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催化学报

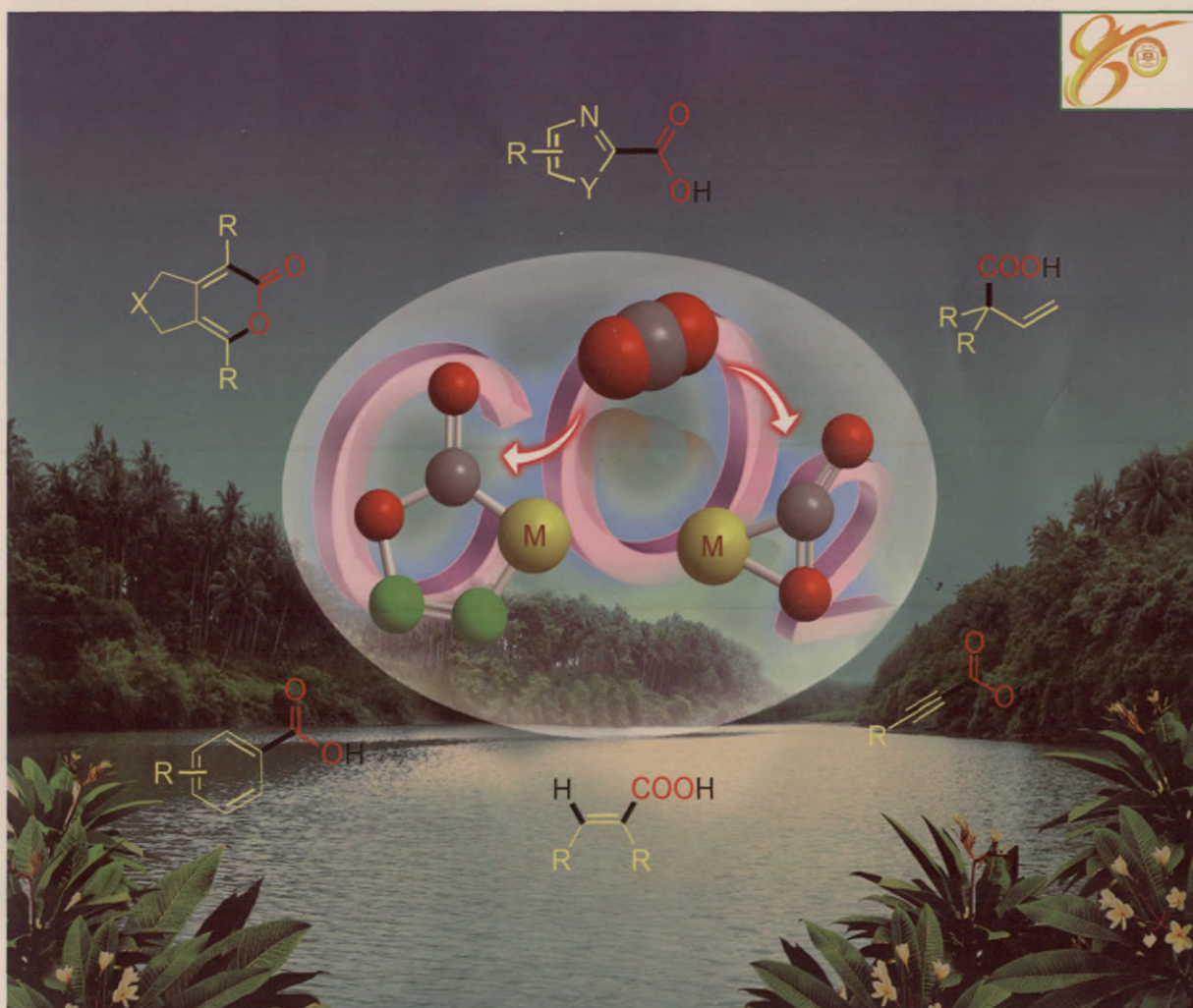
CHINESE JOURNAL OF CATALYSIS

主编 林励吾

Editor-in-Chief LIN Liwu

2012

Vol. 33 No. 5



ISSN 0253-9837



万方数据

中国化学会催化学会会刊
Transaction of the Catalysis Society of China



Science Press



中国科学院科学出版基金资助出版

催化学报

(CUIHUA XUEBAO)

CHINESE JOURNAL OF CATALYSIS

月刊 SCI收录 2012年5月 第33卷 第5期



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Supported by the Science Publication
Foundation of the CAS

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(CUIHUA XUEBAO)

CHINESE JOURNAL OF CATALYSIS

Monthly Vol. 33 No. 5 May 2012



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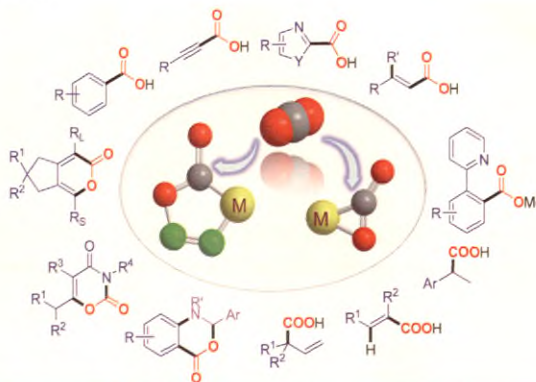
Reviews

Chin. J. Catal., 2012, 33: 745–756 doi: 10.1016/S1872-2067(11)60390-2

Synthesis of Carboxylic Acids and Derivatives Using CO₂ as Carboxylative Reagent

ZHANG Wenzhen*, LÜ Xiaobing
Dalian University of Technology

This review summarized transition metal-catalyzed reactions of CO₂ with carbon nucleophiles, C–H bond and unsaturated organic compounds for the synthesis of carboxylic acid and derivatives using CO₂ as a carboxylative reagent.

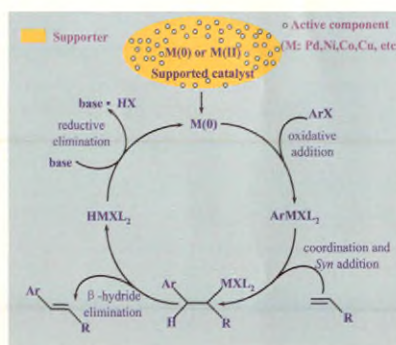


Chin. J. Catal., 2012, 33: 757–767 doi: 10.3724/SP.J.1088.2012.20145

Research Progress in Supported Catalysts for Heck Reaction

LIU Hongfei, JIA Zhigang, JI Shengfu*
Beijing University of Chemical Technology

The research progress of the supported Pd-based and non-Pd-based Heck reaction catalysts, which exhibited high catalytic activity and excellent reusable performance, was reviewed.



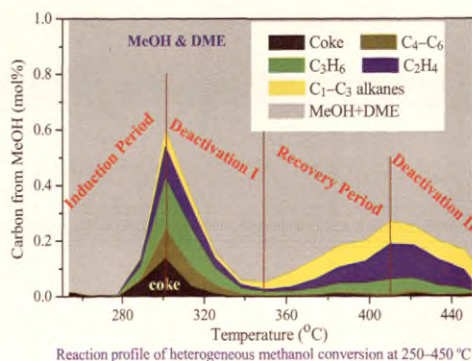
Communication

Chin. J. Catal., 2012, 33: 768–770 doi: 10.3724/SP.J.1088.2012.20406

Temperature-Programmed Methanol Conversion on a Microscale Setup Equipped with Tapered Element Oscillating Microbalance

YUAN Cuiyu, WEI Yingxu, XU Lei, LI Jinzhe, XU Shutao, ZHOU You, CHEN Jingrun, WANG Quanyi, LIU Zhongmin*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

Temperature-programmed methanol conversion from 250 to 450 °C goes through the induction period, the deactivation period, and the reactivity recovery period, which results from coke evolution in the SAPO-34 catalyst phase.



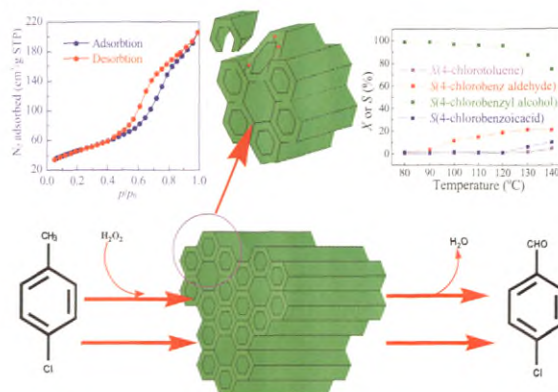
Articles

Chin. J. Catal., 2012, 33: 771–776 doi: 10.1016/S1872-2067(11)60367-7

Catalytic Selective Oxidation of 4-Chlorotoluene by Bi-MCM-41

ZHAO Junli, QIAN Guang^{*}, LI Fengyun, ZHU Jie,
JI Shengfu, LI Lei
*Changzhou University; Jiaxing University;
Beijing University of Chemical Technology*

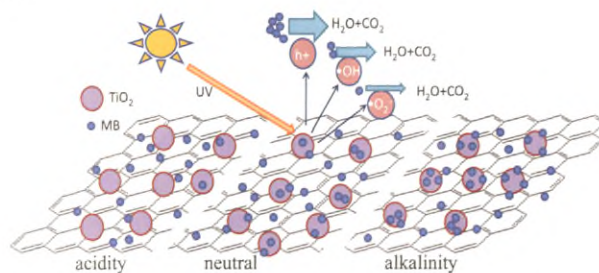
A series of bismuth incorporated MCM-41 samples were synthesized. Bi-MCM-41 catalyzed the selective oxidation of 4-chlorotoluene efficiently even on a large scale.



Chin. J. Catal., 2012, 33: 777–782 doi: 10.1016/S1872-2067(11)60374-4

Graphene-TiO₂ Composite Photocatalyst with Enhanced Photocatalytic Performance

ZHAO Huimin^{*}, SU Fang, FAN Xinfei, YU Hongtao, WU Dan, QUAN Xie
Dalian University of Technology

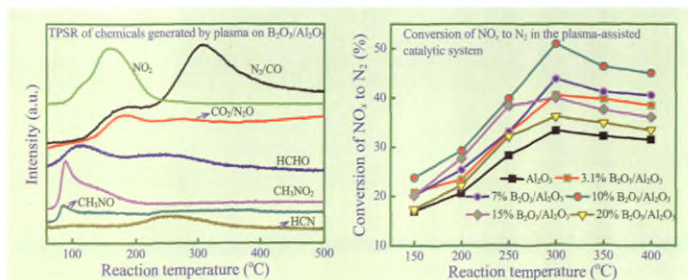


The chemically bonded graphene-TiO₂ nanocomposite photocatalyst was a more stable and better photocatalyst than pure TiO₂. The holes governed the photocatalytic process and the photocatalytic performance of this photocatalyst was improved at high pH value.

Chin. J. Catal., 2012, 33: 783–789 doi: 10.1016/S1872-2067(11)60362-8

Cold Plasma-Assisted Selective Catalytic Reduction of NO over B₂O₃/γ-Al₂O₃

YU Qinqin, LIU Tong, WANG Hui, XIAO Liping, CHEN Min, JIANG Xiaoyuan, ZHENG Xiaoming^{*}
Zhejiang University

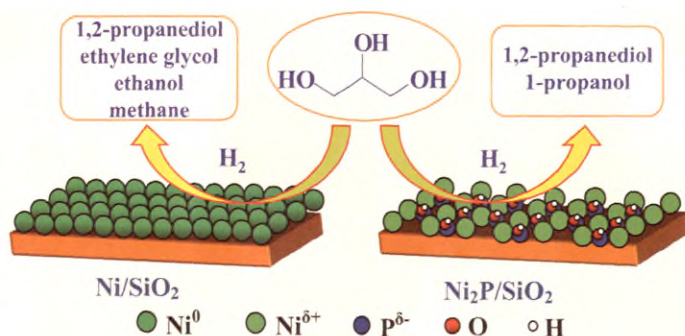


Plasma gas-phase reactions generated NO₂, HCHO, CH₃NO, and CH₃NO₂ as active chemicals. Further reactions of these chemicals on the post-plasma B₂O₃/γ-Al₂O₃ result in the conversion of NO_x.

Comparison of $\text{Ni}_2\text{P}/\text{SiO}_2$ and Ni/SiO_2 for Hydrogenolysis of Glycerol: A Consideration of Factors Influencing Catalyst Activity and Product Selectivity

HUANG Jinhua, CHEN Jixiang*

Tianjin University of Chemical Engineering and Technology



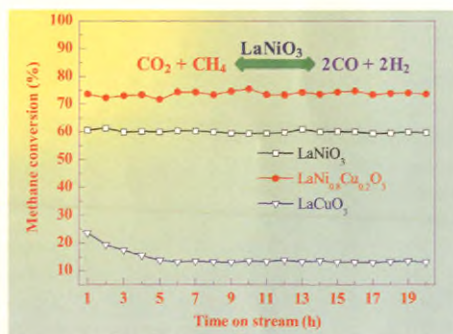
Glycerol was mainly converted to 1,2-propanediol and 1-propanol over $\text{Ni}_2\text{P}/\text{SiO}_2$, while it was mainly converted to 1,2-propanediol, ethylene glycol, ethanol, and methane over Ni/SiO_2 .

Effect of Partial Substitution of Ni by Cu in LaNiO_3 Perovskite Catalyst for Dry Methane Reforming

G. R. MORADI*, F. KHOSRAVIAN, M. RAHMANZADEH

Razi University, Iran

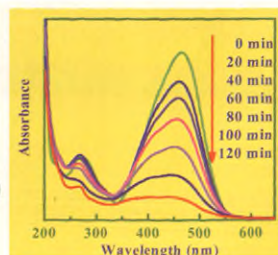
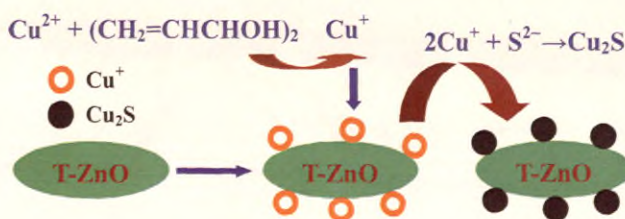
The effect of Cu addition to LaNiO_3 as $\text{LaNi}_{1-x}\text{Cu}_x\text{O}_3$ ($x = 0.2, 0.4, 0.6, 0.8$, and 1.0) perovskite type oxides on the dry reforming of methane has been investigated. $\text{LaNi}_{0.8}\text{Cu}_{0.2}\text{O}_3$ showed the best performance with superior reduction of the nickel.



Preparation and Photocatalytic Properties of $\text{Cu}_2\text{S}/\text{Tetrapod-Like ZnO Whisker Nanocomposites}$

WU Dezhi, FAN Ximei*, DAI Jia, LIU Huarong, LIU Hong, ZHANG Fengzhang

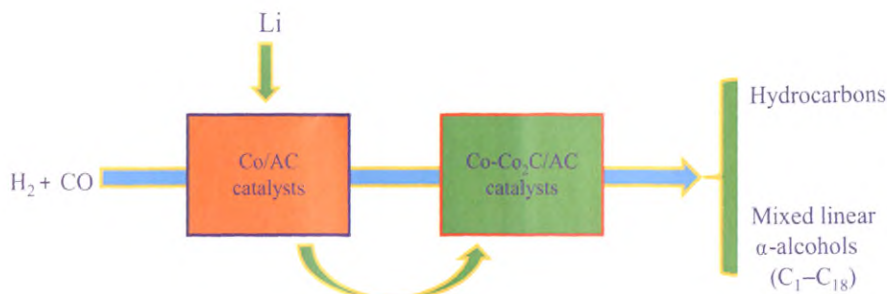
Southwest Jiaotong University



Coupled $\text{Cu}_2\text{S}/\text{tetrapod-like ZnO whisker (T-ZnOw)}$ catalysts were synthesized by the polyol process. They have a higher activity for the photocatalytic degradation of methyl orange than T-ZnOw.

Effects of Li Promoter on the Performance of Co/AC Catalysts for CO Hydrogenation to Mixed Linear α -Alcohols

PEI Yanpeng, DING Yunjie*, ZANG Juan, SONG Xiangen, DONG Wenda, ZHU Hejun, WANG Tao, CHEN Weimiao
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

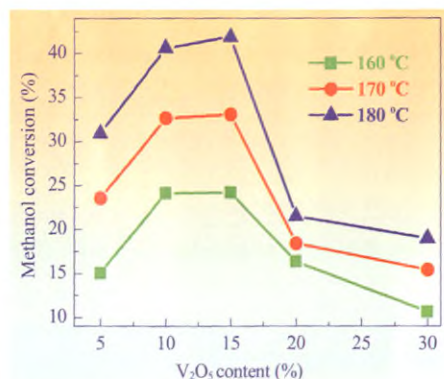


The Li additive on the activated carbon (AC) supported Co-based catalysts favored the formation of Co₂C species, which improved the selectivities for mixed linear α -alcohols in CO hydrogenation reaction.

One-Step Oxidation of Methanol to Dimethoxymethane on V₂O₅/CeO₂ Catalyst

GUO Heqin, LI Debao*, CHEN Congbiao, FAN Zhihong, SUN Yuhan*
Institute of Coal Chemistry, Chinese Academy of Sciences;
Shanghai Advanced Research Institute, Chinese Academy of Sciences

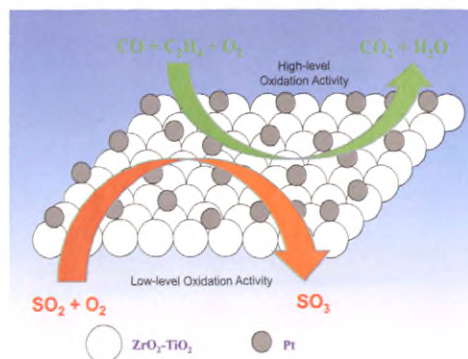
The V₂O₅ content influenced the physico-chemical properties of the V₂O₅/CeO₂ catalyst, which strongly affected catalytic performance. As the V₂O₅ content reached 15%, the 15% V₂O₅/CeO₂ catalyst exhibited higher activity for oxidation of methanol to dimethoxymethane.



Preparation and Properties of Pt/Zr_xTi_{1-x}O₂ Catalysts with Low-Level SO₂ Oxidation Activity for Diesel Oxidation

YANG Zhengzheng, CHEN Yongdong*, ZHAO Ming, ZHOU Jufa, GONG Maochu, CHEN Yaoqiang*
Sichuan University; Southwest Petroleum University

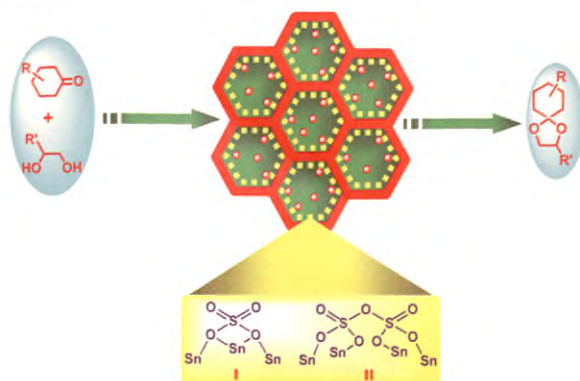
The Pt/Zr_{0.1}Ti_{0.9} catalyst exhibits higher catalytic activity for oxidation of CO and C₂H₄, as well as low-level activity for oxidation of SO₂.



Preparation and Application of $\text{SO}_4^{2-}/\text{SnO}_2/\text{SBA-15}$ Solid Acid Catalyst for Acetalization of Cyclic Ketones

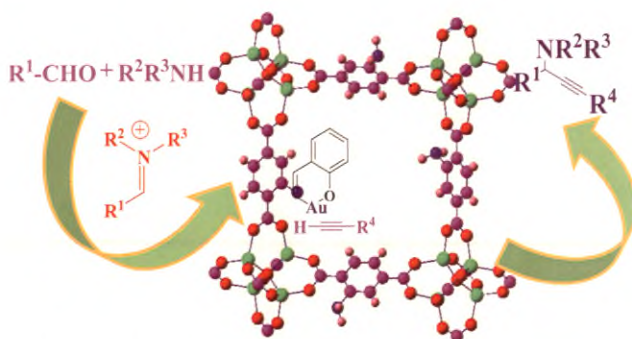
YANG Zhiwang*, HONG Wei, WANG Jia, CHEN Lina,
JIA Na, ZHAO Lei, MA Hengchang, LEI Ziqiang
Northwest Normal University

$\text{SO}_4^{2-}/\text{SnO}_2/\text{SBA-15}$ was used as an excellent catalyst for acetalization of several cyclic ketones with diols. The catalyst can be regenerated by simple calcination and recycled several times without any significant loss in catalytic activity.



Preparation and Characterization of Metal-Organic Framework Supported Gold Catalysts and Their Catalytic Performance for Three-Component Coupling Reaction

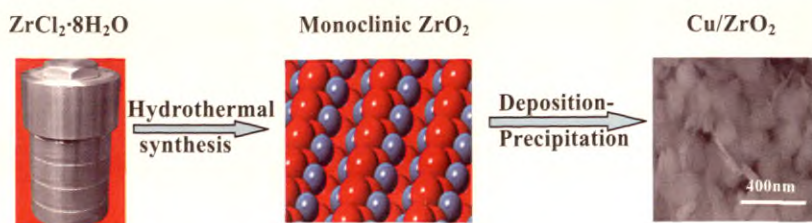
LIU Lili, ZHANG Xin*, GAO Jinsen, XU Chunming*
China University of Petroleum



Gold-metal organic framework (IRMOF-3-SI-Au) bridges the gap between homogeneous and heterogeneous gold catalysts, and the catalyst is highly active and selective for three-component coupling reaction.

Cu/ZrO₂ Catalyst for Low-Temperature Water-Gas Shift Reaction: Preparation, Characterization and Performance

RUAN Chunxiao, CHEN Chongqi, ZHANG Yanjie, LIN Xingyi, ZHAN Yingying, ZHENG Qi*
Fuzhou University

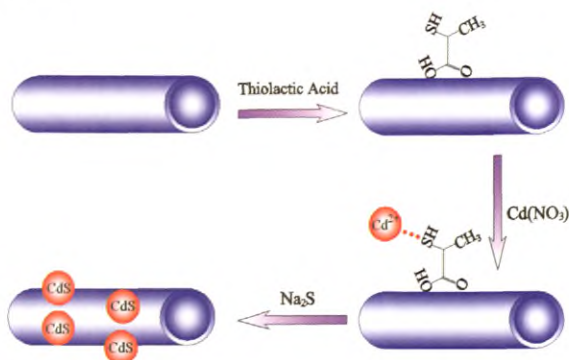


A series of Cu/ZrO₂ catalyst samples were fabricated by hydrothermal synthesis combined with a deposition-precipitation method. The effect of preparation parameters on the catalytic performance of these catalyst samples was investigated.

Synthesis, Characterization and Photocatalytic Performance of CdS/TiO₂ Nanotube Photocatalyst

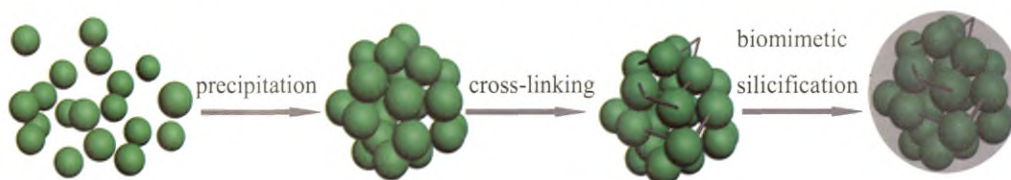
ZHOU Qiang, YUAN Baoling*, XU Dongxing, FU Minglai
Huaqiao University; Fuzhou University;
Institute of Urban Environment, Chinese Academy of Sciences

CdS quantum dots have been successfully deposited onto the surfaces of TiO₂ nanotubes (TNTs) to form high-active CdS/TNTs photocatalyst by use of a simple bifunctional organic linker, thiolactic acid.



Preparation of Immobilized Lipase through Combination of CLEAs and Biomimetic Silicification

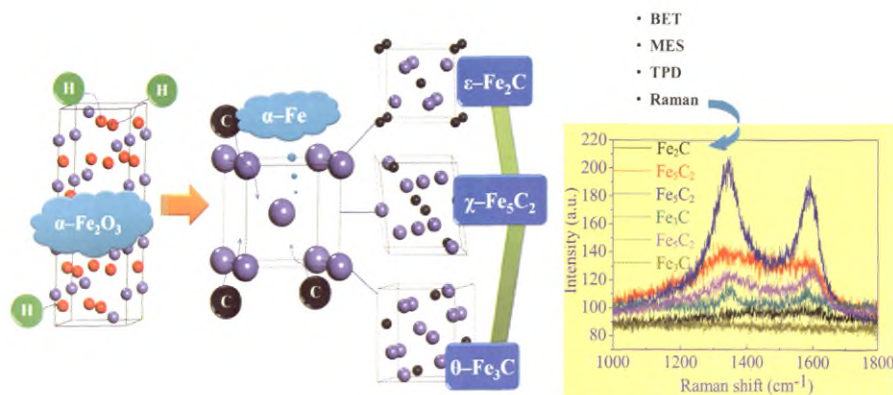
JIANG Yanjun, WANG Qi, WANG Wenqin, ZHOU Liya, GAO Jing*
Hebei University of Technology; Institute of Process Engineering, Chinese Academy of Sciences



The hybrid biocatalyst was prepared by the combination of cross-linked enzyme aggregates (CLEAs) and biomimetic silicification, which may provide a simple technique for enzyme immobilization.

Synthesis of Single-Phase Iron Carbides and Their Adsorption Performance

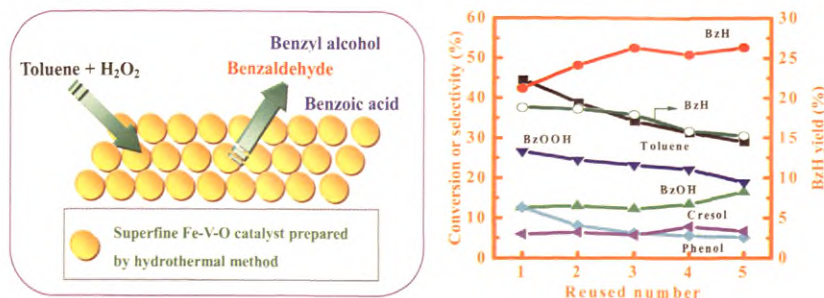
WANG Ruixue, WU Baoshan*, LI Yongwang
Institute of Coal Chemistry, Chinese Academy of Sciences



Iron carbides with single-phases, including ϵ -Fe₂C, χ -Fe₅C₂, and θ -Fe₃C, were synthesized in different carbonization gases at different temperatures. The effects of carbonization conditions on the structural properties, carbon deposition and adsorption properties of the iron carbides were studied.

Superfine Fe-V-O Catalyst for Liquid-Phase Oxidation of Toluene to Benzaldehyde

ZHANG Guiquan, ZHANG Xin*, QI Min, LIN Tao, GONG Ting
Northwest University

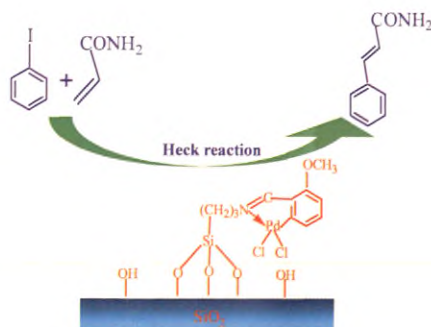


Hydrothermally synthesized Fe-V-O showed the highest benzaldehyde yield and better reusability in liquid-phase oxidation of toluene by H_2O_2 to benzaldehyde due to its smaller particle size, higher V/Fe surface ratio, and moderate reducibility.

Preparation and Characterization of Silica-Supported Imine Palladacycle Complex and Its Catalytic Performance

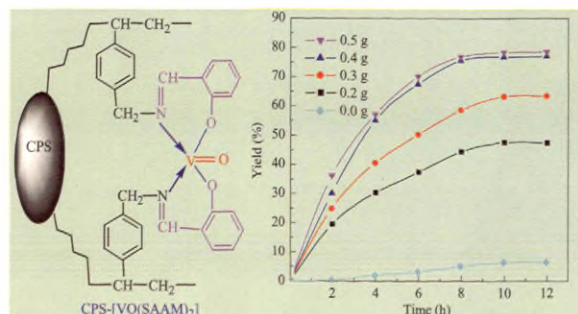
YANG Xinli*, ZHANG Chengjun, DAI Weilin*, LIU Jianping,
WEI Meisheng
Henan University of Technology; Fudan University

The silica-supported imine palladacycle complex was synthesized. The complex was a promising novel catalyst in the Heck reaction of iodobenzene with acrylamide to *trans*-products.



Catalytic Oxidation of Benzyl Alcohol by Dioxygen over Bidentate Schiff Base-Type Oxovanadium(IV) Complex Immobilized on Crosslinked Polystyrene Microspheres

DAI Xin, GAO Baojiao*, LEI Haibo
North University of China; Weifang Institute of Supervision & Inspection on Product Quality

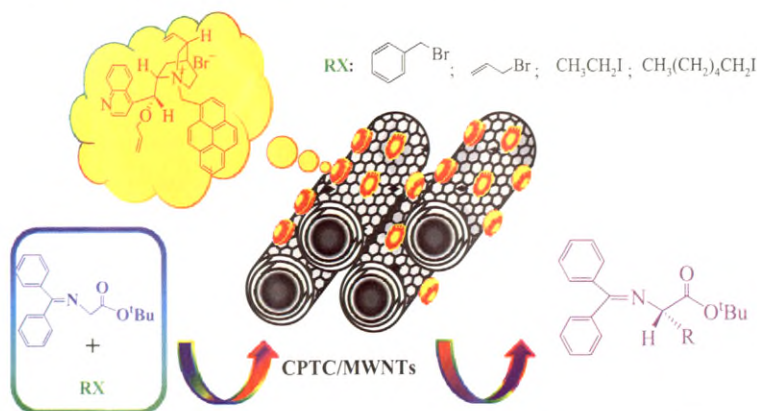


An immobilized Schiff base-type oxovanadium(IV) complex, CPS-[VO(SAAM)₂], was prepared. In benzyl alcohol oxidation by dioxygen, the heterogeneous oxovanadium(IV) complex catalyst has high catalytic activity and excellent catalytic selectivity.

Immobilization of Cinchona Quaternary Ammonium Salts as the Chiral Phase Transfer Catalysts on Multi-walled Carbon Nanotubes and Their Application in Enantioselective Alkylation

LIU Jian, LIU Yan*, SHI Xin*, YANG Qihua*

Liaoning Normal University; Dalian Institute of Chemical Physics, Chinese Academy of Sciences

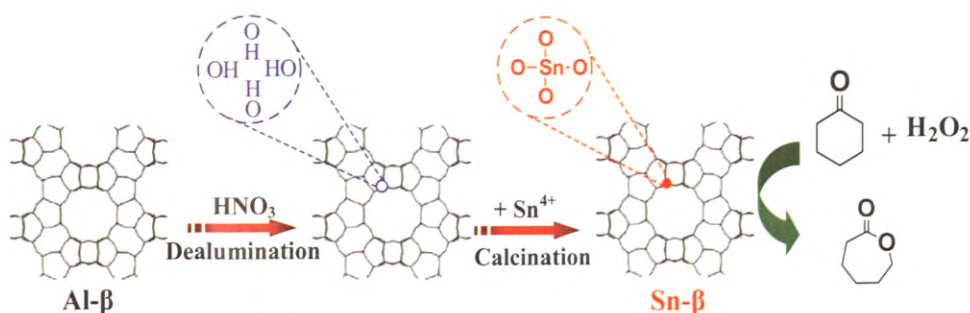


A new catalyst CPTC/MWCNTs was synthesized by adsorption of pyrene-tagged cinchona quaternary ammonium salt (CPTC) onto multi-walled carbon nanotubes (MWCNTs) via π - π stacking interaction. CPTC/MWCNTs was successfully employed in asymmetric alkylation of different halohydrocarbons with *N*-(diphenylmethene)glycine *tert*-butyl ester.

Preparation and Characterization of Sn- β Zeolites by a Two-Step Postsynthesis Method and Their Catalytic Performance for Baeyer-Villiger Oxidation of Cyclohexanone

KANG Zihua, LIU Hai'ou, ZHANG Xiongfu*

Dalian University of Technology



Sn- β zeolites were prepared by a two-step postsynthesis method including first creating vacant T-sites by dealumination of Al- β zeolites and then inserting Sn^{4+} into the T-sites of the β zeolites by impregnation and calcination. They show impressive catalytic performance in Baeyer-Villiger oxidation of cyclohexanone.