable ideas for a deep understanding of OER mechanism and design the new high-performance catalysts, meanwhile establishing systematic in-situ/operando characterization techniques and exploring novel catalytic mechanisms for remarkably boosting the catalytic conversion of renewable energy.



Recent advances in phenazine-linked porous catalysts toward photo/electrocatalytic applications and mechanism

Yang Liu¹, Yu Zhang¹, Zhao-Di Yang*, Liqiang Jing* 1518

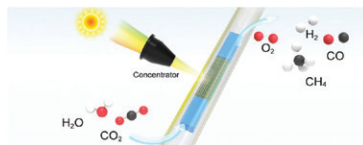
The photo/electrocatalytic performances, applications and catalytic mechanism were analyzed and discussed based on the unique structural and morphological characteristics of phenazine-linked porous catalysts.



Solar fuel production through concentrating light irradiation

Yiwei Fu¹, Yi Wang¹, Jie Huang, Kejian Lu, Maochang Liu* 1550

This review provides an overview of current CSE methods and solar fuel production, analyzes their integration compatibility, and delves into the theoretical mechanisms by which CSE impacts solar energy conversion efficiency and product selectivity in the context of photo-electrochemistry, thermochemistry, and photo-thermal co-catalysis for solar fuel production. The review also summarizes approaches to studying the photoelectric and photothermal effects of CSE.

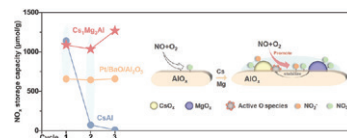


Research papers

Novel Cs–Mg–Al mixed oxide with improved mobility of oxygen species for passive NO_x adsorption

Yimeng Yin, Chizhong Wang, Lei Qiu, Xing Li, Feilin Zhao, Jie Yu, Jinchi Han, Huazhen Chang* ... 1581

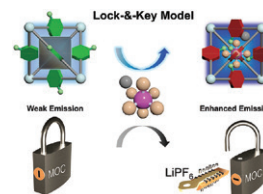
By elucidating the reasons for Cs addition on NO_x storage capacity enhancement and the contribution of Mg to cyclic stability, this work may provide new insight into the design of lowtemperature PNAs catalysts.



Metal–organic cage as fluorescent probe for LiPF₆ in lithium batteries

Xi Li, Dehua Xu, Aoxuan Wang, Chengxin Peng*, Xingjiang Liu*, Jiayan Luo* 1592

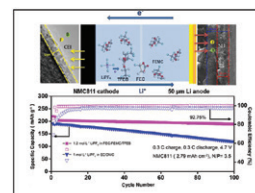
Metal-organic cage can serve as a highly selective turn-on type fluorescence probe for LiPF₆ detection based on a precise Lock-&-Key model through reasonable structural design including topological structure, cavity size and adjustment of functional groups.



All-fluorinated electrolyte for non-flammable batteries with ultra-high specific capacity at 4.7 V

Zhe Wang¹, Zhuo Li¹, Jialong Fu, Sheng Zheng, Rui Yu, Xiaoyan Zhou, Guanjie He, Xin Guo* 1601

Co-effect of components in all-fluorinated electrolyte (LiPF₆-FEC/FEMC/TFEB) promotes the formation of LiF-rich solid electrolyte interphase (SEI) and F-/B-rich cathode electrolyte interphase (CEI), thus achieving a high specific capacity in the NMC811||Li battery under a voltage of 4.7 V.

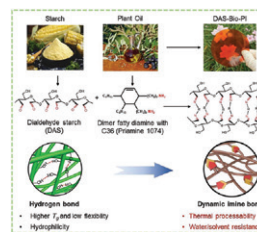


Flexible, thermal processable, self-healing, and fully bio-based starch plastics by constructing dynamic imine network

Xiaoqian Zhang, Haishan Zhang, Guowen Zhou, Zhiping Su, Xiaohui Wang* 1610

Green Energy & Environment

A fully bio-based starch plastic is achieved by constructing dynamic imine network with integrated advantages: excellent thermal processability ($T_g = 20.15\text{ }^\circ\text{C}$), superior flexibility (elongation at break = 45.2%), and waterproof capability (water contact angle = 109.2°). This starch plastic, by virtue of its self-healing ability, thermal stability, and solvent resistance, shows immense potential as an alternative to petroleum-based plastics.

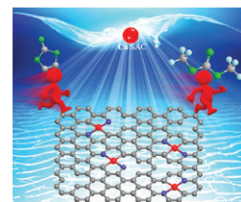


Atomically dispersed calcium as solid strong base catalyst with high activity and stability

Xiang-Bin Shao, Zhi-Wei Xing, Si-Yu Liu, Ke-Xin Miao, Shi-Chao Qi, Song-Song Peng, Xiao-Qin Liu, Lin-Bing Sun*.....

1619

Calcium single atom solid strong base catalyst is fabricated on nitrogen doped graphene by use of a redox strategy where N derived from nitrate is in situ doped into graphene without adding other N sources. The obtained Ca_1/G shows high activity and stability toward the transesterification reaction of ethylene carbonate with methanol.



Mixed plastics waste valorization to high-added value products via thermally induced phase separation and spin-casting

Junaid Saleem^{1,*}, Moghal Zubair Khalid Baig¹, Usman Bin Shahid, Rafael Luque*, Gordon McKay*.....

1627

Authors report an open-loop recycling method to produce graded feedstock from mixed polyolefins waste, which makes up 60% of total plastic waste.

