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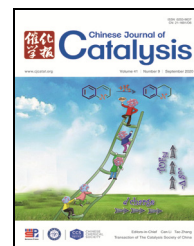
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Chinese Journal of Catalysis

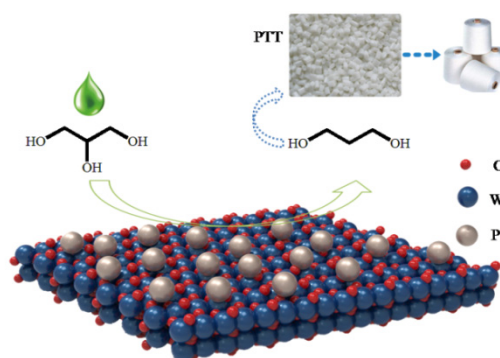
Graphical Contents

Reviews

Chin. J. Catal., 2020, 41: 1311–1319 doi: 10.1016/S1872-2067(20)63586-0

Selective hydrogenolysis of glycerol to 1,3-propanediol over Pt-W based catalysts

Jia Wang, Man Yang, Aiqin Wang*
Northwest A&F University;
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

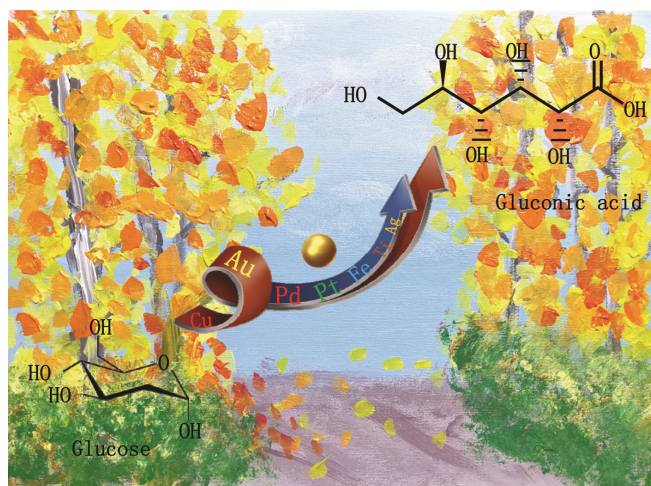


Pt-W based catalysts demonstrate promising performances in the selective hydrogenolysis of glycerol to 1,3-propanediol thanks to the synergy between Pt and WO_x.

Chin. J. Catal., 2020, 41: 1320–1336 doi: 10.1016/S1872-2067(20)63590-2

Structural sensitivity of heterogeneous catalysts for sustainable chemical synthesis of gluconic acid from glucose

Wenjuan Yan, Dongpei Zhang, Yu Sun, Ziqi Zhou, Yihang Du, Yiyao Du, Yushan Li, Mengyuan Liu, Yuming Zhang, Jian Shen, Xin Jin*
China University of Petroleum (East China), China; China University of Petroleum (Beijing), China;
Physical Sciences Division, Pacific Northwest National Laboratory, USA



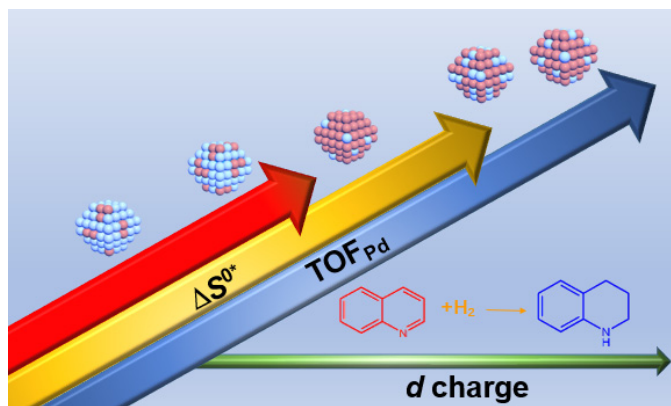
The recent advances on the study of sustainable glucose oxidation to gluconic acid have been summarized and critically reviewed, with highlights on structure-performance relations over various catalysts. The challenges and opportunities have also been discussed and projected for green synthesis of gluconic acid.

Articles

Chin. J. Catal., 2020, 41: 1337–1347 doi: 10.1016/S1872-2067(20)63580-X

Measurable surface d charge of Pd as a descriptor for the selective hydrogenation activity of quinoline

Shunlin Li, Lili Wang, Mengmeng Wu, Yafei Sun, Xiaojuan Zhu, Ying Wan *
Shanghai Normal University



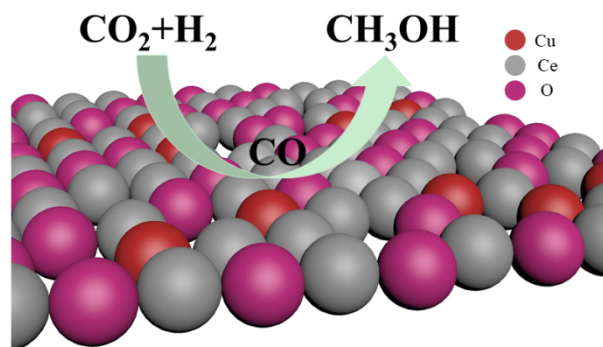
The experimentally measurable surface d charge at the Pd sites can serve as a descriptor, which can correlate well with the activation entropy and catalytic activity for the hydrogenation of quinoline.

Chin. J. Catal., 2020, 41: 1348–1359 doi: 10.1016/S1872-2067(20)63605-1

Copper-ceria solid solution with improved catalytic activity for hydrogenation of CO_2 to CH_3OH

Bin Yang, Wei Deng, Limin Guo *, Tatsumi Ishihara
Huazhong University of Science and Technology, China;
Kyushu University, Japan

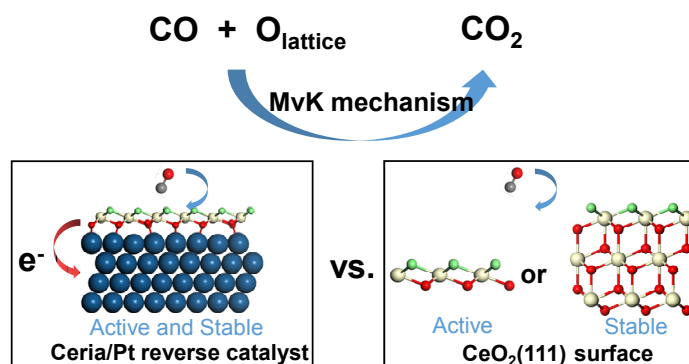
The CO_2 hydrogenation activity was affected by the Cu-CeO₂ interaction, and the Cu-O_v-Ce_x species in the copper-ceria solid solution was closely related to the CH_3OH yields.



Chin. J. Catal., 2020, 41: 1360–1368 doi: 10.1016/S1872-2067(20)63564-1

Structures and reactivities of the CeO₂/Pt(111) reverse catalyst: A DFT+U study

Zhu-Yuan Zheng, Dong Wang *, Yi Zhang, Fan Yang, Xue-Qing Gong *
East China University of Science and Technology; Dalian Institute of Chemical Physics, Chinese Academy of Sciences



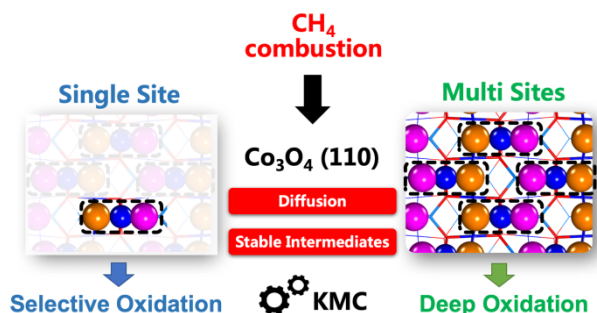
By depositing monolayer ceria on the Pt substrate, the CeO₂/Pt reverse catalyst, comparing to ceria thin film or bulk, shows both good thermostability and excellent catalytic activity towards CO oxidation.

Chin. J. Catal., 2020, 41: 1369–1377 doi: 10.1016/S1872-2067(20)63563-X

Multi sites vs single site for catalytic combustion of methane over $\text{Co}_3\text{O}_4(110)$: A first-principles kinetic Monte Carlo study

Wende Hu, Zheng-Jiang Shao, Xiao-Ming Cao*, P. Hu*

East China University of Science and Technology, China; The Queen's University of Belfast, U.K.



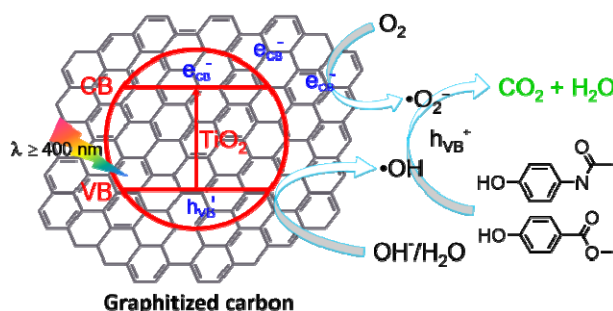
Systematical first-principles kinetic Monte Carlo simulations of CH_4 combustion on $\text{Co}_3\text{O}_4(110)$ show that the cooperation of multi active sites can promote the activity of complete CH_4 combustions substantially in comparison to separated single-site catalyst whereas the confinement of active sites could regulate the selectivity of CH_4 oxidation.

Chin. J. Catal., 2020, 41: 1378–1392 doi: 10.1016/S1872-2067(20)63565-3

In-situ route for the graphitized carbon/ TiO_2 composite photocatalysts with enhanced removal efficiency to emerging phenolic pollutants

Yunqing Liu, Peiyu Xia, Lingyu Li, Xinyue Wang, Jiaqi Meng, Yuxin Yang*, Yihang Guo*

Northeast Normal University



Graphitized carbon/ TiO_2 composites were prepared by an *in-situ* co-condensation-hydrothermal treatment route and exhibited remarkably high visible-light photocatalytic activity in degradation of aqueous emerging phenolic pollutants, which is attributed to the improved light harvesting ability and fast photogenerated charge carrier separation.

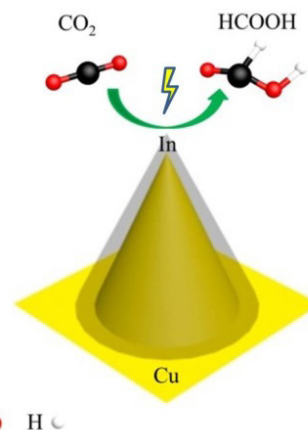
Chin. J. Catal., 2020, 41: 1393–1400 doi: 10.1016/S1872-2067(20)63577-X

Copper-indium bimetallic catalysts for the selective electrochemical reduction of carbon dioxide

Jiaqi Shao, Yi Wang, Dunfeng Gao, Ke Ye*, Qi Wang*, Guoxiong Wang

Harbin Engineering University; Dalian Institute of Chemical Physics,

Chinese Academy of Sciences; Dalian Jiaotong University

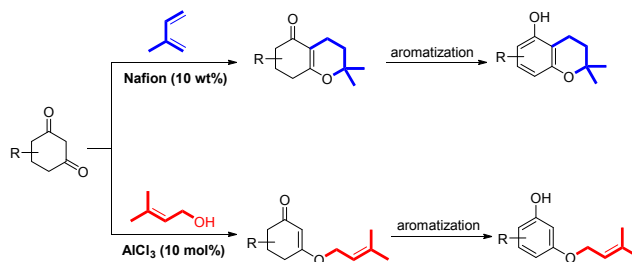


Due to the three-dimensional dendritic structure, the Cu-In-30 catalyst shows high performance in the CO_2 electroreduction reaction with a formate partial current density of 42.0 mA cm^{-2} and Faradaic efficiency of 87.4%.

Chin. J. Catal., 2020, 41: 1401–1409 doi: 10.1016/S1872-2067(20)63575-6

Acid-catalyzed chemoselective *C*- and *O*-prenylation of cyclic 1,3-diketones

Ying Li, Yan-Cheng Hu, Ding-Wei Ji, Wei-Song Zhang, Gu-Cheng He, Yu-Feng Cong *, Qing-An Chen *
Dalian Institute of Chemical Physics, Chinese Academy of Sciences; Liaoning Shihua University

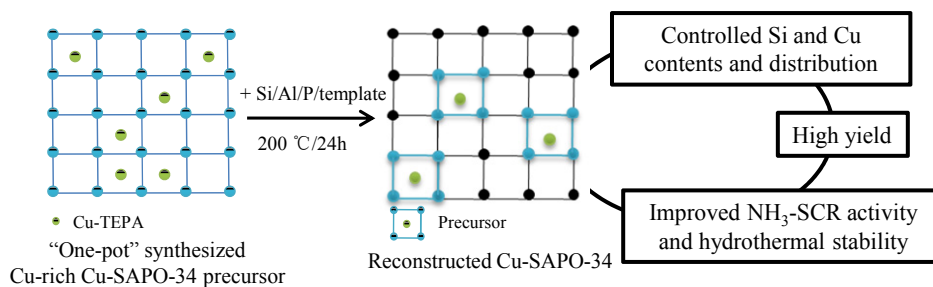


The coupling of 1,3-cyclohexanediones with isoprene produced *C*-prenylated product 5-chromenones in the presence of solid acid Nafion, while *O*-prenylation turned out to be exclusive when using prenol as substrate and Lewis acid AlCl_3 as catalyst.

Chin. J. Catal., 2020, 41: 1410–1420 doi: 10.1016/S1872-2067(20)63583-5

A reconstruction strategy for the synthesis of Cu-SAPO-34 with excellent NH_3 -SCR catalytic performance and hydrothermal stability

Lijing Sun, Miao Yang, Yi Cao, Peng Tian *, Pengfei Wu, Lei Cao, Shutao Xu, Shu Zeng, Zhongmin Liu *
Dalian Institute of Chemical Physics, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Ningbo University

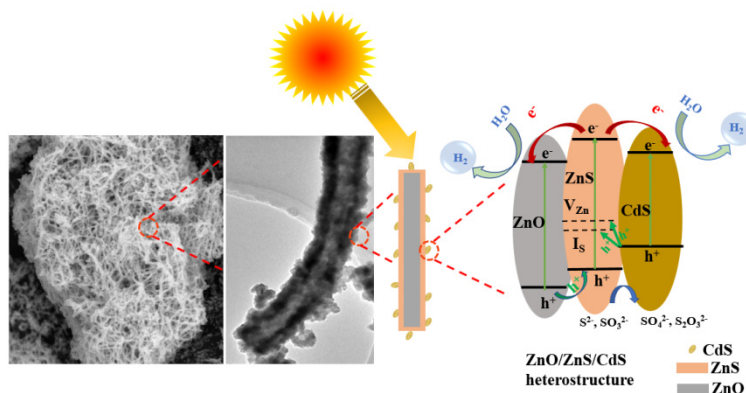


Cu-SAPO-34 was synthesized by employing Cu-rich SAPO-34 as a precursor and copper source. The template role of Cu-TEPA was limited during the recrystallization, which allowed the control of the Si and Cu contents and distribution in the products.

Chin. J. Catal., 2020, 41: 1421–1429 doi: 10.1016/S1872-2067(20)63576-8

CdS/ZnS/ZnO ternary heterostructure nanofibers fabricated by electrospinning for excellent photocatalytic hydrogen evolution without co-catalyst

Diankun Sun, Jian-Wen Shi *, Dandan Ma, Yajun Zou, Guotai Sun, Siman Mao, Lvwei Sun, Yonghong Cheng
Xi'an Jiaotong University



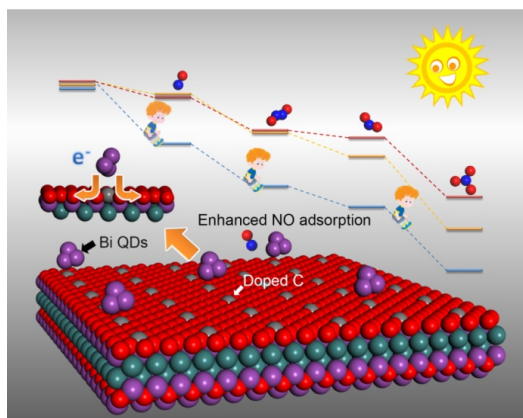
New ternary CdS/ZnS/ZnO heterostructures with one-dimensional (1D) nanofiber morphology are successfully prepared for the first time; these nanofibers exhibit a hydrogen evolution rate of $51.45 \text{ mmol h}^{-1} \text{ g}^{-1}$ without any co-catalyst.

Chin. J. Catal., 2020, 41: 1430–1438 doi: 10.1016/S1872-2067(20)63612-9

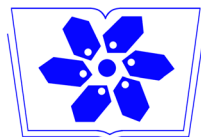
Bi quantum dots implanted 2D C-doped BiOCl nanosheets: Enhanced visible light photocatalysis efficiency and reaction pathway

Ye He, Jieyuan Li, Kanglu Li, Minglu Sun, Chaowei Yuan, Ruimin Chen, Jianping Sheng, Geng Leng, Fan Dong *

University of Electronic Science and Technology of China; Sichuan University; Chongqing Technology and Business University



A novel Bi quantum dots implanted C-doped BiOCl photocatalyst was designed and fabricated to enhance the efficiency of purifying NO in air under visible light irradiation and inhibit the generation of toxic intermediates simultaneously.



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目次

综述

1311

Pt-W 催化剂上甘油选择性氢解制备 1,3-丙二醇研究进展

王佳, 杨曼, 王爱琴

1320

葡萄糖氧化制葡萄糖酸的催化剂结构敏感性研究进展

严文娟, 张东培, 孙玉, 周子洪, 杜屹航, 杜一垚, 李玉珊, 刘梦媛, 张玉明, 沈健, 金鑫

论文

1337

利用实验测量的 Pd 表面 d 带电荷密度描述喹啉催化加氢活性

李顺林, 王丽丽, 吴萌萌, 孙雅飞, 朱小娟, 万颖

1348

铜-氧化铈固溶体催化剂用于二氧化碳催化加氢制甲醇

杨彬, 邓威, 郭利民, 石原達己

1360

CeO₂/Pt(111) 反向催化剂结构和活性的密度泛函理论研究

郑珠媛, 王栋, 张毅, 杨帆, 龚学庆

1369

Co₃O₄(110) 表面甲烷催化燃烧中的单位点和多位点性能对比: 第一性原理动力学蒙特卡洛研究

胡文德, 邵正将, 曹宵鸣, 胡培君

1378

原位法制备石墨相碳/TiO₂ 复合光催化剂及其高效降解新兴酚类污染物性能

刘云庆, 夏培玉, 李凌宇, 王欣月, 孟佳琪, 杨雨昕, 郭伊苒

1393

Cu-In 二元金属催化剂上 CO₂ 电化学还原

邵加奇, 王毅, 高敦峰, 叶克, 王琪, 汪国雄

1401

酸催化 1,3-环二酮的选择性 *C*-, *O*-异戊烯基化反应

李莹, 呼延成, 李定伟, 何国城, 张炜松, 丛玉凤, 陈庆安

1410

重构法合成 Cu-SAPO-34 及其 NH₃-SCR 催化性能

孙丽婧, 杨淼, 曹毅, 田鹏, 吴鹏飞, 曹磊, 徐舒涛, 曾姝, 刘中民

1421

静电纺丝法制备的 CdS/ZnS/ZnO 三元异质结纳米纤维无助催化剂下的光催化产氢性能

孙殿坤, 石建稳, 马丹丹, 邹雅璐, 孙国太, 毛思鹄, 孙吕伟, 成永红

1430

Bi 量子点修饰的 C 掺杂二维 BiOCl 纳米片: 增强的可见光光催化活性和反应路径

何焯, 李解元, 李康璐, 孙明禄, 袁潮苇, 陈瑞敏, 盛剑平, 冷庚, 董帆

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