http://www.chxb.cn
ISSN 0253-9837
CN 21-1195/O6
CODEN THHPD3

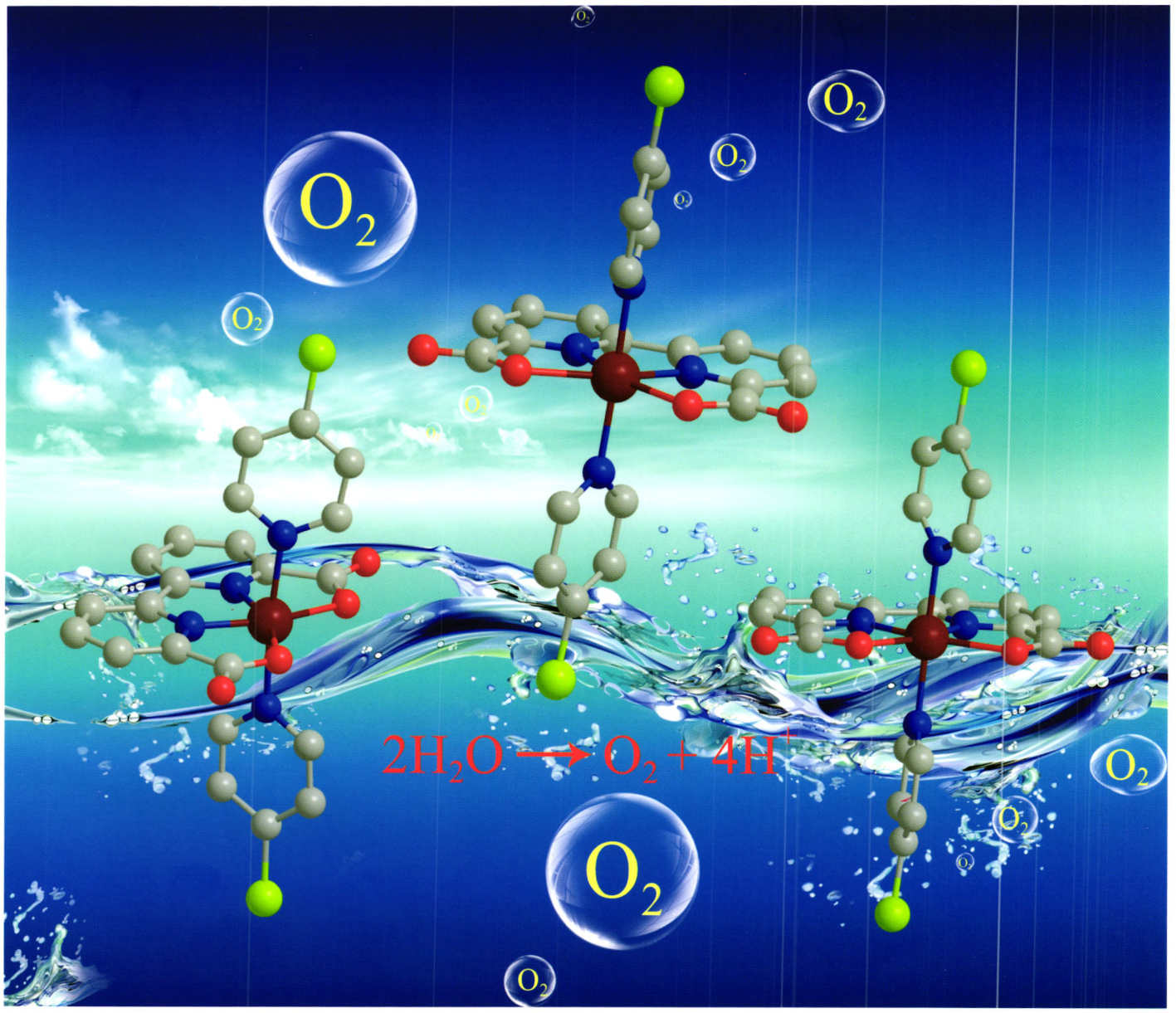
催化学报

Chinese Journal of Catalysis

主编 林励吾

Editor-in-Chief LIN Liwu

2013
Vol. 34 No. 8



ISSN 0253-9837

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

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 2013 年 8 月 第 34 卷 第 8 期

目 次

综 述

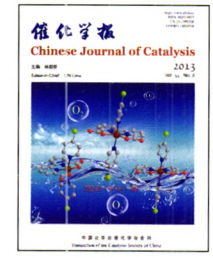
研究快讯

研究论文

相关信息

英文全文电子版(国际版)由Elsevier出版社在ScienceDirect上出版
http://www.sciencedirect.com/science/journal/18722067
http://www.elsevier.com/locate/chnjc
http://www.chxb.cn

available at www.sciencedirect.com
ScienceDirect
journal homepage: www.elsevier.com/locate/chnjc



Chinese Journal of Catalysis

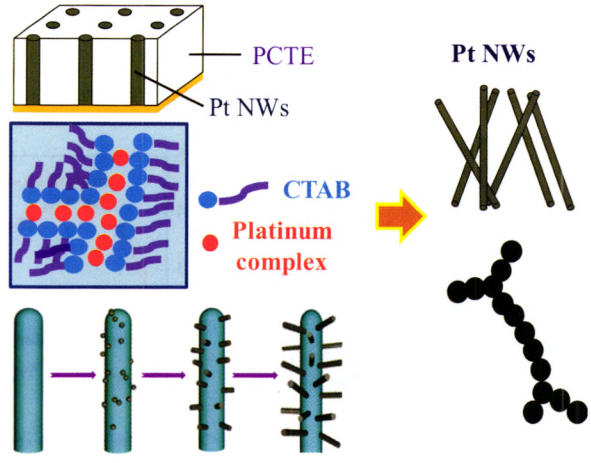
Graphical Contents

Review

Chin. J. Catal., 2013, 34: 1471–1481 doi: 10.1016/S1872-2067(12)60629-9

Pt nanowire electrocatalysts for proton exchange membrane fuel cells

Zeyu Yan, Bing Li*, Daijun Yang, Jianxin Ma
Tongji University



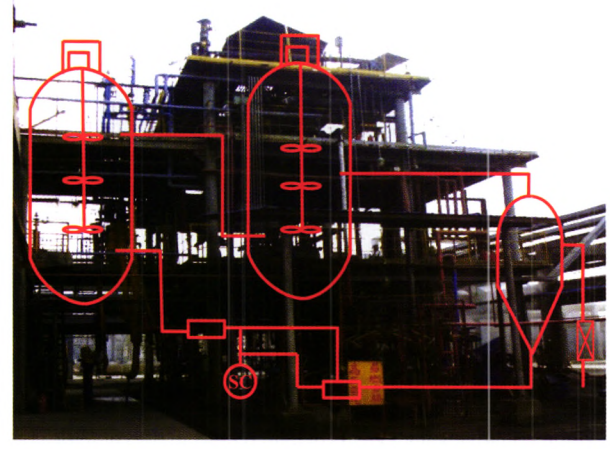
This review presents the research progress of different preparation methods of Pt nanowire catalyst and its electrochemical performance, durability, and CO tolerance applying to proton exchange membrane fuel cells.

Communication

Chin. J. Catal., 2013, 34: 1482–1488 doi: 10.1016/S1872-2067(12)60637-8

Selective hydrogenation of benzene to cyclohexene in continuous reaction device with two reaction reactors in serie over Ru-Co-B/ZrO_2 catalysts

Haijie Sun, Shuaihui Li, Yuanxin Zhang, Houbing Jiang, Lianglong Qu, Shouchang Liu, Zhongyi Liu*
Zhengzhou University;
Zhengzhou Normal University;
Beijing Energy Engineering Technologies Co., Ltd



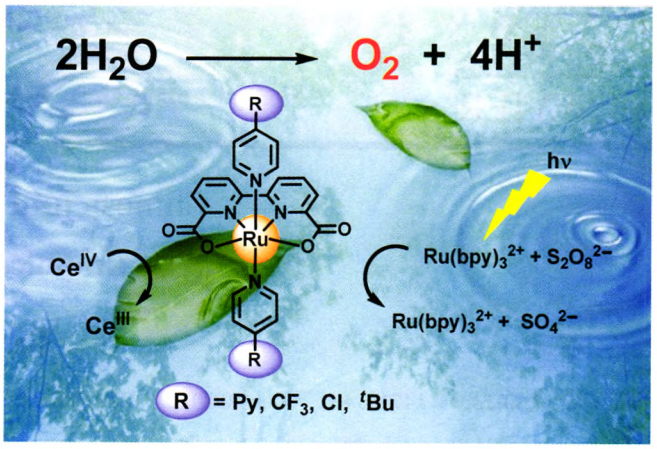
The selectivity for cyclohexene and the cyclohexene yield were stabilized at around 73% and 30%, respectively, in 419 h over a Ru-Co-B/ZrO_2 catalyst in a continuous device with two reactors in series.

Articles

Chin. J. Catal., 2013, 34: 1489–1495 doi: 10.1016/S1872-2067(12)60600-7

Chemical and photocatalytic water oxidation by mononuclear Ru catalysts

Yi Jiang, Fei Li*, Fang Huang, Biaobiao Zhang, Licheng Sun*
Dalian University of Technology, China;
KTH Royal Institute of Technology, Sweden

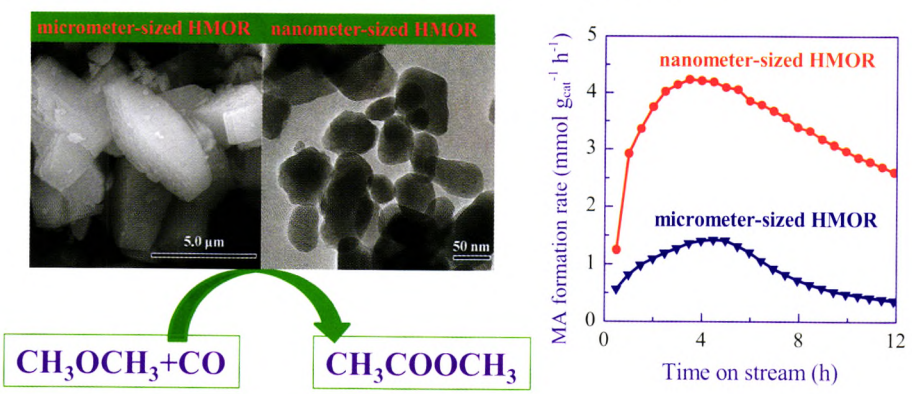


Mononuclear ruthenium complexes based on the bipyridine-dicarboxylate (bda) ligand were prepared and showed high catalytic efficiencies for chemical and photochemical water oxidation, a key challenge for solar energy conversion into fuels. The more electron-withdrawing substituents on the axial ligands of the catalysts lead to higher activities towards water oxidation.

Chin. J. Catal., 2013, 34: 1496–1503 doi: 10.1016/S1872-2067(12)60607-X

Coking on micrometer- and nanometer-sized mordenite during dimethyl ether carbonylation to methyl acetate

Huifu Xue, Xiumin Huang, Evert Ditzel, Ensheng Zhan, Meng Ma, Wenjie Shen*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China; BP Chemicals Limited, UK

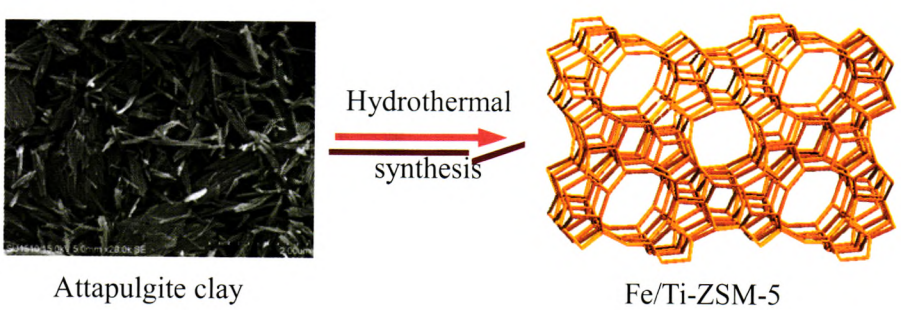


Nanometer-sized H-mordenite (HMOR) showed a much higher reaction rate and stability than micrometer-sized HMOR, resulting from the improvement of molecule transportation efficiency by reducing the crystalline size.

Chin. J. Catal., 2013, 34: 1504–1512 doi: 10.1016/S1872-2067(12)60638-X

Synthesis and catalytic cracking performance of Fe/Ti-ZSM-5 zeolite from attapulgite mineral

Xiaozhao Zhou, Yan Liu, Xiangju Meng, Baojian Shen, Feng-Shou Xiao*
Zhejiang University; China University of Petroleum

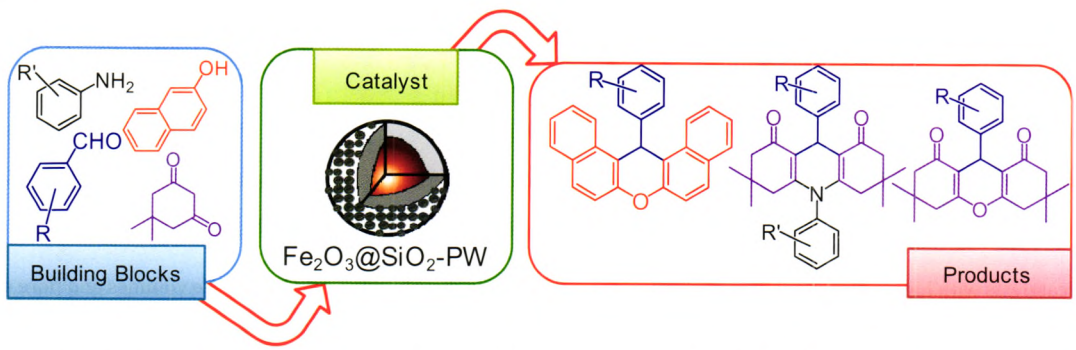


Fe/Ti-ZSM-5 zeolite was synthesized from treated attapulgite (ATP) mineral. Compared with conventional ZSM-5 zeolite, Fe/Ti-ZSM-5 exhibits relatively high yields of light olefins in the catalytic cracking of Canadian light gas oil.

Chin. J. Catal., 2013, 34: 1513–1518 doi: 10.1016/S1872-2067(12)60645-7

Magnetically recoverable, nanoscale-supported heteropoly acid catalyst for green synthesis of biologically active compounds in water

Ezzat Rafiee*, Sara Eavani, Maryam Khodayari
Razi University, Iran

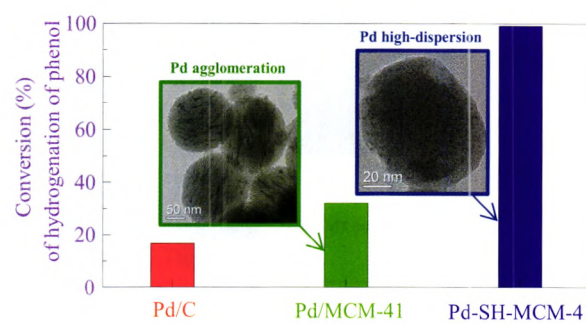


12-Tungstophosphoric acid (PW) catalysts supported on aerosil silica and silica-coated γ-Fe_2O_3 nanoparticles (Fe_2O_3@SiO_2-PW) were prepared and characterized. These catalysts were used for the aqueous syntheses of 1,8-dioxo-9,10-diaryldecahydroacridines and xanthene derivatives, which are biologically interesting compounds.

Chin. J. Catal., 2013, 34: 1519–1526 doi: 10.1016/S1872-2067(12)60603-2

Immobilization of highly active Pd nano-catalysts on functionalized mesoporous silica supports using mercapto groups as anchoring sites and their catalytic performance for phenol hydrogenation

Jiaxi Zhang, Gaowei Huang, Cheng Zhang, Qunhua He, Chao Huang, Xu Yang, Huiyu Song, Zhenxing Liang, Li Du*, Shijun Liao*
South China University of Technology;
Guangdong Environmental Monitoring Center;
Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences

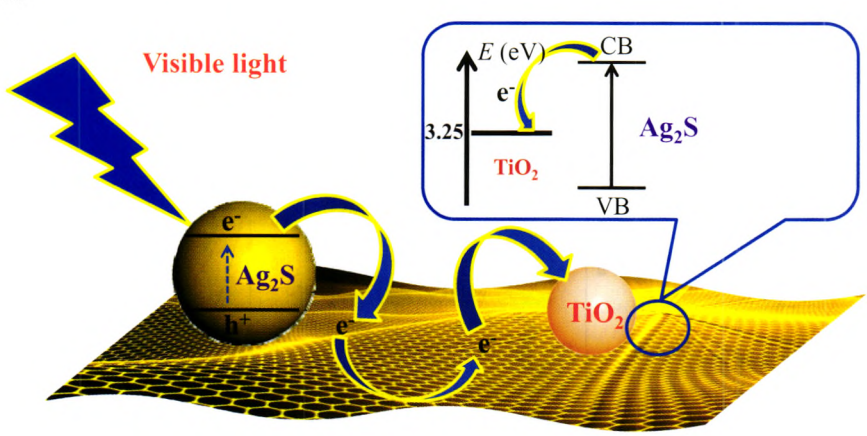


Highly dispersed Pd nanoparticle catalyst on –SH-functionalized mesoporous silica (Pd-SH-MCM-41) was prepared by anchoring interaction between –SH groups and Pd cations. This catalyst showed very high catalytic activity (>99%) for the hydrogenation of phenol.

Chin. J. Catal., 2013, 34: 1527–1533 doi: 10.1016/S1872-2067(12)60611-1

Enhanced visible light photocatalytic activity of Ag_2S-graphene/TiO_2 nanocomposites made by sonochemical synthesis

Ze-Da Meng, Lei Zhu, Kefayat Ullah, Shu Ye, Qian Sun, Won-Chun Oh*
Hanseo University, Korea

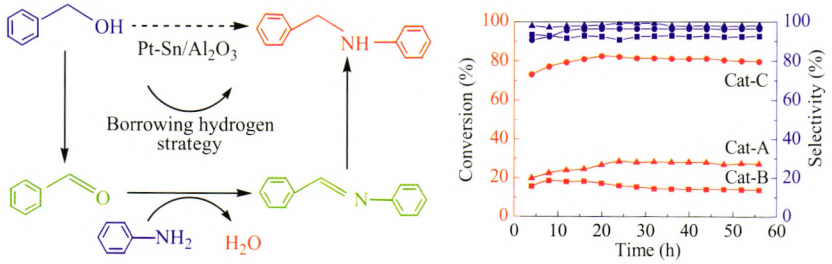


This paper presents the research of synthesized Ag_2S-graphene/TiO_2 by the sonochemical method. The generation of reactive oxygen species was detected through the oxidation reaction from 1,5-diphenyl carbazide to 1,5-diphenyl carbazone.

Chin. J. Catal., 2013, 34: 1534–1542 doi: 10.1016/S1872-2067(12)60608-1

Effect of alumina support on catalytic performance of Pt-Sn/Al_2O_3 catalysts in one-step synthesis of *N*-phenylbenzylamine from aniline and benzyl alcohol

Mengyao Yin, Songbo He*, Zhengkun Yu, Kaikai Wu, Liandi Wang, Chenglin Sun*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences; University of Chinese Academy of Sciences

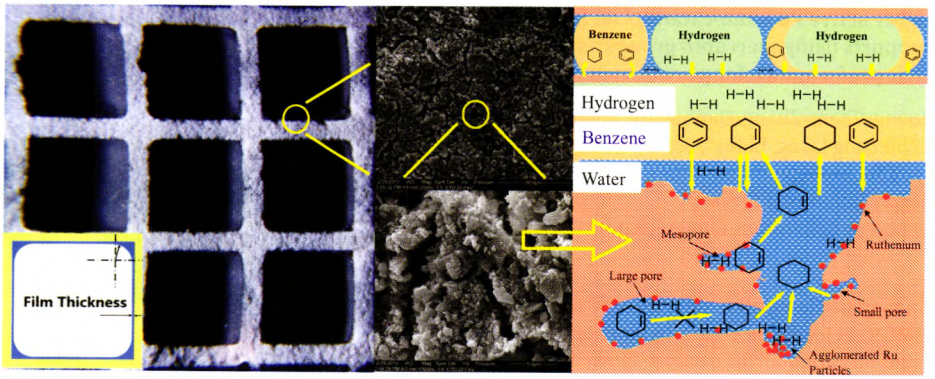


Pt-Sn/Al_2O_3 catalysts with highly dispersed Pt particles, weak acid sites, acid distributions, and large pore volumes and pore size distributions have excellent catalytic performance in the synthesis of secondary amines.

Chin. J. Catal., 2013, 34: 1543–1550 doi: 10.1016/S1872-2067(12)60609-3

Ru/Al_2O_3-ZrO_2-NiO/cordierite monolithic catalysts for selective hydrogenation of benzene

Minghao Wang, Hongjiu Su, Jin Zhou, Shudong Wang*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences; University of Chinese Academy of Sciences

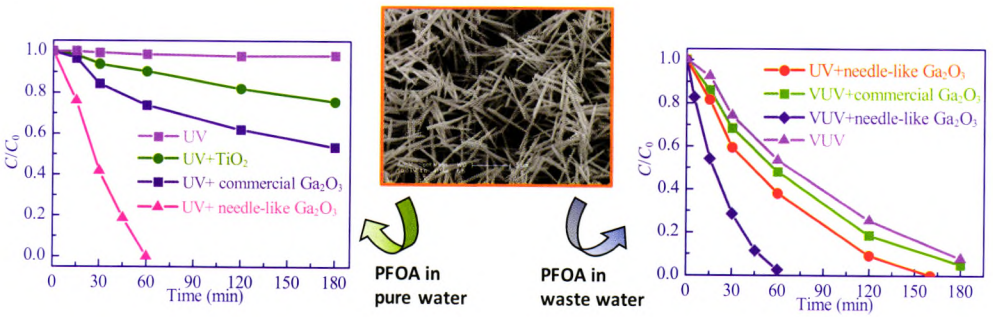


Novel egg-shell-like Ru/Al_2O_3-ZrO_2-NiO/cordierite monolithic catalysts with tailored pore structure are fabricated. Mesopores and low pore volume are needed to obtain a reasonable yield of cyclohexene using the monolithic catalysts with a low concentration of $ZnSO_4$ solution.

Chin. J. Catal., 2013, 34: 1551–1559 doi: 10.1016/S1872-2067(12)60612-3

Photocatalytic decomposition of perfluorooctanoic acid in pure water and wastewater by needle-like nanostructured gallium oxide

Tian Shao, Pengyi Zhang*, Zhenmin Li, Ling Jin
Tsinghua University

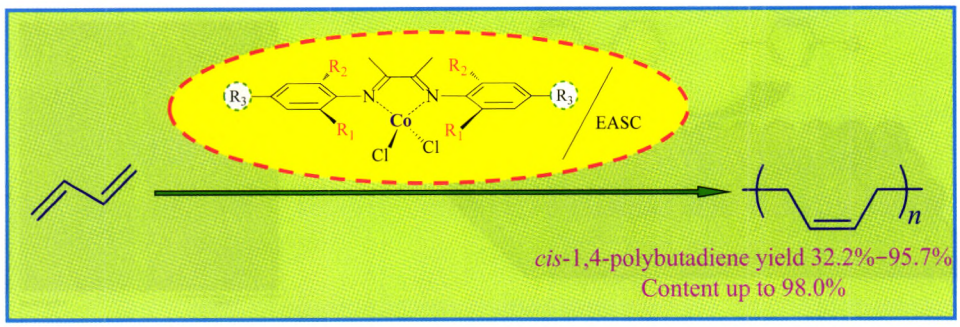


In combination with 185 nm vacuum UV irradiation, needle-like Ga_2O_3 showed high efficiency for the removal of trace perfluorooctanoic acid (PFOA) in wastewater where the decomposition of PFOA by other catalysts is usually inhibited by coexisting natural organic matters.

Chin. J. Catal., 2013, 34: 1560–1569 doi: 10.1016/S1872-2067(12)60625-1

Highly active and *cis*-1,4 selective polymerization of 1,3-butadiene catalyzed by cobalt(II) complexes bearing α-diimine ligands

Xiangyu Jia, Heng Liu, Yanming Hu*, Quanquan Dai, Jifu Bi, Chenxi Bai, Xuequan Zhang*
Changchun Institute of Applied Chemistry, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Dalian University of Technology

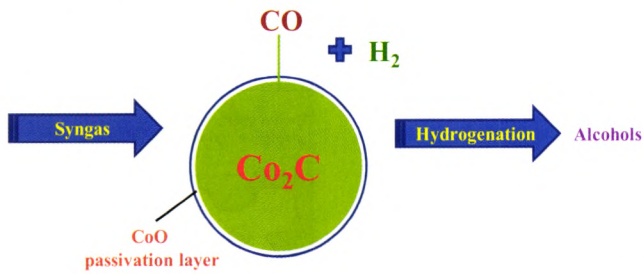


A series of cobalt(II) complexes ligated by α-diimine have been synthesized and characterized. The catalyst system [α-diimine]$CoCl_2$/EASC shows high catalytic activity and *cis*-1,4 selectivity (up to 98%) for 1,3-butadiene polymerization.

Chin. J. Catal., 2013, 34: 1570–1575 doi: 10.1016/S1872-2067(12)60615-9

Temperature-programmed desorption and surface reaction studies of CO on Co_2C

Yanpeng Pei, Yunjie Ding*, Juan Zang, Xiangen Song, Wenda Dong, Hejun Zhu, Tao Wang, Weimiao Chen
Dalian Institute of Chemical Physics, Chinese Academy of Sciences; University of Chinese Academy of Sciences

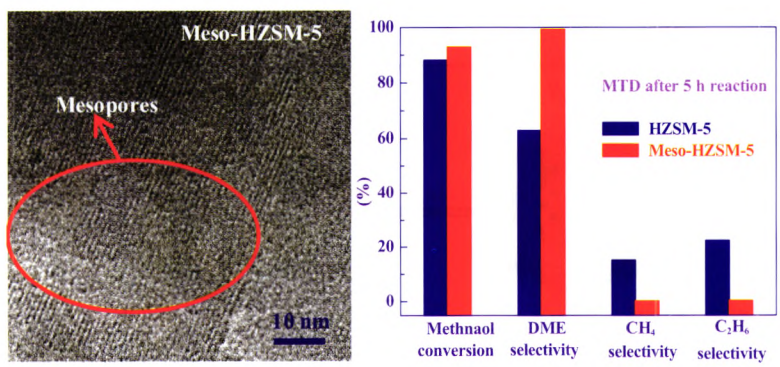


Co_2C was prepared by carburizing Co with CO. The prepared Co_2C samples were composed of a bulk Co_2C phase and an outer CoO passivation layer. Co_2C could adsorb CO, which was hydrogenated into alcohol.

Chin. J. Catal., 2013, 34: 1576–1582 doi: 10.1016/S1872-2067(12)60621-4

Hierarchical mesoporous ZSM-5 for the dehydration of methanol to dimethyl ether

Qi Yang, Haitao Zhang, Meng Kong, Xiuxiu Bao, Jinhua Fei*, Xiaoming Zheng
Zhejiang University; Petrochina Lanzhou Chemical Research Centre

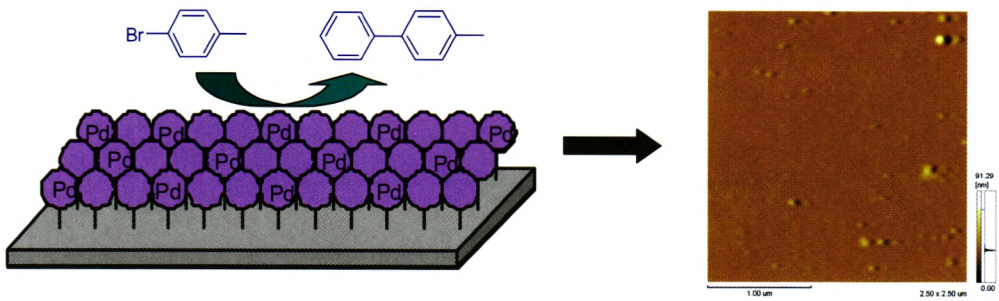


The synthesized hierarchical mesoporous HZSM-5 zeolites exhibited better catalytic activity than conventional HZSM-5, indicating that hierarchical mesopores play an important role in the methanol to dimethyl ether process.

Chin. J. Catal., 2013, 34: 1583–1588 doi: 10.1016/S1872-2067(12)60613-5

Preparation, characterization and catalytic activity of amphiphilic cyclopalladated aryl imines and their Langmuir-Blodgett films

Na Zhao, Fei Wang, Meiling Zhou, Tiesheng Li*, Hui Liu, Wenjian Xu, Yangjie Wu*
Zhengzhou University



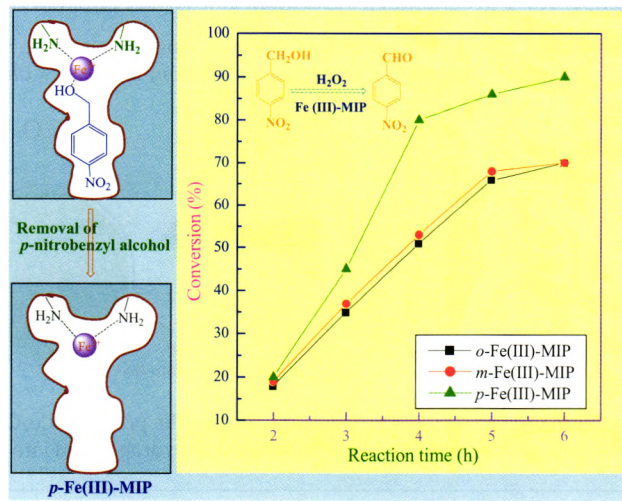
The amphiphilic cyclopalladated aryl imine catalysts were successfully transferred on the solid slides and can be used for the Suzuki reactions.

Chin. J. Catal., 2013, 34: 1589–1598 doi: 10.1016/S1872-2067(12)60624-X

Molecularly imprinted polymer containing Fe(III) catalysts for specific substrate recognition

Wenqing Sun, Rong Tan*, Weiguo Zheng, Donghong Yin*
Hunan Normal University;
Tobacco Hunan Industrial Corporation

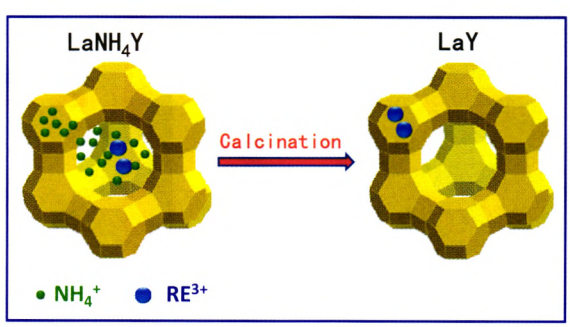
A series of molecularly imprinted polymers (MIPs) containing the equal amount of iron(III) were found to be the specific substrate recognition catalysts in the oxidation of substituted benzyl alcohol in water.



Chin. J. Catal., 2013, 34: 1599–1607 doi: 10.1016/S1872-2067(12)60622-6

Cation location and migration in lanthanum-exchanged NaY zeolite

Xiaohui Du, Haitao Zhang, Xueli Li, Zhengguo Tan, Honghai Liu, Xionghou Gao*
Northwest Normal University; Lanzhou Petrochemical Research Center

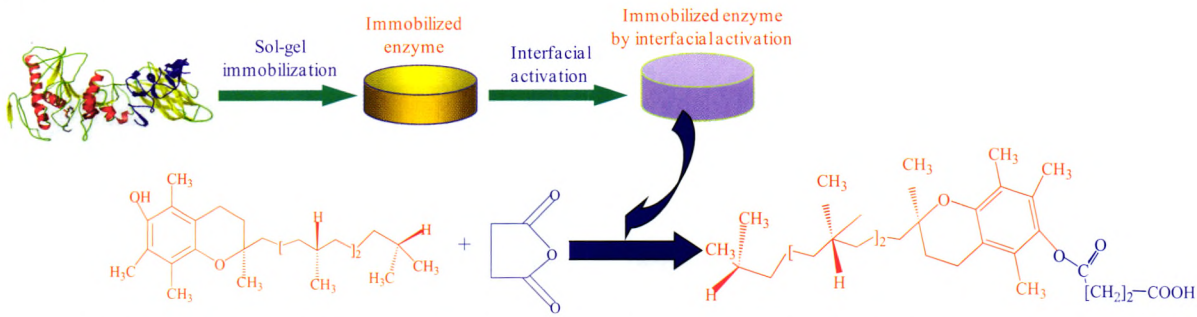


Lanthanum cations are initially distributed in supercages and then migrate to SI' located inside sodalite cages during heating and dehydration.

Chin. J. Catal., 2013, 34: 1608–1616 doi: 10.1016/S1872-2067(12)60628-7

Synthesis of vitamin E succinate by interfacial activated *Candida rugosa* lipase encapsulated in sol-gel materials

Yi Hu, Xiangjun Jiang, Suwen Wu, Ling Jiang, He Huang*
Nanjing University of Technology

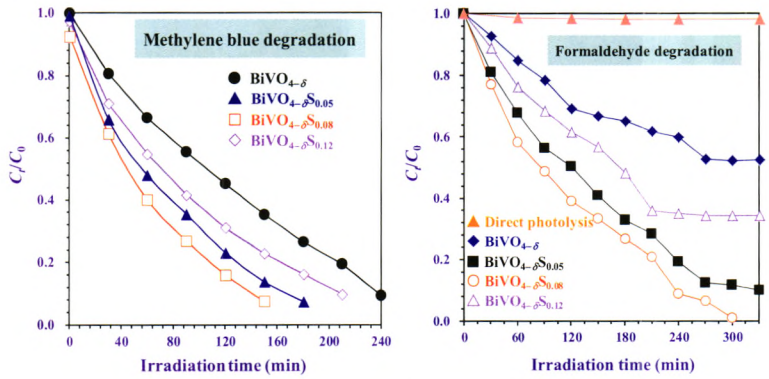


Interfacial activated *Candida rugosa* lipase encapsulated in sol-gel materials was prepared and used to synthesize vitamin E succinate.

Chin. J. Catal., 2013, 34: 1617–1626 doi: 10.1016/S1872-2067(12)60632-9

Effect of sulfur doping on the photocatalytic performance of $BiVO_4$ under visible light illumination

Zhenxuan Zhao, Hongxing Dai*, Jiguang Deng, Yuxi Liu, Chak Tong Au*
Beijing University of Technology; Hong Kong Baptist University

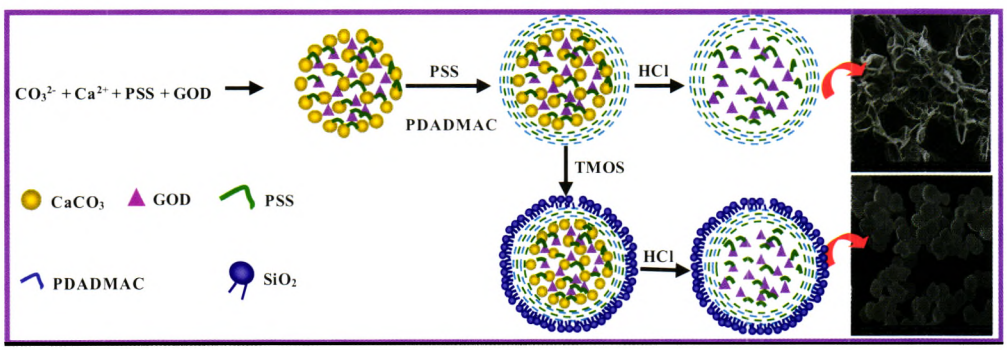


Porous $BiVO_{4-\delta}$ and $BiVO_{4-\delta}S_\sigma$ are fabricated using dodecylamine-assisted alcohol-hydrothermal strategy. The higher O_{ads} concentration and lower bandgap energy account for excellent photocatalytic performance of $BiVO_{4-\delta}S_{0.08}$ for methylene blue and formaldehyde degradation.

Chin. J. Catal., 2013, 34: 1627–1633 doi: 10.1016/S1872-2067(12)60635-4

Biomimetic preparation of organic-inorganic composite microcapsules for glucose oxidase immobilization

Qian Xin, Yanjun Jiang*, Jing Gao*, Liya Zhou, Li Ma, Ying He, Fei Jia
Hebei University of Technology; Institute of Process Engineering, Chinese Academy of Sciences



Glucose oxidase (GOD) was immobilized in organic-inorganic composite microcapsules using a combination of layer-by-layer assembly and biomimetic mineralization. The encapsulated GOD exhibited distinct advantages in terms of thermal, pH, and operational stabilities.