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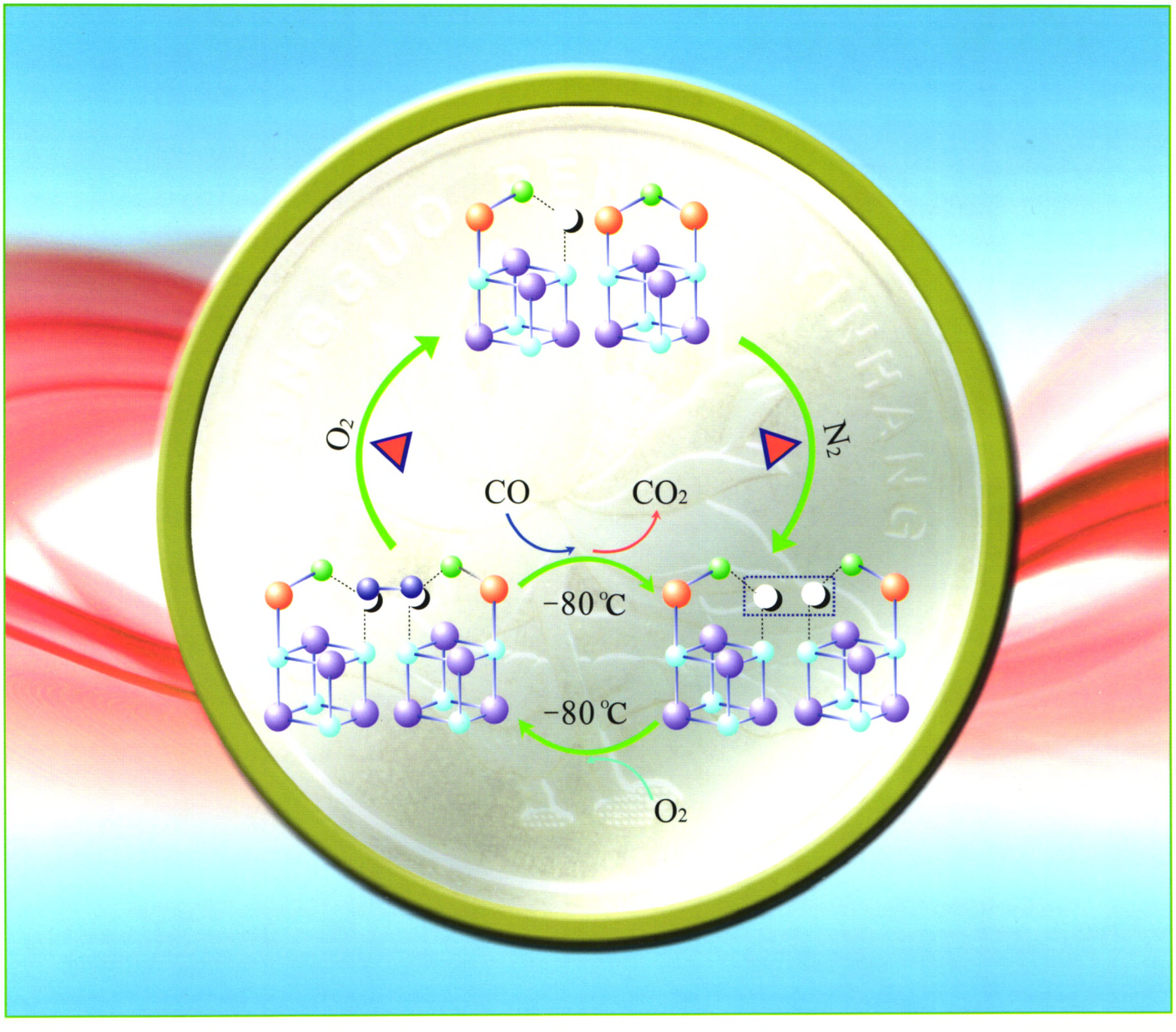

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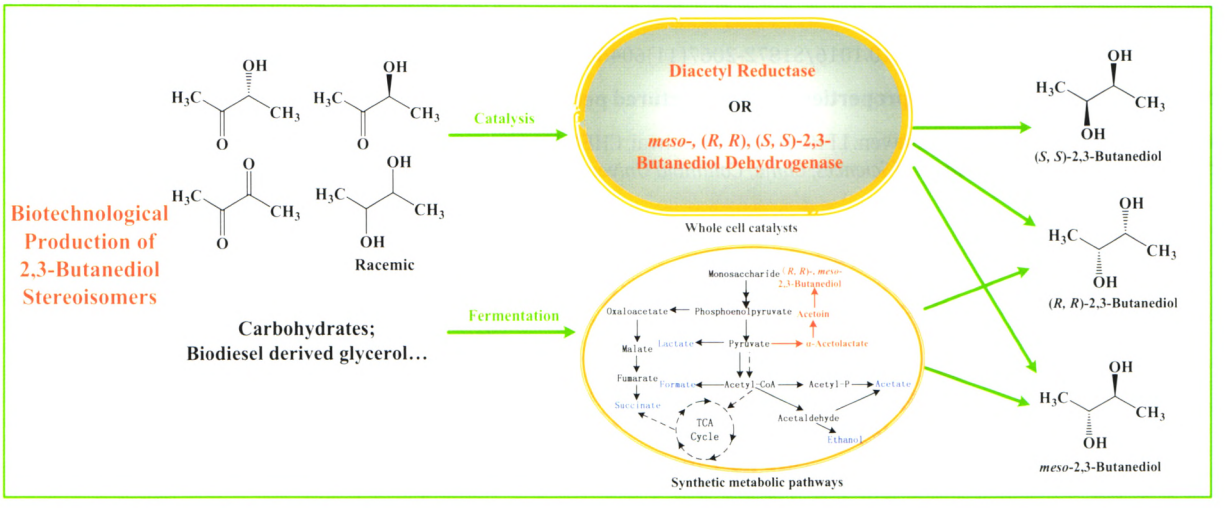
Graphical Contents

Review

Chin. J. Catal., 2013, 34: 351–360 doi: 10.3724/SP.J.1088.2013.20737

Biotechnological production of 2,3-butanediol stereoisomers: synthetic mechanism and realized methods

SHEN Mengqiu, JI Xiaojun*, NIE Zhikui, XIA Zhifang, YANG Han, HUANG He*
Nanjing University of Technology



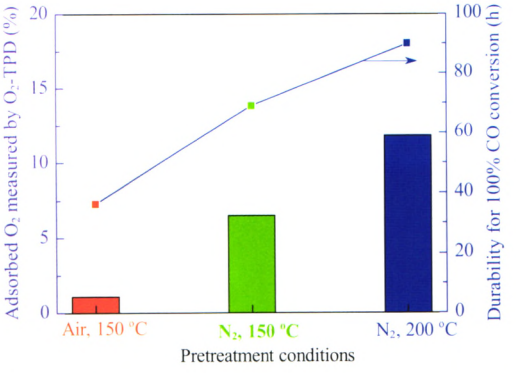
The biological routes for the production of pure 2,3-butanediol stereoisomers, including using the methods of whole cell catalysis and the emerging synthetic biology, was reviewed. In contrast to the conventional chemical methods, the biological methods own their great advantages.

Articles

Chin. J. Catal., 2013, 34: 283–293 doi: 10.1016/S1872-2067(11)60484-1

Influence of Calcination and Pretreatment Conditions on the Activity of Co_3O_4 for CO Oxidation

YU Yunbo*, ZHAO Jiaojiao, HAN Xue, ZHANG Yan, QIN Xiubo, WANG Baoyi
Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences;
Institute of High Energy Physics, Chinese Academy of Sciences

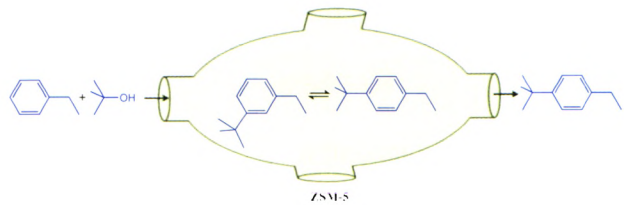


Pretreatment of Co_3O_4 in N_2 at moderate temperatures promotes the formation of oxygen vacancy clusters, favoring the adsorption of oxygen molecules and guaranteeing a long durability for CO oxidation.

Chin. J. Catal., 2013, 34: 294–304 doi: 10.1016/S1872-2067(11)60482-8

Effects of crystallinity of ZSM-5 zeolite on *para*-selective *tert*-butylation of ethylbenzene

PUSHPARAJ Hemalatha, MANI Ganesh, MUTHIAHPILLAI Palanichamy, VELAYUTHAM Murugesan, PARK Yong-Ki, CHOI Won Choon, JANG Hyun Tae*
Hanseo University, South Korea; Anna University, India; Korea Research Institute of Chemical Technology, South Korea

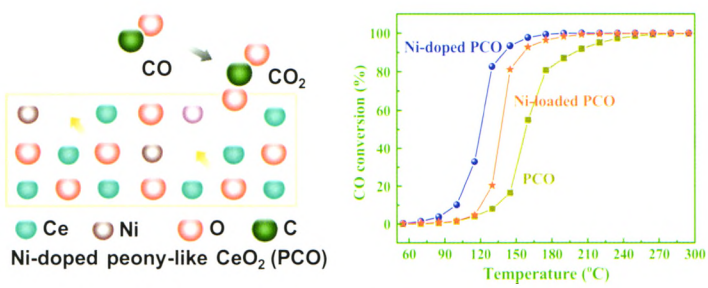


A fluoride medium offers defect-free, highly crystalline ZSM-5 crystals. High crystallinity confers high *para* selectivity (> 90%) in *tert*-butylation of ethylbenzene. A fluoride medium is better than an alkaline medium for the commercial production of *para*-selective ZSM-5 catalysts.

Chin. J. Catal., 2013, 34: 305–312 doi: 10.1016/S1872-2067(11)60466-X

Effect of Ni doping on the catalytic properties of nanostructured peony-like CeO_2

XIAN Cunni, WANG Shaofei, SUN Chunwen, LI Hong*, CHAN Suiwai, CHEN Liquan
Institute of Physics, Chinese Academy of Sciences, China; Columbia University, USA

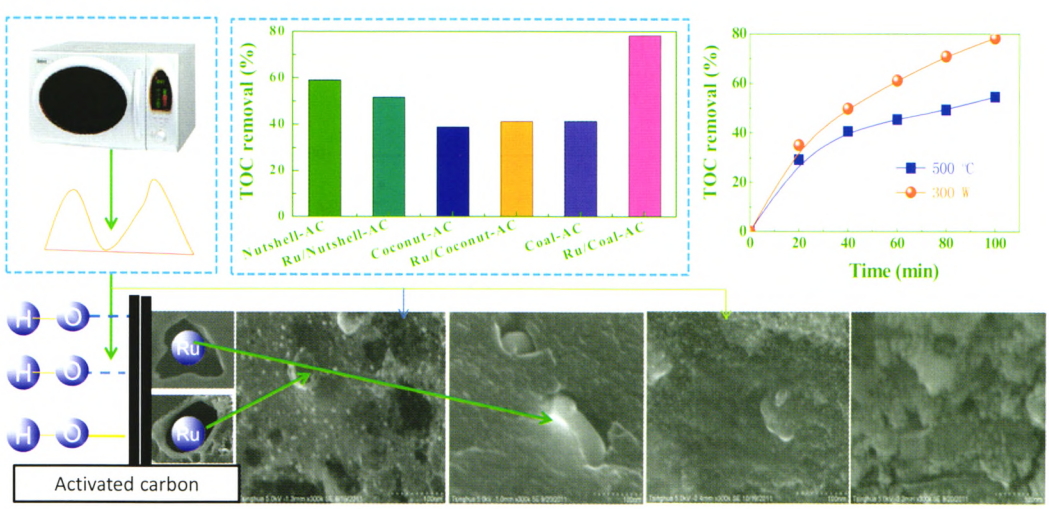


Oxygen vacancies are generated in bulk ceria after Ni doping, which promotes the reducibility of peony-like CeO_2, and hence enhances the catalytic activity for CO oxidation.

Chin. J. Catal., 2013, 34: 313–321 doi: 10.1016/S1872-2067(11)60479-8

Relationship between the structure and activity of ruthenium catalysts in the catalytic ozonation of dimethyl phthalate

WANG Jianbing*, WANG Can, YANG Chunli, WANG Guoqing, ZHU Wanpeng
China University of Mining and Technology, Beijing Campus; Tsinghua University

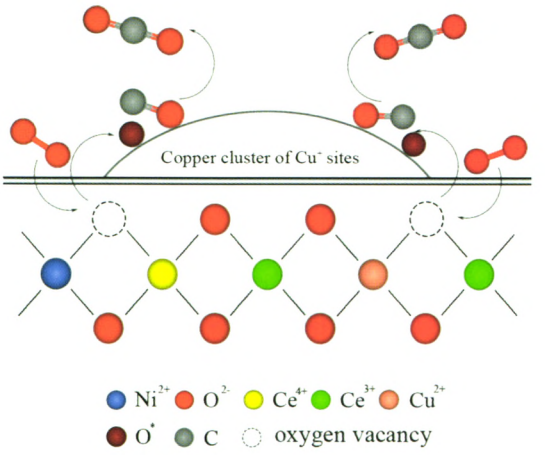


The surface structure of the activated carbon (AC) support influenced the activity of Ru/AC catalysts in dimethyl phthalate ozonation. Microwave heating during catalyst preparation changed the catalyst activity by a modification of its surface structure.

Chin. J. Catal., 2013, 34: 322–329 doi: 10.1016/S1872-2067(11)60468-3

Low temperature CO oxidation on Ni-promoted CuO-CeO_2 catalysts

CHEN Guoxing, LI Qiaoling, WEI Yucai, FANG Weiping, YANG Yiquan*
Xiamen University

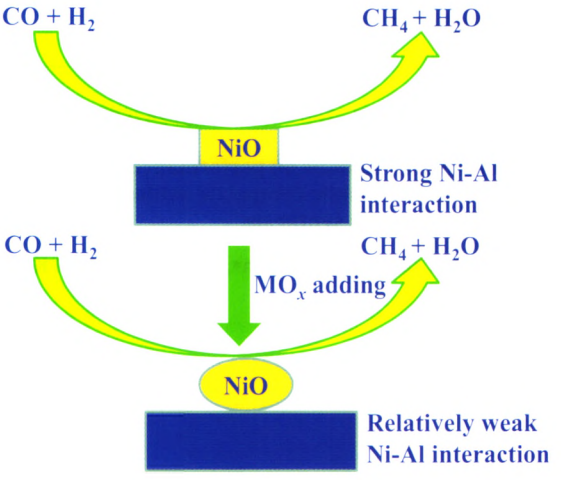


The high catalytic activity of Ni-promoted CuO-CeO_2 is due to the promoter giving increased amounts of Cu^+ in the catalyst and the formation of solid solutions of Cu-O-Ce and Ni-O-Ce.

Chin. J. Catal., 2013, 34: 330–335 doi: 10.1016/S1872-2067(11)60485-3

Effects of composite oxide supports on catalytic performance of Ni-based catalysts for CO methanation

ZHANG Han, DONG Yunyun, FANG Weiping*, LIAN Yixin*
Xiamen University

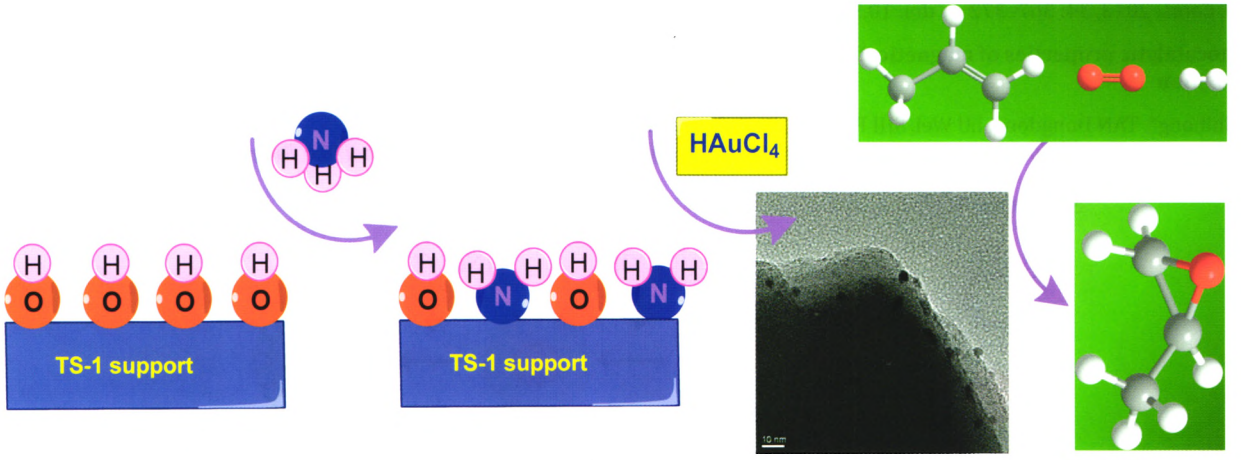


NiO/MO_x-Al_2O_3 (M = Mg, Si, Zr) catalysts for CO methanation, prepared using a modified grinding-mixing method, have higher catalytic activities than that of a conventional NiO/Al_2O_3 catalyst. This is attributed to the weakening of Ni–Al interactions after adding MO_x.

Chin. J. Catal., 2013, 34: 336–340 doi: 10.1016/S1872-2067(11)60474-9

Gold supported on nitrogen-incorporated TS-1 for gas-phase epoxidation of propylene

LIU Yiwu, ZHANG Xiaoming*, SUO Jishuan
Chengdu Institute of Organic Chemistry, Chinese Academy of Sciences; Neijiang Normal University

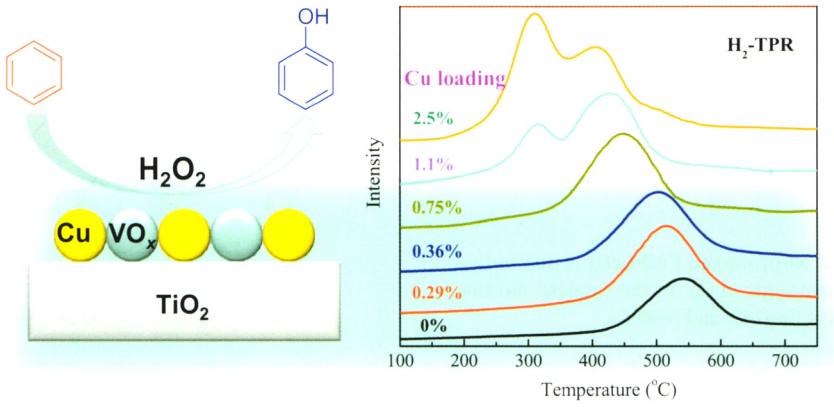


A novel gold catalyst was prepared by immobilization of gold nanoparticles on nitrogen-incorporated TS-1. This catalyst exhibits an excellent catalytic capacity for gas-phase epoxidation of propylene using H_2 and O_2. Nitrogen-incorporation into TS-1 improved both gold loading and dispersion, and decreased the acidic sites of the support surface.

Chin. J. Catal., 2013, 34: 341–350 doi: 10.1016/S1872-2067(11)60487-7

Cu-doped mesoporous VO_x-TiO_2 for catalytic hydroxylation of benzene to phenol

XU Dan, JIA Lihua*, GUO Xiangfeng*
Qiqihar University

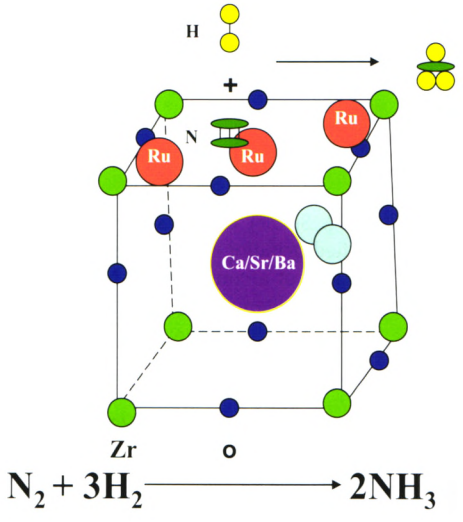


Incorporation of Cu additives into a VO_x/TiO_2 catalyst improved the reducibility of VO_x species, while Cu helped the monodispersion of VO_x species on the TiO_2 support surface.

Chin. J. Catal., 2013, 34: 361–366 doi: 10.3724/SP.J.1088.2013.20744

Effect of alkali earth mentals on performance of zirconium-based perovskite composite oxides supported ruthenium for ammonia synthesis

WANG Ziqing, MA Yuncui, LIN Jianxin*, WANG Rong, WEI Kemei
Fuzhou University

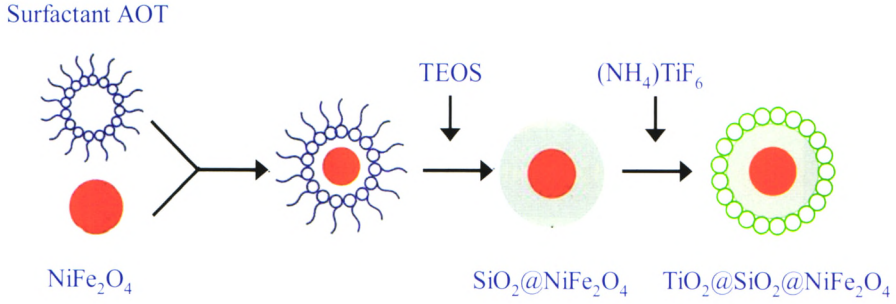


$BaZrO_3$ was an excellent support for Ru-based catalyst for ammonia synthesis compared with $CaZrO_3$ and $SrZrO_3$, which could significantly inhibit the adsorption of H_2 and facilitate the cleavage of N_2.

Chin. J. Catal., 2013, 34: 367–372 doi: 10.3724/SP.J.1088.2013.20766

Photocatalytic properties of magnetically separable composite photocatalyst nanospheres prepared by liquid-phase deposition

XU Shihong*, TAN Dongdong, LU Wei, SHI Penghui, BI Defu, MA Chunyan, SHANGGUAN Wenfeng
Donghua University; Beijing General Municipal Engineering Design & Research Institute; Shanghai Jiao Tong University

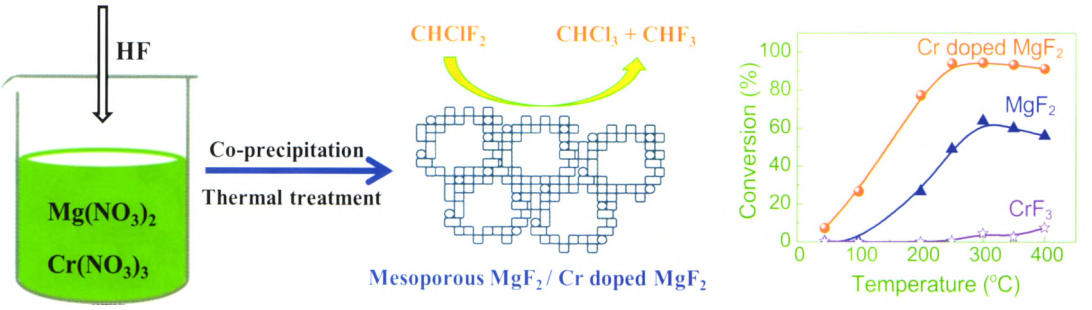


A novel photocatalyst nanosphere $TiO_2@SiO_2@NiFe_2O_4$ was prepared by a reverse micelle method and liquid phase deposition technique. The prepared photocatalyst nanospheres show high photocatalytic activity.

Chin. J. Catal., 2013, 34: 373–378 doi: 10.3724/SP.J.1088.2013.20854

Effect of Cr-doping on the acidity and pore structure of mesoporous magnesium fluoride

NIU Huaicheng, LI Lichun, LI Ying*, GUO Li*, TANG Haodong, HAN Wenfeng, LIU Huazhang
Zhejiang University of Technology; Zhejiang Chemical Industry Research Institute Co., Ltd.



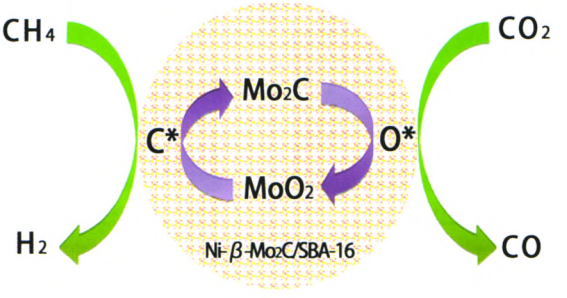
The Cr-doping in mesoporous magnesium fluoride prepared by co-precipitation increases the acidity and the specific surface area of magnesium fluoride and thus increases the catalytic performance in $CHClF_2$ disproportionation.

Chin. J. Catal., 2013, 34: 379–384 doi: 10.3724/SP.J.1088.2013.20857

Catalytic performance of mesoporous material supported bimetallic carbide Ni-β-Mo_2C/SBA-16 catalyst for CH_4/CO_2 reforming to syngas

Naomohan, FU Xiaojuan, LEI Yanqiu, SU Haiquan*
Inner Mongolia University

The catalyst Ni-β-Mo_2C/SBA-16 in methane/carbon dioxide reforming reaction, which establishs carbonization-oxidation circulation, exhibited high catalytic activity and remarkable anti-coke effect.

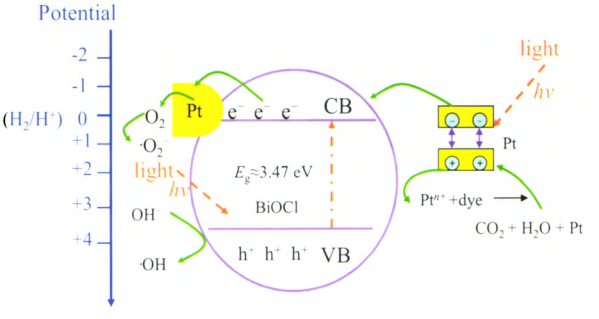


Chin. J. Catal., 2013, 34: 385–390 doi: 10.3724/SP.J.1088.2013.20904

Preparation, characterization, and photocatalytic properties of Pt/BiOCl nanoplates

YU Changlin*, CHEN Jianchai, CAO Fangfang, LI Xin, FAN Qizhe, YU Jimmy C, WEI Longfu
Jiangxi University of Science and Technology; Fuzhou University; The Chinese University of Hong Kong

The presence of Pt nanoparticles could effectively separate the photo-generated e^-/h^+ pairs and result in the plasmon photocatalysis under visible light irradiation.

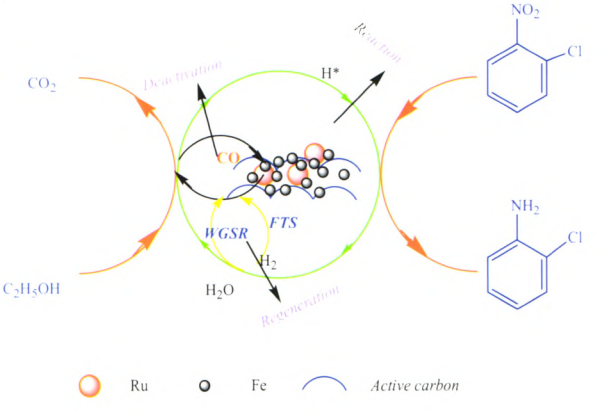


Chin. J. Catal., 2013, 34: 391–396 doi: 10.3724/SP.J.1088.2013.20959

Catalytic stability of *ortho*-chloronitrobenzene hydrogenation on Ru-Fe/C catalyst

XU Xiangsheng, CHEN Ao'ang, ZHOU Li, LI Xiaoqing, GU Huizi, YAN Xinhuan*
Zhejiang University of Technology

CO accumulation on the active centers of Ru-based catalyst is the main reason for its deactivation, while the Fe additive can reduce the CO amount to a minimum level through WGS and FTS reaction.



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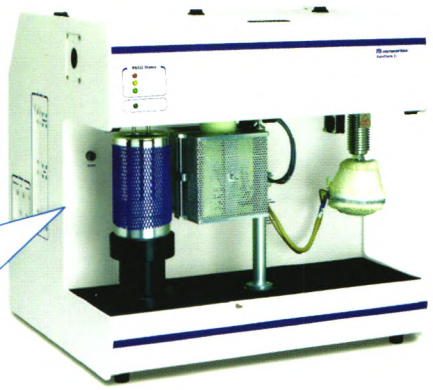

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