



Chinese Journal of Catalysis

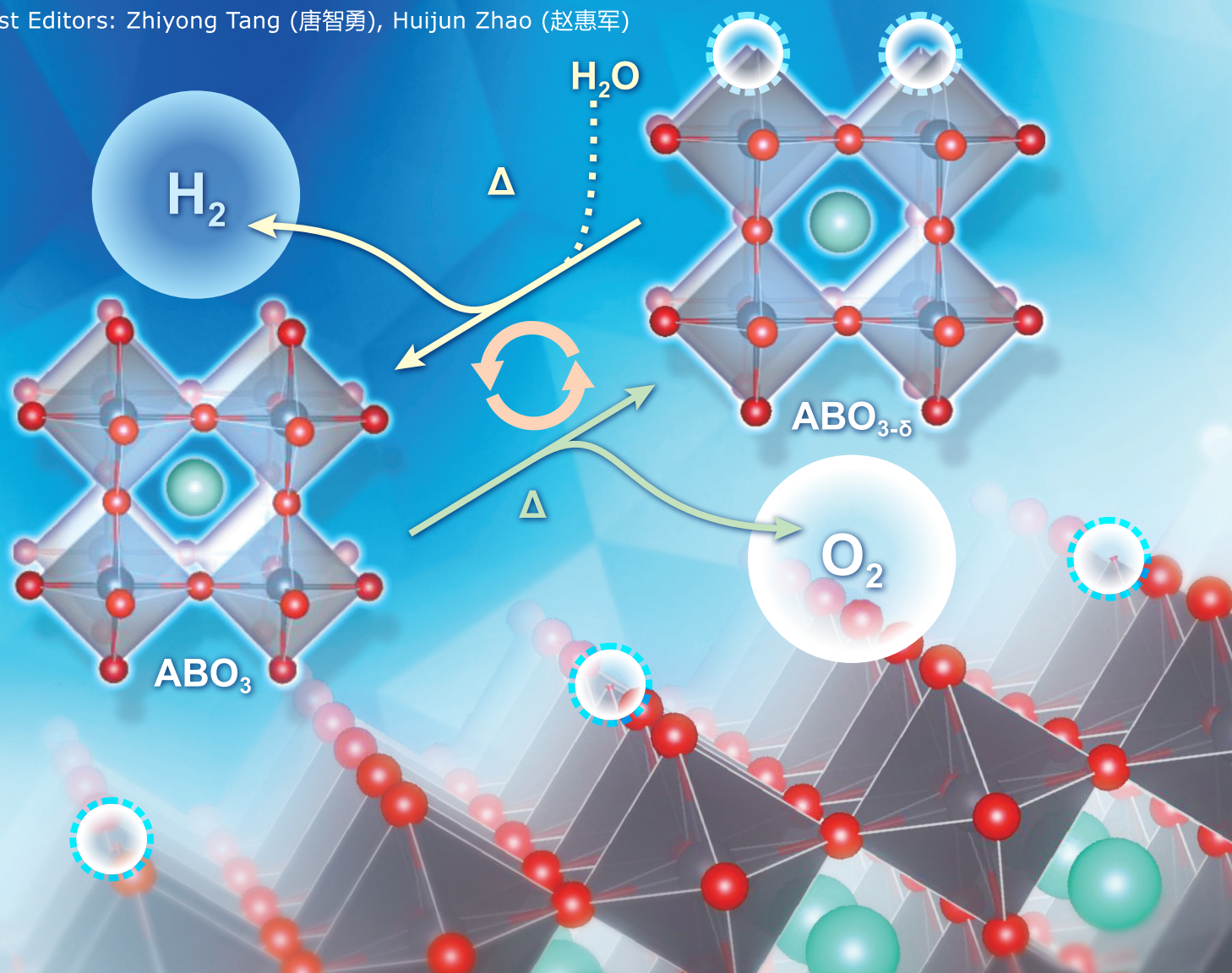
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纳米科学与催化专刊

Special Issue on Nanoscience and Catalysis

Guest Editors: Zhiyong Tang (唐智勇), Huijun Zhao (赵惠军)



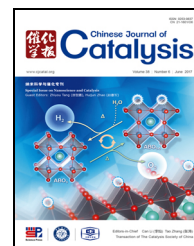
Editors-in-Chief Can Li (李灿) Tao Zhang (张涛)
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Special Issue on Nanoscience and Catalysis

Guest Editors: Zhiyong Tang, Huijun Zhao

Chinese Journal of Catalysis

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Editorial

Chin. J. Catal., 2017, 38: 949–950 doi: 10.1016/S1872-2067(17)62851-1

Preface to Special Issue on Nanoscience and Catalysis

Zhiyong Tang, Huijun Zhao

National Center for Nanoscience and Technology, China; Griffith University, Australia



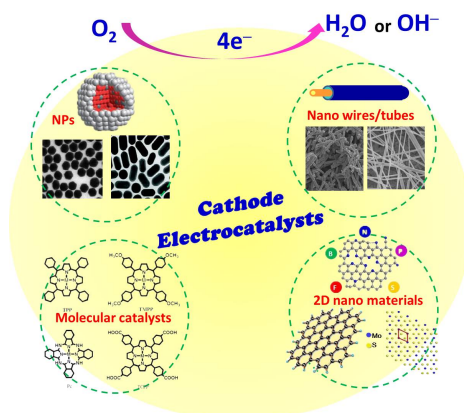
Reviews

Chin. J. Catal., 2017, 38: 951–969 doi: 10.1016/S1872-2067(17)62801-8

Recent advances in the rational design of electrocatalysts towards the oxygen reduction reaction

Jianfei Kong*, Wenlong Cheng*

Yancheng Vocational Institute of Health Sciences, China; Monash University, Australia; Melbourne Centre for Nanofabrication, Australia



This review gives a comprehensive overview of recent progress in the search of non-Pt electrocatalysts towards the oxygen reduction reaction, including molecules, metal oxides, metal nanomaterials and two-dimensional materials.

Chin. J. Catal., 2017, 38: 970–990 doi: 10.1016/S1872-2067(17)62818-3

Advanced yolk-shell nanoparticles as nanoreactors for energy conversion

Meiwen Wang, Yash Boyjoo, Jian Pan, Shaobin Wang*, Jian Liu*
Curtin University, Australia

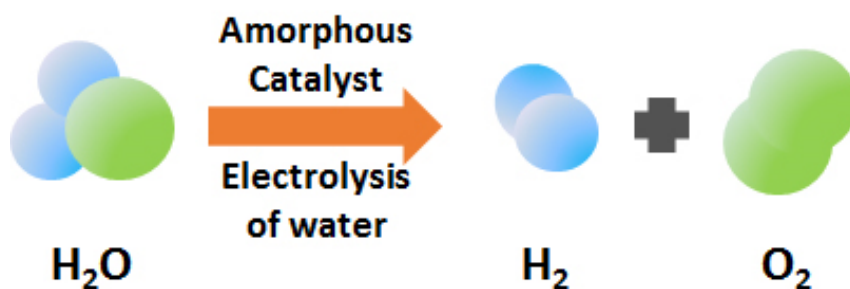


This review summarizes the general synthetic methods of yolk-shell nanoreactors and their recent catalytic performances in photocatalysis, carbon sources utilization and electrochemical energy conversion applications with an outlook of significant advantages using in more applications.

Chin. J. Catal., 2017, 38: 991–1005 doi: 10.1016/S1872-2067(17)62810-9

Earth-abundant amorphous catalysts for electrolysis of water

Wence Xu, Hongxia Wang*
Queensland University of Technology, Australia; Tianjin University, China



This minireview summarizes the recent progress of amorphous catalysts based on earth-abundant elements for the electrolysis of water. The advantages, drawbacks and the perspectives in the future are also discussed.

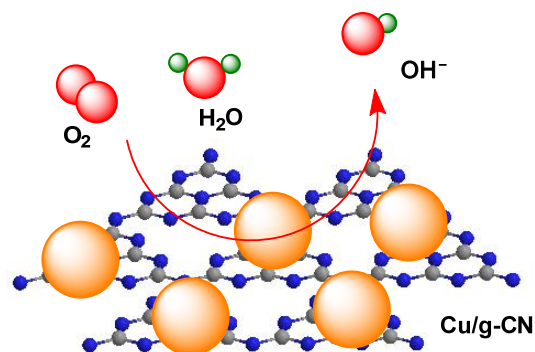
Communication

Chin. J. Catal., 2017, 38: 1006–1010 doi: 10.1016/S1872-2067(17)62764-5

Cu nanoparticles supported on graphitic carbon nitride as an efficient electrocatalyst for oxygen reduction reaction

Henan Li, Yanan Xu, Hansinee Sotinamaluwa, Kimal Wasalathilake,
Dilini Galpaya, Cheng Yan*
Queensland University of Technology, Australia; Jiangsu University, China

Cu supported on graphitic carbon nitride electrocatalyst was synthesized by a facile hydrothermal reaction and shows high catalytic activity for the oxygen reduction reaction in an alkaline electrolyte.

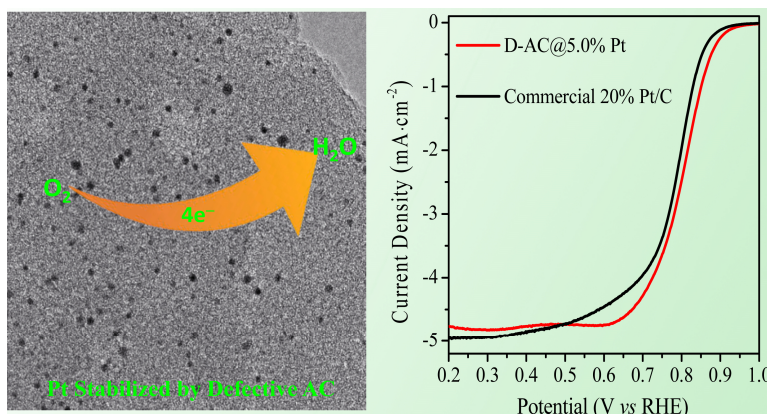


Articles

Chin. J. Catal., 2017, 38: 1011–1020 doi: 10.1016/S1872-2067(17)62765-7

Platinum stabilized by defective activated carbon with excellent oxygen reduction performance in alkaline media

Xuecheng Yan, Yi Jia*, Longzhou Zhang, Xiangdong Yao
Griffith University, Australia

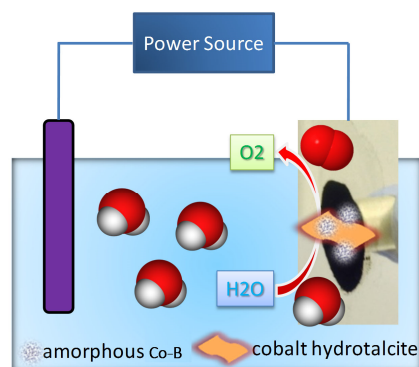


A highly efficient and durable oxygen reduction reaction electrocatalyst was prepared by stabilizing the nano-sized Pt particles with a kind of defective activated carbon.

Chin. J. Catal., 2017, 38: 1021–1027 doi: 10.1016/S1872-2067(17)62811-0

Hydrotalcite-wrapped Co-B alloy with enhanced oxygen evolution activity

Xue Leng, Kuang-Hsu Wu, Bing-Jian Su, Ling-Yun Jang, Ian R. Gentle, Da-Wei Wang*
The University of Queensland, Australia; University of New South Wales, Australia; National Synchrotron Radiation Research Center, China

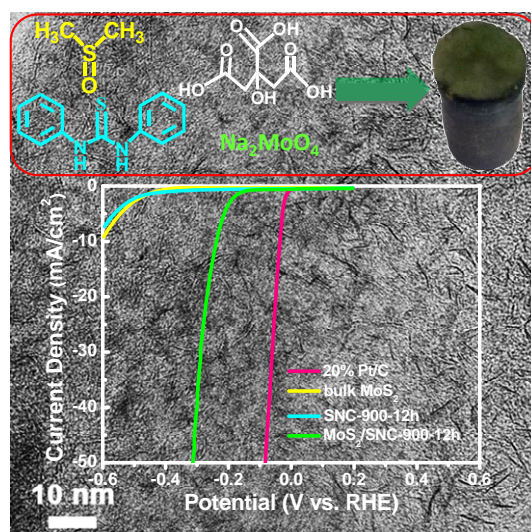


A combination of amorphous particles and layered sheets can improve water oxidation reactions for clean energy sources.

Chin. J. Catal., 2017, 38: 1028–1037 doi: 10.1016/S1872-2067(17)62830-4

Highly dispersed few-layer MoS₂ nanosheets on S, N co-doped carbon for electrocatalytic H₂ production

Shixin Hua, Dan Qu, Li An, Guangcheng Xi, Ge Chen, Fan Li, Zhijun Zhou, Zaicheng Sun*
Beijing University of Technology; Changchun Institute of Optics, Fine Mechanics, and Physics, Chinese Academy of Sciences; University of Chinese Academy of Sciences, Chinese Academy of Inspection and Quarantine; China Academy of Engineering Physics

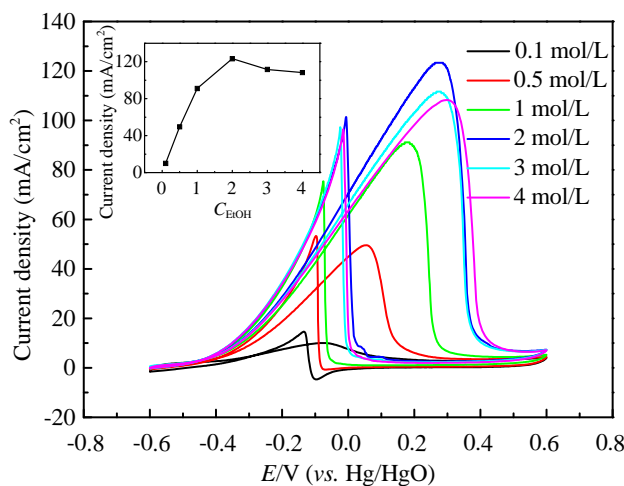
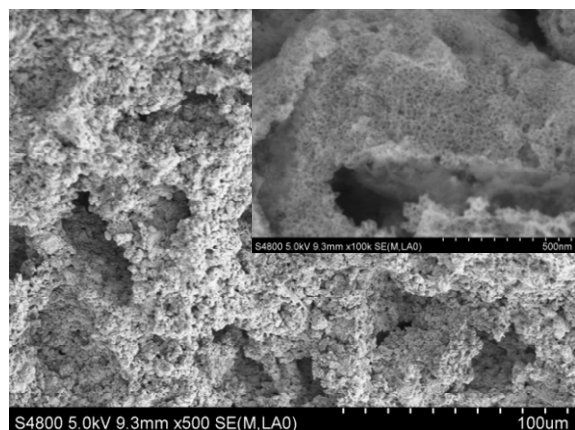


Highly dispersed few-layer MoS₂ nanosheets on S, N co-doped carbon were synthesized using a simple hydrothermal, high temperature annealing route. More catalytic active sites were thus exposed and the electrocatalytic properties were greatly enhanced for the hydrogen evolution reaction.

Chin. J. Catal., 2017, 38: 1038–1044 doi: 10.1016/S1872-2067(17)62780-3

Fabrication, characterization and electrochemical properties of porous palladium bulk samples with high porosity and hierarchical pore structure

Qingquan Kong, Wei Feng*, Xiaodong Zhu, Jing Zhang, Chenghua Sun*
Chengdu University, China; Sichuan University, China; Monash University, Australia



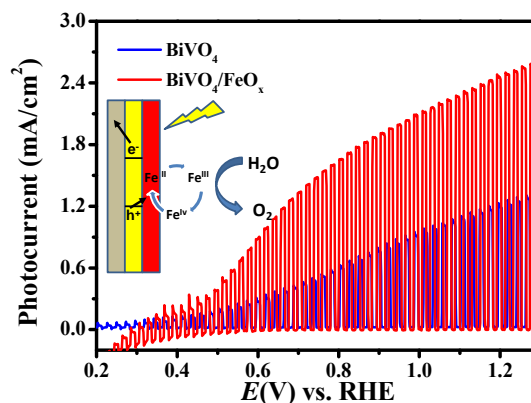
Porous Pd bulks, prepared by salt powder replication combined with a dealloying, show a hierarchical pore structure and high porosity, as well as good ethanol electrochemical oxidation ability.

Chin. J. Catal., 2017, 38: 1045–1051 doi: 10.1016/S1872-2067(17)62809-2

Amorphous ferric oxide as a hole-extraction and transfer layer on nanoporous bismuth vanadate photoanode for water oxidation

Ling Qian, Pengfei Liu, Le Zhang, Chongwu Wang, Shuang Yang, Lirong Zheng, Aiping Chen*, Huagui Yang*
East China University of Science and Technology; Institute of High Energy Physics, Chinese Academy of Science

An amorphous ferric oxide layer was deposited on bismuth vanadate in a photochemical process. Species in this layer enhanced charge carrier separation and surface catalytic performance.

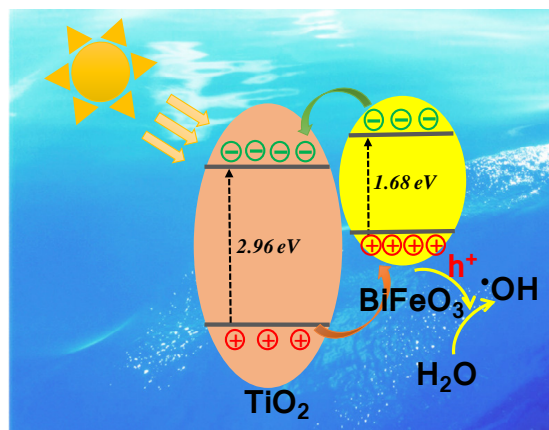


Chin. J. Catal., 2017, 38: 1052–1062 doi: 10.1016/S1872-2067(17)62845-6

Preparation of a p-n heterojunction BiFeO₃@TiO₂ photocatalyst with a core-shell structure for visible-light photocatalytic degradation

Yazi Liu, Shanshan Ding, Jian Xu, Huayang Zhang, Shaogui Yang, Xiaoguang Duan*, Hongqi Sun, Shaobin Wang*
Curtin University, Australia;
Nanjing University Jinling College, China;
Nanjing University, China;
Edith Cowan University, Australia

BiFeO₃ particles coated with TiO₂ to form a core-shell structure with a p-n heterojunction exhibited high photocatalytic activity in degradation of various industrial dyes under visible-light irradiation because of their rapid charge carrier transport and strong light absorption ability.

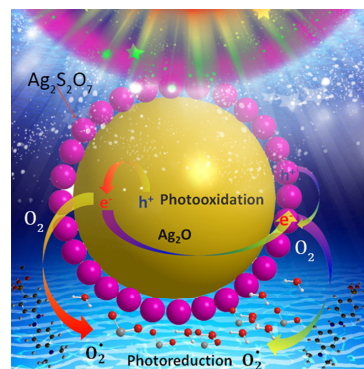


Chin. J. Catal., 2017, 38: 1063–1071 doi: 10.1016/S1872-2067(17)62806-7

Surface-sulfurized Ag₂O nanoparticles with stable full-solar-spectrum photocatalytic activity

Haidong Li, Tinghan Chen, Yao Wang, Jianguo Tang*, Yana Wang, Yuanhua Sang, Hong Liu*
Qingdao University; The High School Attached to Tsinghua University; Shandong University

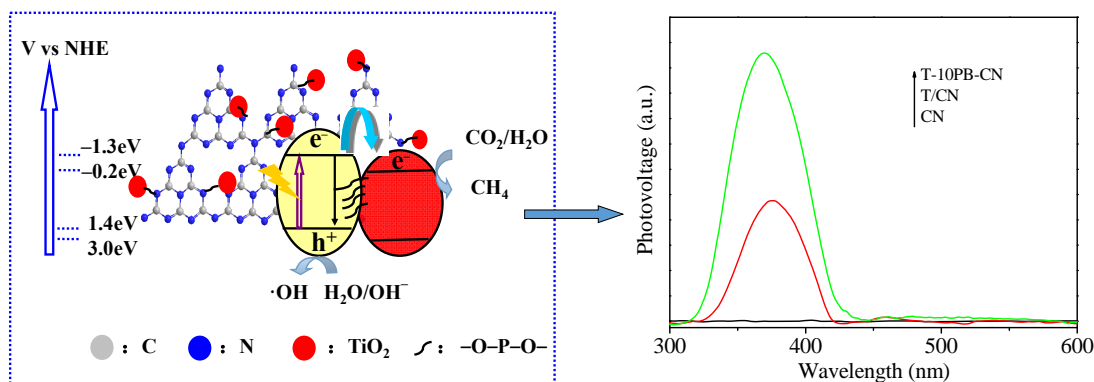
The full-solar-spectrum photocatalytic activity of Ag₂O/Ag₂S₂O₇ heterostructure is demonstrated. Ag₂O/Ag₂S₂O₇ heterostructures can not only keep NIR photocatalytic activity, but also enhance UV and Vis photocatalytic activity of Ag₂O. Most importantly, the stability of Ag₂O/Ag₂S₂O₇ heterostructures is dramatically improved.



Chin. J. Catal., 2017, 38: 1072–1078 doi: 10.1016/S1872-2067(17)62850-X

Synthesis of TiO₂/g-C₃N₄ nanocomposites with phosphate-oxygen functional bridges for improved photocatalytic activity

Chong Liu, Fazal Raziq, Zhijun Li, Yang Qu, Amir Zada, Liqiang Jing*
Heilongjiang University; Heilongjiang University of Science and Technology

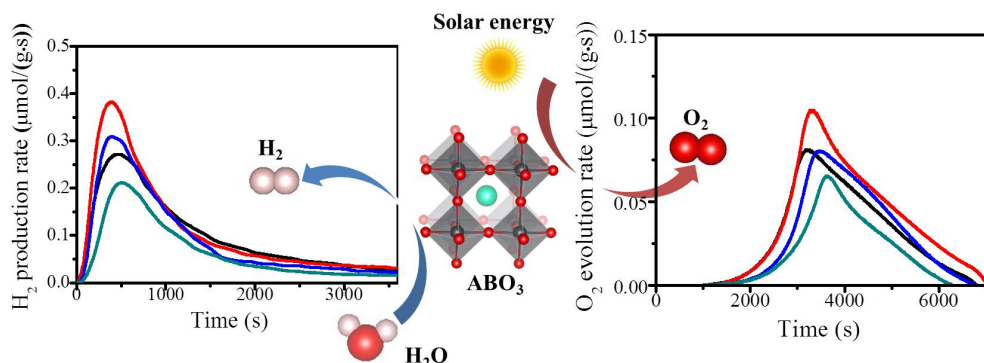


The introduced phosphate groups tightly contact TiO₂ and g-C₃N₄ like a P–O bridge, which is helpful for the effective transfer of photogenerated electrons from g-C₃N₄ to TiO₂, thereby the lifetime and separation of photogenerated charges are further improved, consequently leading to the enhanced photocatalytic activities for TiO₂/g-C₃N₄ nanocomposites.

Chin. J. Catal., 2017, 38: 1079–1086 doi: 10.1016/S1872-2067(17)62820-1

La_{1-x}Ca_xMn_{1-y}Al_yO₃ perovskites as efficient catalysts for two-step thermochemical water splitting in conjunction with exceptional hydrogen yields

Lulu Wang, Mohammad Al-Mamun, Porun Liu, Yun Wang, Huagui Yang, Huijun Zhao*
Griffith University, Australia; East China University of Science and Technology, China; Institute of Solid State Physics, CAS, China

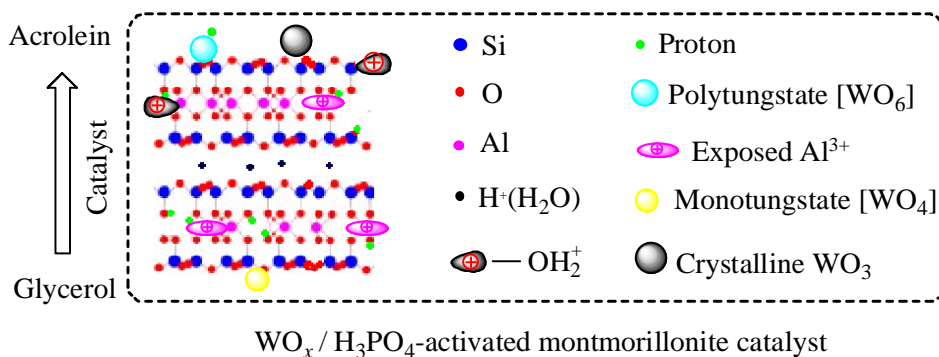


Remarkable H₂ yields were obtained when using the La_{1-x}Ca_xMn_{1-y}Al_yO₃ perovskite series as efficient thermochemical water splitting catalysts following optimization of the A and B site doping levels.

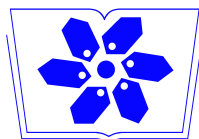
Chin. J. Catal., 2017, 38: 1087–1100 doi: 10.1016/S1872-2067(17)62813-4

Acid-activated and WO_x -loaded montmorillonite catalysts and their catalytic behaviors in glycerol dehydration

Weihua Yu, Pengpeng Wang, Chunhui Zhou *, Hanbin Zhao, Dongshen Tong, Hao Zhang, Huimin Yang, Shengfu Ji, Hao Wang
Zhejiang University of Technology, China; University of Southern Queensland, Australia; Zhejiang Institute of Geology and Mineral Resource, China; China National Bamboo Research Center, China; Beijing University of Chemical Technology, China



Catalysts consisting of WO_x supported on H_3PO_4 -activated montmorillonite showed high activities in glycerol conversion to acrolein. The WO_x state was related to the acid type, strength, and amount on the support surface.



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客座主编: 唐智勇, 赵惠军

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