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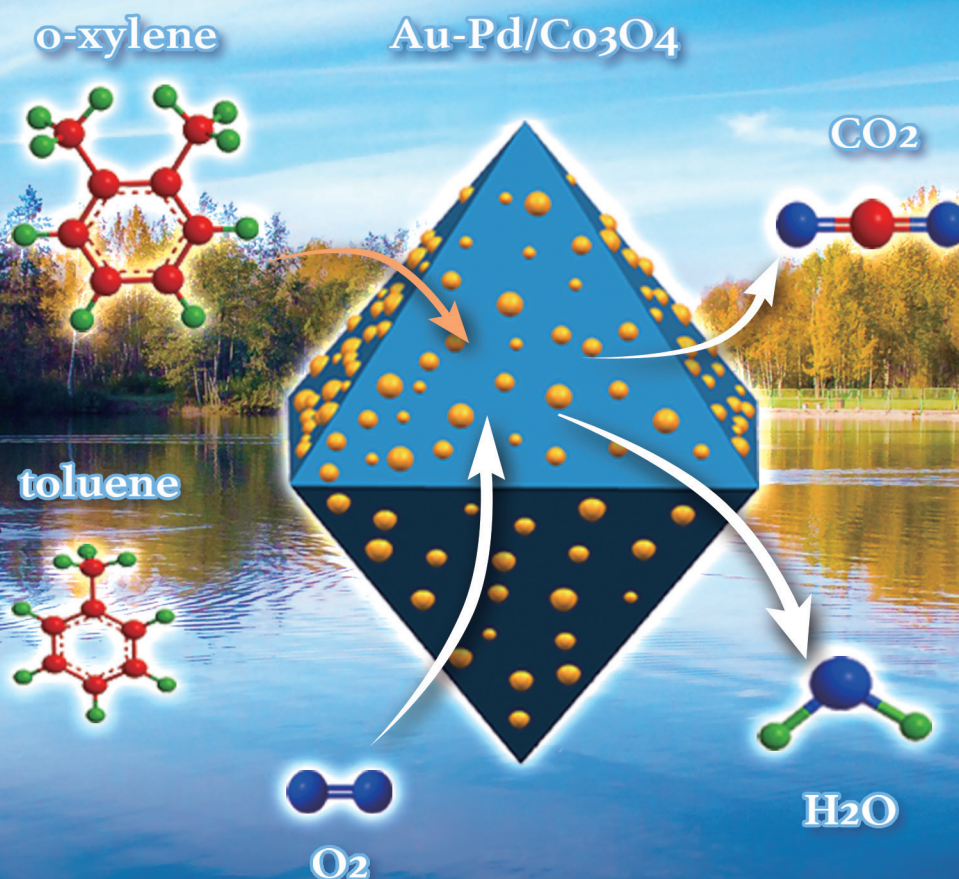
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Volume 38 | Number 2 | February 2017

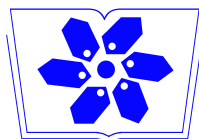
环境催化国际研讨会专刊

Special Issue on the International Symposium on Environmental Catalysis (ISEC 2016)

Guest Editors: Jinlin Li (李金林), Jiaguo Yu (余家国)



Editors-in-Chief Can Li (李灿) Tao Zhang (张涛)
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环境催化国际研讨会专刊

客座主编: 李金林, 余家国

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李金林, 余家国

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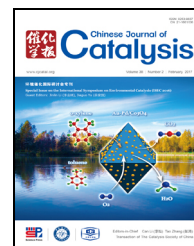
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Special Issue on the International Symposium on Environmental Catalysis (ISEC 2016)

Guest Editors: Jinlin Li, Jiaguo Yu

Chinese Journal of Catalysis

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Editorial

Chin. J. Catal., 2017, 38: 191 doi: 10.1016/S1872-2067(17)62792-X

Preface to Special Issue on the International Symposium on Environmental Catalysis (ISEC 2016)

Jinlin Li, Jiaguo Yu

South-Central University for Nationalities; Wuhan University of Technology

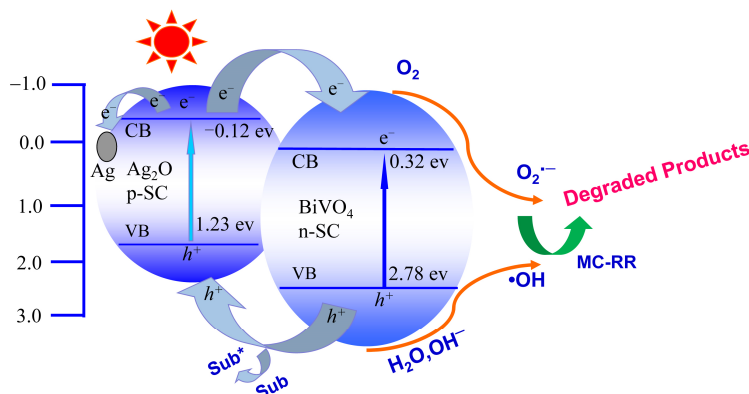


Articles

Chin. J. Catal., 2017, 38: 192–198 doi: 10.1016/S1872-2067(16)62583-4

Photochemical oxidation mechanism of microcystin-RR by p-n heterojunction Ag/Ag₂O-BiVO₄

Chunhong Wu, Yanfen Fang, Araya Hailu Tirusew, Miaomiao Xiang, Yingping Huang *, Chuncheng Chen *
China Three Gorges University



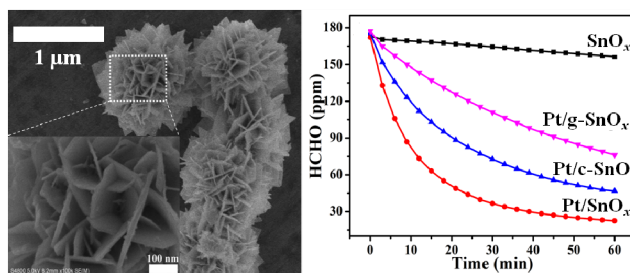
The Ag/Ag₂O-BiVO₄ composite photocatalyst with heterojunction structure exhibit perfect photoactivity for the degradation of microcystin MC-RR under visible light irradiation, relative to those of BiVO₄, Ag-BiVO₄ and Ag₂O-BiVO₄. The high activity steps from the charge separation due to the presence of heterojunction.

Chin. J. Catal., 2017, 38: 199–206 doi: 10.1016/S1872-2067(16)62551-2

Effects of hierarchical structure on the performance of tin oxide-supported platinum catalyst for room-temperature formaldehyde oxidation

Yuanyuan Duan, Shaoqing Song, Bei Cheng, Jiaguo Yu*, Chuanjia Jiang*

Wuhan University of Technology, China; East China University of Technology, China; King Abdulaziz University, Saudi Arabia



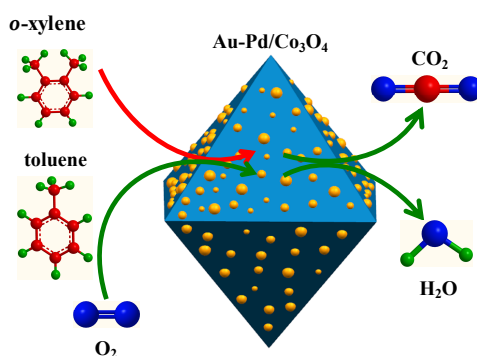
Pt nanoparticles (NPs) supported on a hierarchical flower-like SnO_x (Pt/SnO_x) exhibited enhanced activity for room temperature catalytic oxidation of formaldehyde compared to Pt NPs on commercial SnO or ground SnO_x.

Chin. J. Catal., 2017, 38: 207–216 doi: 10.1016/S1872-2067(16)62569-X

Catalytic performance of cobalt oxide-supported gold-palladium nanocatalysts for the removal of toluene and *o*-xylene

Zhiwei Wang, Yuxi Liu, Tao Yang, Jiguang Deng*, Shaohua Xie, Hongxing Dai*

Beijing University of Technology, China; University of Aveiro, Portugal



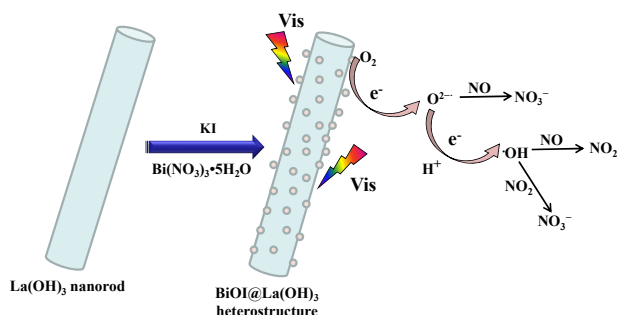
Co₃O₄ octahedron-supported Au-Pd nanocatalyst exhibited high catalytic activity for toluene and *o*-xylene elimination because of the interaction between Au-Pd nanoparticles and Co₃O₄ and high concentration of adsorbed oxygen species.

Chin. J. Catal., 2017, 38: 217–226 doi: 10.1016/S1872-2067(17)62753-0

Heterostructured BiOI@La(OH)₃ nanorods with enhanced visible light photocatalytic NO removal

Yanjuan Sun, Xiang Xiao, Xing'an Dong, Fan Dong*, Wei Zhang*

Chongqing Technology and Business University; Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences

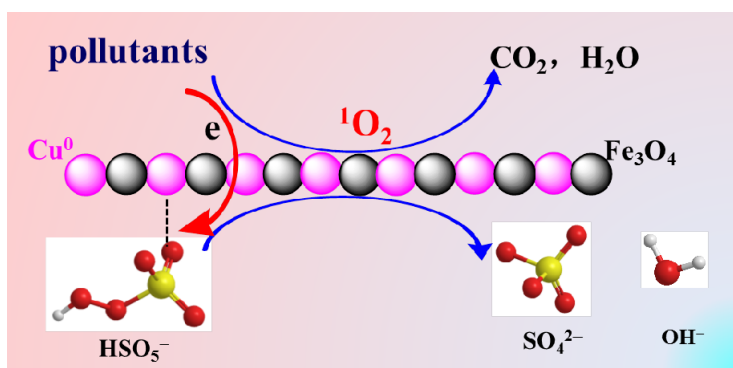


Heterostructured BiOI@La(OH)₃ nanorods with efficient visible light photocatalytic performance are synthesized by a facile chemical impregnation method.

Chin. J. Catal., 2017, 38: 227–239 doi: 10.1016/S1872-2067(16)62566-4

Heterogeneous catalytic activation of peroxymonosulfate for efficient degradation of organic pollutants by magnetic $\text{Cu}^0/\text{Fe}_3\text{O}_4$ submicron composites

Gang Nie, Jia Huang, Yezhou Hu, Yaobin Ding*, Xiaoyan Han, Heqing Tang*
South-Central University for Nationalities



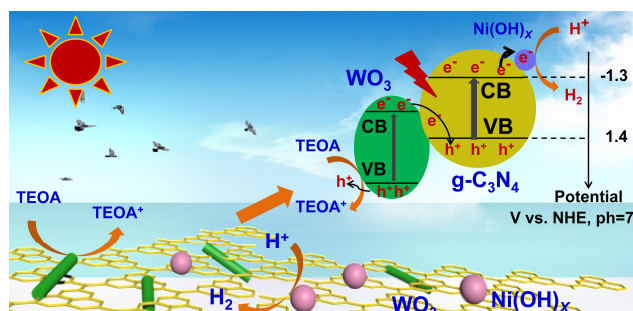
Magnetic $\text{Cu}^0/\text{Fe}_3\text{O}_4$ submicron composites showed superior catalytic activity for the activation of peroxymonosulfate and degradation of organic pollutants through the generation of singlet oxygen.

Chin. J. Catal., 2017, 38: 240–252 doi: 10.1016/S1872-2067(17)62759-1

Enhanced visible light photocatalytic H_2 production over Z-scheme $\text{g-C}_3\text{N}_4$ nanosheets/ WO_3 nanorods nanocomposites loaded with $\text{Ni}(\text{OH})_x$ cocatalysts

Kelin He, Jun Xie, Xingyi Luo, Jiuqing Wen, Song Ma, Xin Li*, Yueping Fang, Xiangchao Zhang
South China Agricultural University; Changsha University

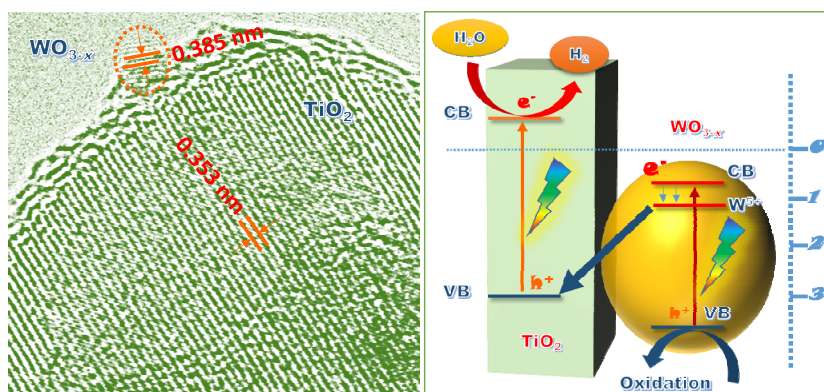
The synergistic effects of Z-scheme heterojunctions ($\text{g-C}_3\text{N}_4$ nanosheets/ WO_3 nanorods) and loaded cocatalyst ($\text{Ni}(\text{OH})_x$) were demonstrated, which boosted visible light photocatalytic H_2 production over $\text{g-C}_3\text{N}_4$ nanosheets.



Chin. J. Catal., 2017, 38: 253–259 doi: 10.1016/S1872-2067(16)62576-7

Highly efficient Z-scheme WO_{3-x} quantum dots/ TiO_2 for photocatalytic hydrogen generation

Lun Pan, Jingwen Zhang, Xu Jia, Yu-Hang Ma, Xiangwen Zhang, Li Wang, Ji-Jun Zou*
Tianjin University; Collaborative Innovative Center of Chemical Science and Engineering (Tianjin)

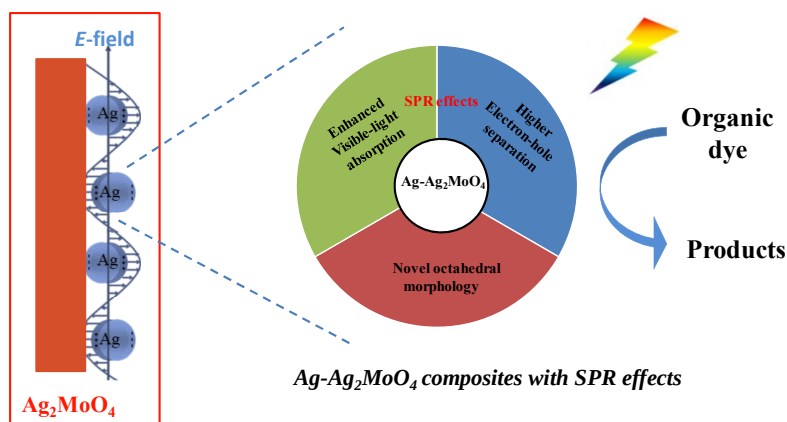


Z-scheme WO_{3-x} quantum dots (QDs) supported on TiO_2 , fabricated by solvothermal and reduction methods, exhibit highly efficient charge separation and enhanced photocatalytic H_2 generation.

Chin. J. Catal., 2017, 38: 260–269 doi: 10.1016/S1872-2067(16)62553-6

Surface plasmon resonance-induced visible-light photocatalytic performance of silver/silver molybdate composites

Xianglong Yang, Ying Wang, Xiao Xu, Yang Qu, Xing Ding*, Hao Chen*
Huazhong Agricultural University

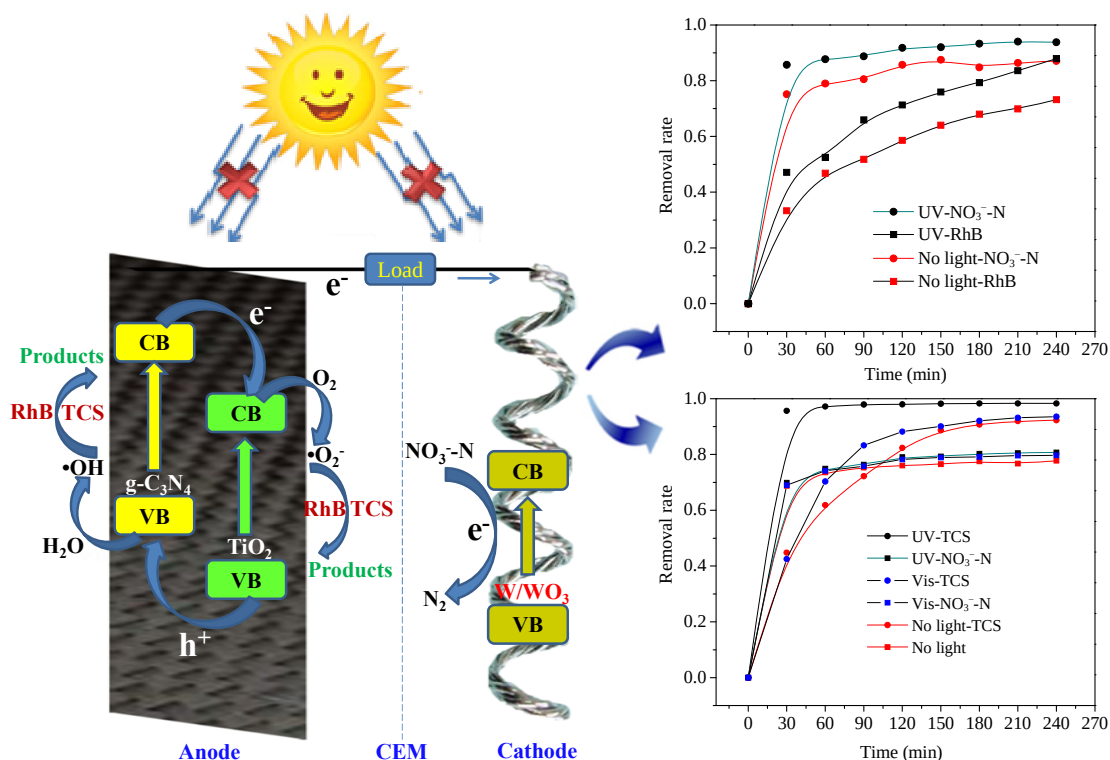


Novel octahedral silver/silver molybdate composites prepared by a one-pot hydrothermal route exhibited favorable photocatalytic performance under visible-light irradiation. The photocatalytic mechanism based on surface plasmon resonance of the silver nanoparticles was determined via capture experiments.

Chin. J. Catal., 2017, 38: 270–277 doi: 10.1016/S1872-2067(16)62556-1

Heterojunction between anodic TiO₂/g-C₃N₄ and cathodic WO₃/W nano-catalysts for coupled pollutant removal in a self-biased system

Tingting Yu, Lifan Liu*, Fenglin Yang
Dalian University of Technology



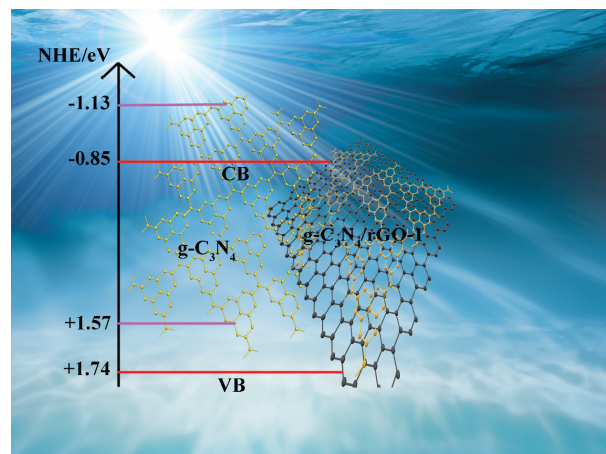
Without light or externally applied voltage, a new self-sustained catalytic fuel cell with anodic TiO₂/g-C₃N₄ catalyst and cathodic WO₃/W nano-catalysts was established and generated spontaneous current. It can oxidize and reduce different pollutants simultaneously.

Chin. J. Catal., 2017, 38: 278–286 doi: 10.1016/S1872-2067(16)62561-5

Enhanced photochemical oxidation ability of carbon nitride by π - π stacking interactions with graphene

Qiang Hao, Simeng Hao, Xiuxiu Niu, Xun Li, Daimei Chen*, Hao Ding*
China University of Geosciences

rGO can easily hybridized with g-C₃N₄ through π - π stacking interactions, as a result, the VB became more positive and the photooxidation ability was enhanced.

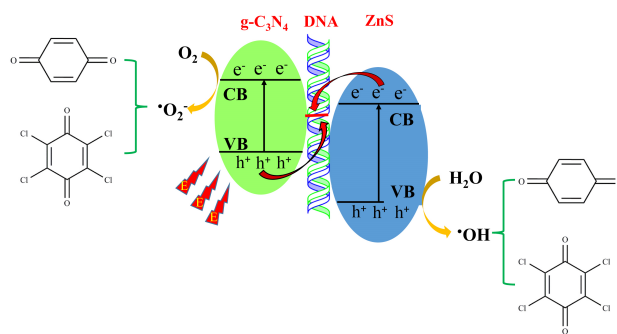


Chin. J. Catal., 2017, 38: 287–295 doi: 10.1016/S1872-2067(16)62582-2

Preparation and application of g-C₃N₄-ZnS-DNA nanocomposite with enhanced electrocatalytic activity

Xin Zhou, Jing Zou*, Sheng Zhang, Ming Pan, Wanyun Gong
Wuhan Institute of Technology

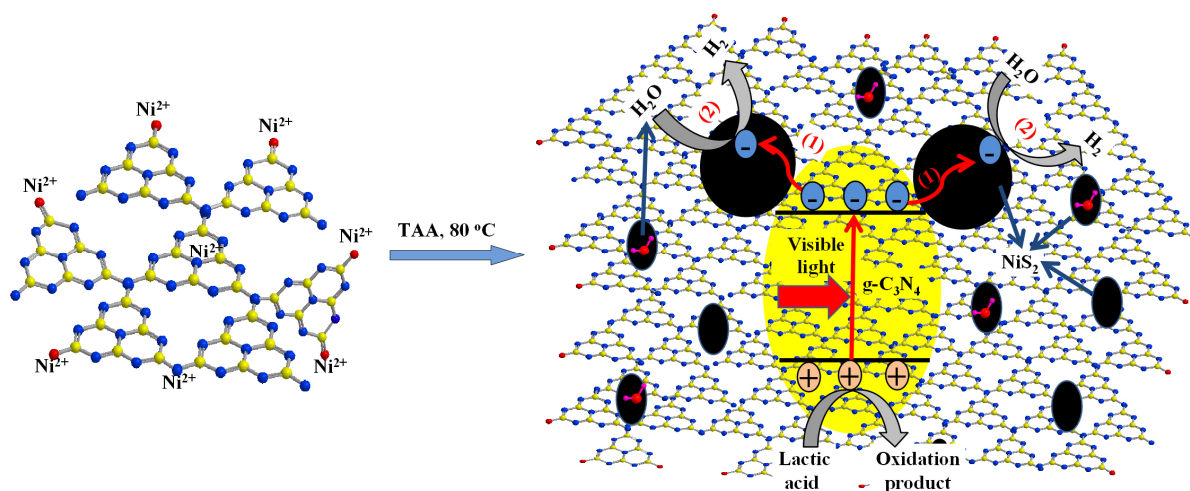
A g-C₃N₄-ZnS-DNA nanocomposite was prepared by a simple method. The possible Z-scheme mechanism for electron transfer in the g-C₃N₄-ZnS-DNA nanocomposite and the possible mechanism for electrocatalytic oxidation of PCP and NP were proposed.



Chin. J. Catal., 2017, 38: 296–304 doi: 10.1016/S1872-2067(16)62554-8

Facile synthesis and enhanced photocatalytic H₂-evolution performance of NiS₂-modified g-C₃N₄ photocatalysts

Feng Chen, Hui Yang, Xuefei Wang*, Huogen Yu*
Wuhan University of Technology



NiS₂-modified g-C₃N₄ photocatalysts were synthesized by a low-temperature impregnation method. The resultant NiS₂/g-C₃N₄ photocatalysts showed improved photocatalytic performance resulting from the rapid transfer of the photogenerated electrons of g-C₃N₄ to the NiS₂ nanoparticles.

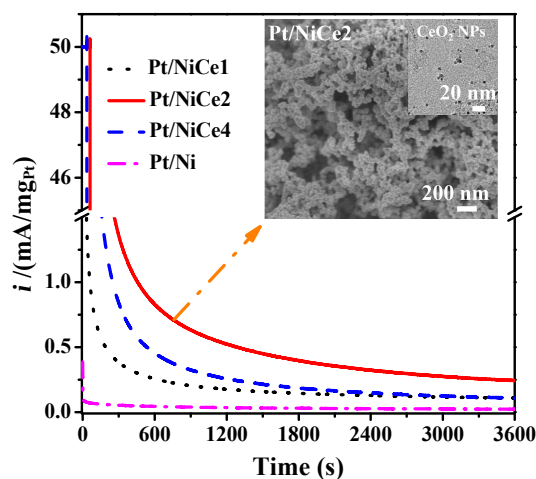
Chin. J. Catal., 2017, 38: 305–312 doi: 10.1016/S1872-2067(16)62560-3

Enhanced ethanol electro-oxidation on CeO₂-modified Pt/Ni catalysts in alkaline solution

Zhihua Xu, Lixia Rao, Haiyan Song, Zhaoxiong Yan*, Lijun Zhang, Shuibin Yang*

Jiangnan University; Huanggang Normal University

CeO₂-modified Pt/Ni catalysts containing aggregated nanoparticles and relatively open nanostructures showed enhanced catalytic activity towards ethanol electro-oxidation in alkaline solution compared with unmodified Pt/Ni catalysts.

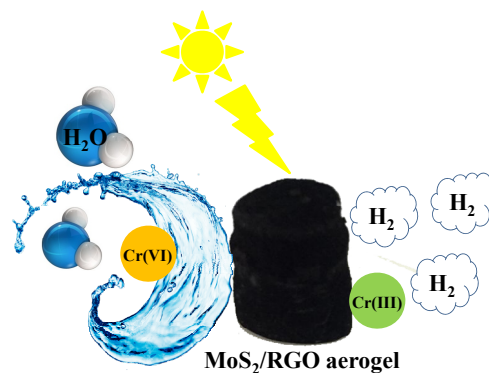


Chin. J. Catal., 2017, 38: 313–320 doi: 10.1016/S1872-2067(16)62568-8

Three-dimensional MoS₂/reduced graphene oxide aerogel as a macroscopic visible-light photocatalyst

Ruiyang Zhang, Wenchao Wan, Dawei Li, Fan Dong, Ying Zhou*
Southwest Petroleum University; Chongqing Technology and Business University

A macroscopic MoS₂/RGO aerogel with enhanced visible-light photocatalytic performance was successfully prepared and can be used for photocatalytic hydrogen evolution, photoreduction of Cr(VI) and adsorption of organic pollutants.

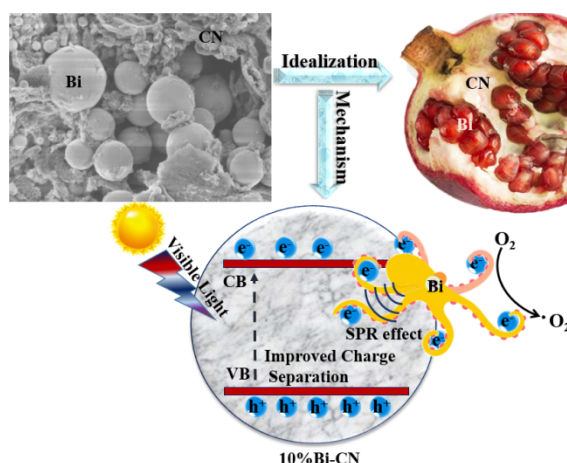


Chin. J. Catal., 2017, 38: 321–329 doi: 10.1016/S1872-2067(16)62573-1

Enhanced visible-light photo-oxidation of nitric oxide using bismuth-coupled graphitic carbon nitride composites

Yuhan Li, Kangle Lv*, Wing-Kei Ho*, Zaiwang Zhao, Yu Huang

The Education University of Hong Kong; Institute of Earth Environment, Chinese Academy of Sciences; South-Central University for Nationalities



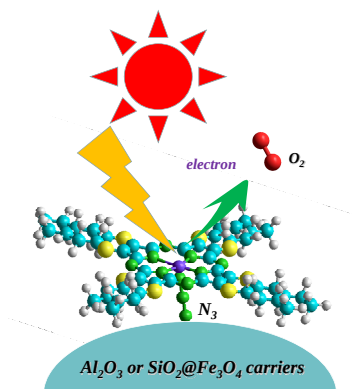
The introduction of bismuth metal to graphitic carbon nitride resulted in composites that displayed improved light absorption over the entire visible range, effective separation of photogenerated electron-hole pairs, and high visible-light photocatalytic activity in oxidation of NO.

Chin. J. Catal., 2017, 38: 330–336 doi: 10.1016/S1872-2067(16)62580-9

Effect of carrier and axial ligand on the photocatalytic activity of cobalt thioporphyrzine

Yi Liu, Xuanmu Zhou, Zhehui Zhang*, Bingguang Zhang, Kejian Deng*
South-Central Universities for Nationalities

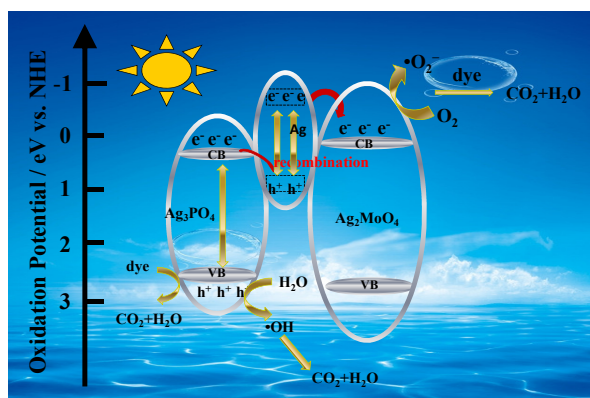
The effects of Al_2O_3 and $\text{SiO}_2@\text{Fe}_3\text{O}_4$ carriers and axial ligand NaN_3 on the photocatalytic activity of cobalt octakis(butylthio)thioporphyrzine were examined.



Chin. J. Catal., 2017, 38: 337–347 doi: 10.1016/S1872-2067(16)62570-6

Construction of $\text{Ag}_3\text{PO}_4/\text{Ag}_2\text{MoO}_4$ Z-scheme heterogeneous photocatalyst for the remediation of organic pollutants

Hua Tang*, Yanhui Fu, Shufang Chang, Siyu Xie, Guogang Tang
Jiangsu University; Zhenjiang College

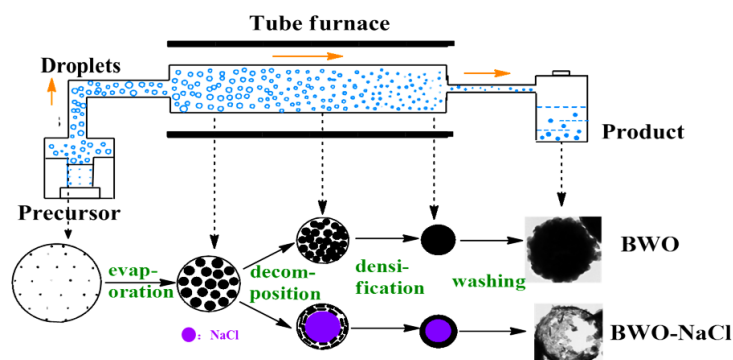


A novel $\text{Ag}_3\text{PO}_4/\text{Ag}_2\text{MoO}_4$ Z-scheme heterojunction photocatalytic system was constructed, giving rise to excellent photocatalytic activity on the degradation of typical dyes.

Chin. J. Catal., 2017, 38: 348–356 doi: 10.1016/S1872-2067(16)62584-6

Salt-assisted Synthesis of Hollow Bi_2WO_6 Microspheres with Superior Photocatalytic Activity for NO Removal

Meijuan Chen, Yu Huang*, Shun Cheng Lee
Xi'an Jiaotong University; Institute of Earth Environment, Chinese Academy of Sciences; The Hong Kong Polytechnic University



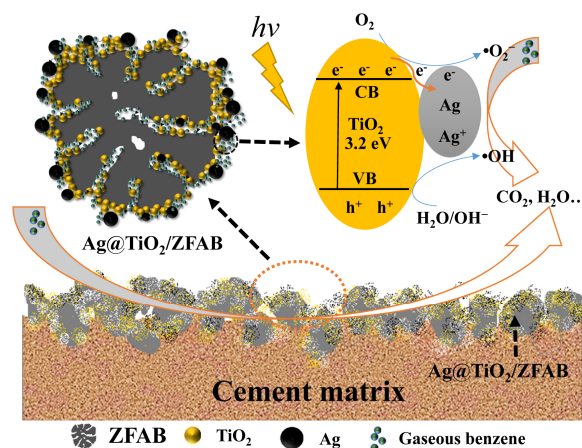
Hollow Bi_2WO_6 microspheres are successfully synthesized by a facile ultrasonic spray pyrolysis (USP) method with NaCl as the salt template. Excellent photocatalytic efficiency for NO removal under solar light irradiation is achieved.

Chin. J. Catal., 2017, 38: 357–364 doi: 10.1016/S1872-2067(16)62590-1

Enhanced photocatalytic performance of cementitious material with TiO_2/Ag modified fly ash micro-aggregates

Lu Yang, Yining Gao, Fazhou Wang*, Peng Liu, Shuguang Hu
Wuhan University of Technology

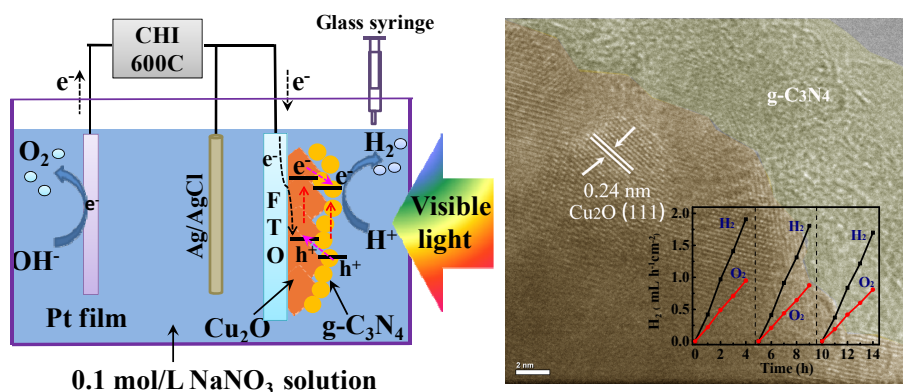
A variety of $\text{Ag}@\text{TiO}_2/\text{ZFAB}$ modified cementitious materials are prepared. Coupling suitable Ag particles with a ZFAB carrier is shown to effectively enhance the photocatalytic effects and use of TiO_2 in a cement system.



Chin. J. Catal., 2017, 38: 365–371 doi: 10.1016/S1872-2067(16)62588-3

Electrodeposition of $\text{Cu}_2\text{O}/\text{g-C}_3\text{N}_4$ heterojunction film on an FTO substrate for enhancing visible light photoelectrochemical water splitting

Shengsen Zhang, Jie Yan, Siyuan Yang, Yuehua Xu, Xin Cai, Xin Li, Xiangchao Zhang, Feng Peng*, Yueping Fang*
South China Agricultural University; South China University of Technology; Changsha University

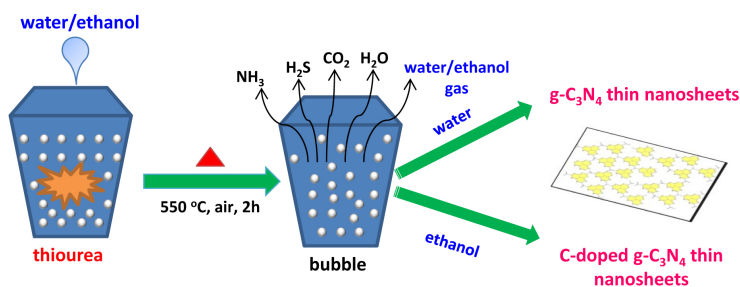


$\text{g-C}_3\text{N}_4$ nanoparticles have been immobilized on a Cu_2O film with FTO substrate, resulting in a $\text{Cu}_2\text{O}/\text{g-C}_3\text{N}_4$ heterojunction nanocomposite formation for efficient photoelectrochemical water splitting under visible light irradiation.

Chin. J. Catal., 2017, 38: 372–378 doi: 10.1016/S1872-2067(16)62585-8

Solvent-assisted synthesis of porous $\text{g-C}_3\text{N}_4$ with efficient visible-light photocatalytic performance for NO removal

Wendong Zhang, Zaiwang Zhao, Fan Dong*, Yuxin Zhang*
Chongqing University; Chongqing Normal University; Chongqing Technology and Business University



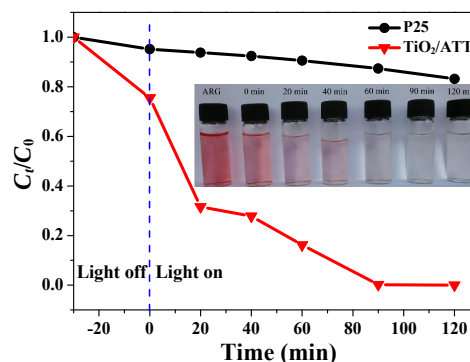
The porous $\text{g-C}_3\text{N}_4$ and C-doped $\text{g-C}_3\text{N}_4$ thin nanosheets with efficient visible-light photocatalytic performance were synthesized via thermal polymerization of thiourea with the addition of water and ethanol, respectively.

Chin. J. Catal., 2017, 38: 379–388 doi: 10.1016/S1872-2067(17)62774-8

Synthesis of C-Cl-codoped titania/attapulgite composites with enhanced visible-light photocatalytic activity

Lijuan Deng, Yi Xie*, Gaoke Zhang*
Wuhan University of Technology

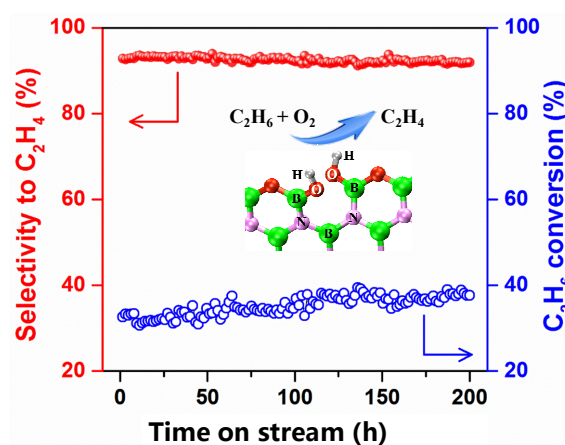
The C-Cl-codoped TiO₂/ATT composites achieved by a facile sol-gel procedure exhibit much higher visible-light-induced degradation of acid red G than P25 TiO₂ due to the extended visible absorbance and depression of the recombination of photoexcited electron/hole pairs.



Chin. J. Catal., 2017, 38: 389–395 doi: 10.1016/S1872-2067(17)62786-4

Selective oxidative dehydrogenation of ethane to ethylene over a hydroxylated boron nitride catalyst

Lei Shi, Bing Yan, Dan Shao, Fan Jiang, Dongqi Wang*, An-Hui Lu*
Dalian University of Technology; Institute of High Energy Physics, Chinese Academy of Sciences

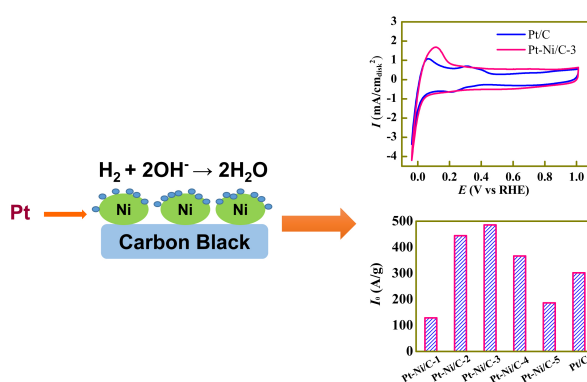


Hydroxylated boron nitride, a metal free catalyst, shows superior selectivity and excellent stability for the oxidative dehydrogenation of ethane to ethylene with only negligible CO₂ emission.

Chin. J. Catal., 2017, 38: 396–403 doi: 10.1016/S1872-2067(17)62783-9

High activity of a Pt decorated Ni/C nanocatalyst for hydrogen oxidation

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The Pt decorated Ni/C nanocatalysts prepared by the partial galvanic displacement exhibited a better catalytic activity for H₂ oxidation reaction than that of commercial Pt/C catalyst.