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第六届国际环境催化大会 (6th ICEC, 2010) 专辑

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相关信息

861 第十二届全国均相催化学术会议通知

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Special Issue

Selected Papers of the 6th International Conference on Environmental Catalysis (6th ICEC, 2010)

Guest Editors: Can Li, Hong He

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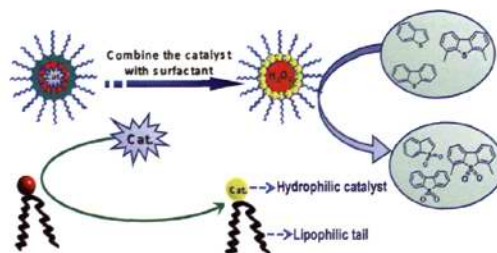
Reviews

Chin. J. Catal., 2011, 32: 707–715 doi: 10.1016/S1872-2067(10)60246-X

Oxidative Desulfurization of Fuel Oils

JIANG Zongxuan, LÜ Hongying, ZHANG Yongna, LI Can*
Dalian Institute of Chemical Physics, Chinese Academy of Sciences

The sulfur-containing compounds in diesel can be oxidized to their corresponding sulfones by the amphiphilic emulsion catalysts under mild conditions, and the sulfones can be removed by a polar extractant.

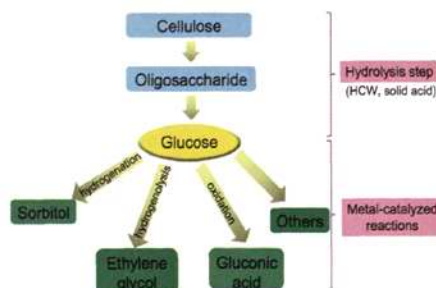


Chin. J. Catal., 2011, 32: 716–722 doi: 10.1016/S1872-2067(10)60232-X

Recent Developments in the Catalytic Conversion of Cellulose into Valuable Chemicals

Pengfei YANG, Hirokazu KOBAYASHI, Atsushi FUKUOKA*
Hokkaido University, Japan

Recent progress is reviewed on the conversion of cellulose into valuable chemicals such as sorbitol, ethylene glycol, and related compounds using heterogeneous catalysts.

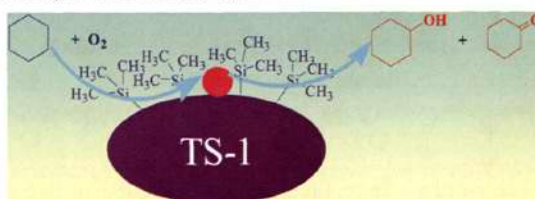


Communication

Chin. J. Catal., 2011, 32: 723–726 doi: 10.1016/S1872-2067(10)60193-3

Silanized Titanium Silicate (TS-1) Molecular Sieve for Promoting the Homogeneously Catalyzed Oxidation of Cyclohexane

WANG Deqiang, ZHANG Yibo, XIAO Dehai, YANG Xiangguang*
Changchun Institute of Applied Chemistry, Chinese Academy of Sciences



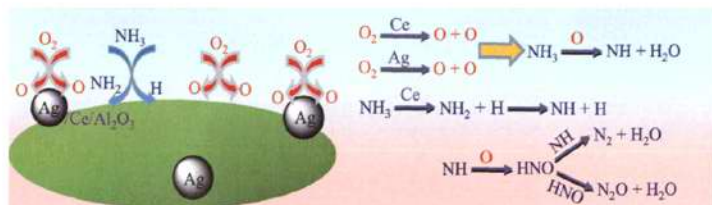
Titanium silicate (TS-1) molecular sieve was used to promote the oxidation of cyclohexane catalyzed by cobalt naphthenate. The adsorption of cobalt naphthenate on TS-1-S was the reason for the better activity.

Chin. J. Catal., 2011, 32: 727–735 doi: 10.1016/S1872-2067(10)60220-3

Effects of Adding CeO₂ to Ag/Al₂O₃ Catalyst for Ammonia Oxidation at Low Temperatures

ZHANG Li, LIU Fudong*, YU Yunbo, LIU Yongchun, ZHANG Changbin, HE Hong*

Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences



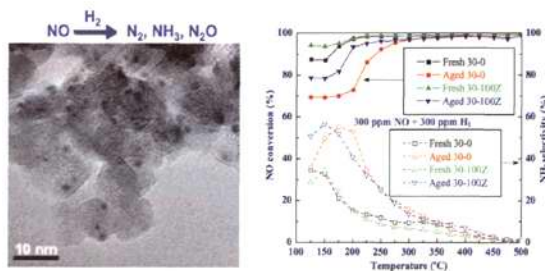
Adding CeO₂ to Ag/Al₂O₃ enhanced O₂ uptake and promoted the dissociative adsorption of NH₃ to –NH₂ and –NH, which improved the selective catalytic oxidation of ammonia at low temperatures.

Chin. J. Catal., 2011, 32: 736–745 doi: 10.1016/S1872-2067(10)60230-6

NO_x Reduction on Fully Formulated Lean NO_x Trap Catalysts Subjected to Simulated Road Aging: Insights from Steady-State Experiments

Jin WANG, Yaying JI, Uschi GRAHAM, Caio CESAR SPINDOLA DE OLIVEIRA, Mark CROCKER*

University of Kentucky, USA



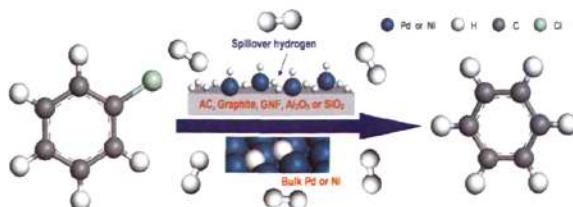
The addition of CeO₂-ZrO₂ to a Pt/Rh/BaO/Al₂O₃ lean NO_x trap catalyst affords significant benefits with respect to steady-state NO_x reduction activity after catalyst aging. These benefits are explained on the basis of HRTEM analyses.

Chin. J. Catal., 2011, 32: 746–755 doi: 10.1016/S1872-2067(10)60228-8

Application of Hydrodechlorination in Environmental Pollution Control: Comparison of the Performance of Supported and Unsupported Pd and Ni Catalysts

Claudia AMORIM, Xiaodong WANG, Mark A. KEANE*

Heriot-Watt University, Scotland, United Kingdom

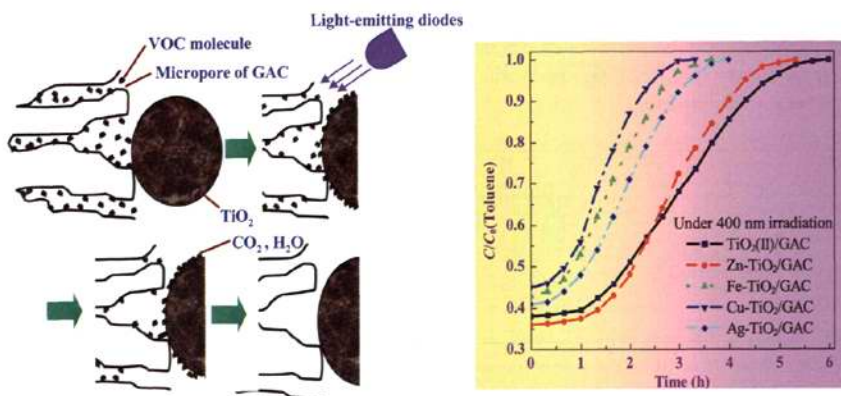


Chlorobenzene hydrodechlorination rate over Pd was three orders of magnitude greater than Ni. Bulk Pd outperformed Pd/carbon but was less active than Pd on oxides. Increased rates were observed with decreasing metal surface area where spillover hydrogen enhanced performance.

Alternative Utilization of Light Emitting Diodes in Activated Charcoal-Supported Photocatalyst Reactor for Control of Volatile Organic Compounds

Sung-Bong YANG, Mee-Seon YU, Jong-Soon KIM, Wan-Kuen JO*

University of Ulsan, Korea; NGETech Inc, Korea; Kyungpook National University, Korea



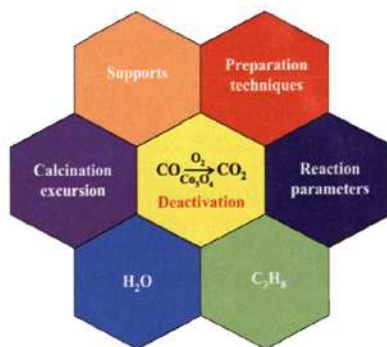
UV wavelength light emitting diodes were used for the adsorption photocatalytic removal of volatile organic compounds and of granular activated charcoal (GAC) that was impregnated with a TiO₂ photocatalyst or with TiO₂/co-catalysts, which resulted in enhanced removal efficiency.

Parametric Study on the Deactivation of Supported Co₃O₄ Catalysts for Low Temperature CO Oxidation

Moon Hyeon KIM*, Dong Woo KIM

Daegu University, Korea

The extent of supported Co₃O₄ catalyst deactivation during low temperature CO oxidation depends significantly on the support used, the preparation technique, the calcination excursion, the reaction parameters, and the guest molecules such as H₂O and C₃H₈.



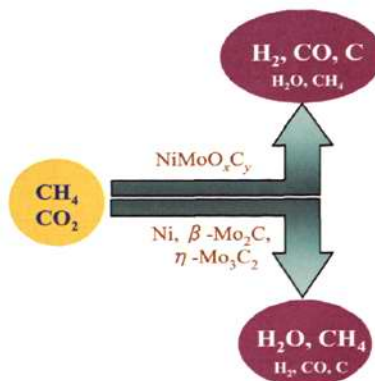
Preparation of a Nickel Molybdenum Carbide Catalyst and Its Activity in the Dry Reforming of Methane

Taro HIROSE, Yasushi OZAWA, Masatoshi NAGAI*

Tokyo University of Agriculture and Technology, Japan

Central Research Institute of Electric Power Industry, Japan

Nickel molybdenum carbide catalysts were prepared and tested for methane dry reforming. The oxycarbide, NiMoO_xC_y, was found to be a more active species for hydrogen formation than β-Mo₂C and η-Mo₃C₂.



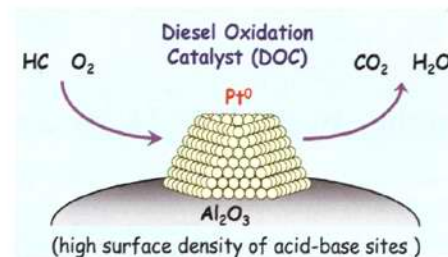
Platinum-Based Catalyst for Diesel Hydrocarbon Oxidation

Masaaki HANEDA*, Motoi SASAKI, Hideaki HAMADA,
Masakuni OZAWA

Nagoya Institute of Technology, Japan

National Institute of Advanced Industrial Science and Technology, Japan

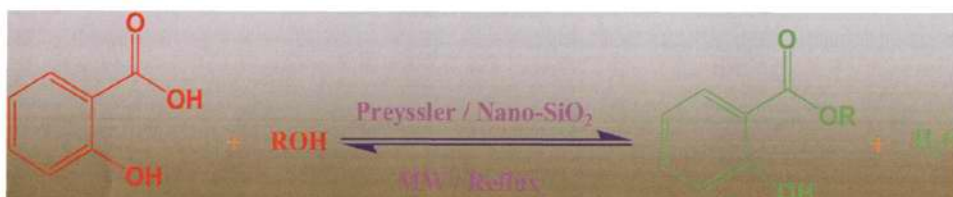
Pt/Al₂O₃ that has the Pt surface in the metallic state was more active than with the surface in the cationic state. An Al₂O₃ support with a high surface density of acid and basic sites is important.



Catalytic Performance of Nano-SiO₂-Supported Preyssler Heteropolyacid in Esterification of Salicylic Acid with Aliphatic and Benzylic Alcohols

Fatemeh F. BAMOHARRAM*, Majid M. HERAVI, Javad EBRAHIMI, Ali AHMADPOUR, Mojtaba ZEBARJAD

Islamic Azad University, Iran; Alzahra University, Iran; Ferdowsi University of Mashhad, Iran; Ferdowsi University of Mashhad, Iran

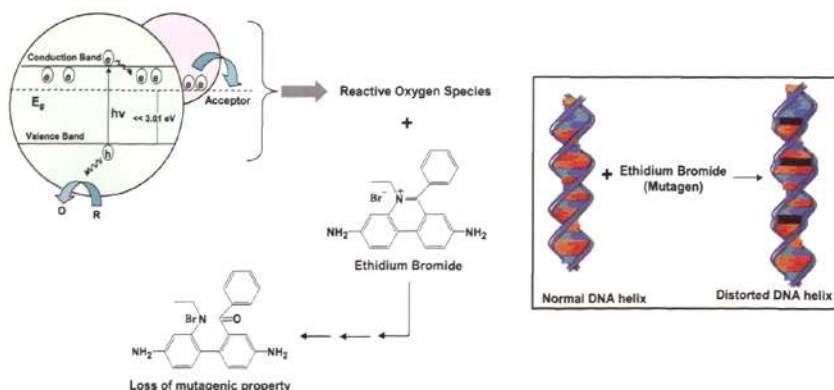


An environmentally benign procedure for the catalytic esterification of salicylic acid with alcohols was developed in the presence of nano-SiO₂-supported Preyssler heteropolyacid both under thermal conditions and microwave irradiation.

Preparation and Characterization of High Activity Zirconium-Doped Anatase Titania for Solar Photocatalytic Degradation of Ethidium Bromide

S. SWETHA, R. GEETHA BALAKRISHNA*

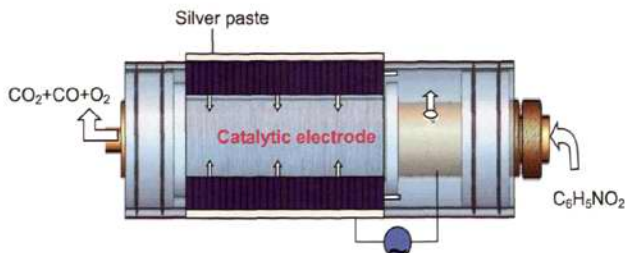
Jain University, India



We prepared a highly efficient catalyst by the incorporation of Zr into TiO₂, which resulted in modifications to the electronic structure of TiO₂. As a visible light induced photocatalyst it was found to perform better than previous catalysts.

Catalytic Plasma Reactor for Abatement of Dilute Nitrobenzene

J. KARUPPIAH, L. SIVACHRANDIRAN, R. KARVEMBU, Ch. SUBRAHMANYAM*
National Institute of Technology, India; Indian Institute of Technology Hyderabad, India

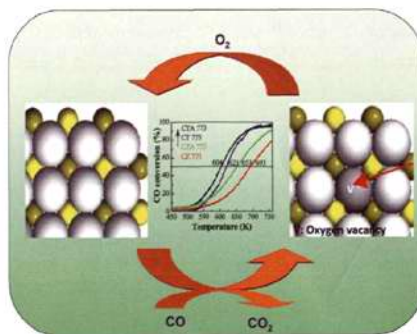


Purification of air streams containing dilute nitrobenzene was carried out in a dielectric barrier discharge reactor with a modified inner electrode. The CoO_x modified inner electrode gave a better performance with complete oxidation of 100 ppm of nitrobenzene at input energy $< 300 \text{ J/L}$.

Nanosized Unsupported and Alumina-Supported Ceria-Zirconia and Ceria-Terbium Solid Solutions for CO Oxidation

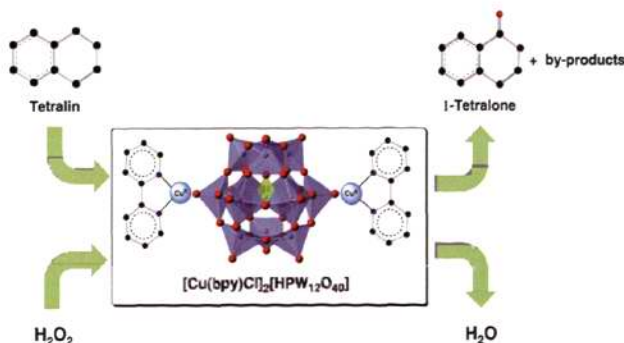
M. Reddy BENJARAM*, Thirumurthulu GODE,
Lakshmi KATTA
Indian Institute of Chemical Technology, India

Ceria-zirconia/alumina and ceria-terbium/alumina solid solutions possessing high surface area and thermal stability were synthesized by deposition coprecipitation. Ceria-terbium/alumina has shown better CO oxidation activity due to more number of defects and a high rate of redox cycles.



Heterogenization of $[\text{Cu}(2,2'\text{-bpy})\text{Cl}_2]$ and $[\text{Cu}(1,10\text{-phen})\text{Cl}_2]$ on Polyoxometalates: New Catalysts for the Selective Oxidation of Tetralin

M. BOLTZ, A. BLANC, G. LAUGEL, P. PALE, B. LOUIS*
Université de Strasbourg, France

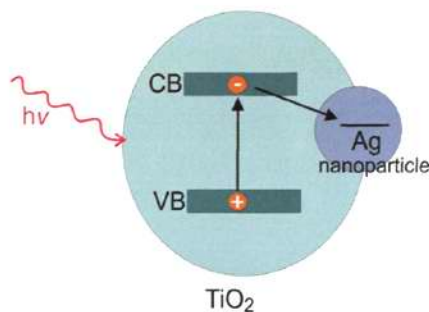


Cu(II) bipyridine and phenantroline complexes were immobilized on $\text{H}_3\text{PW}_{12}\text{O}_{40}$ polyoxometalate and used as heterogeneous catalysts for the selective oxidation of tetralin. A conversion of 16% with 83% selectivity for 1-tetralone and 2-tetralone were obtained with the $[\text{Cu}(1,10\text{-phen})\text{Cl}][\text{H}_2\text{PW}_{12}\text{O}_{40}]$ complex.

Wavelength Effect on Photocatalytic Reduction of CO₂ by Ag/TiO₂ Catalyst

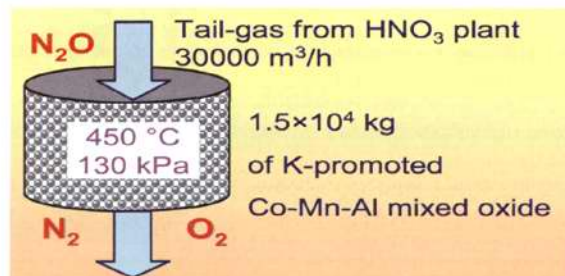
K. KOČÍ*, K. ZATLOUKALOVÁ, L. OBALOVÁ, S. KREJČÍKOVÁ,
Z. LACNÝ, L. ČAPEK, A. HOSPODKOVÁ, O. ŠOLCOVÁ
VŠB-Technical University of Ostrava, Czech Republic
Institute of Chemical Process Fundamentals CAS, Czech Republic
University of Pardubice, Czech Republic
Institute of Physics of the ASCR, Czech Republic

A Ag/TiO₂ catalyst was used under illumination of different wavelengths for CO₂ photocatalytic reduction by water. Methane and methanol yields were higher with 254 nm light than with 365 nm light while no products were observed with 400 nm light.



Simulation of N₂O Abatement in Waste Gases by Its Decomposition over a K-Promoted Co-Mn-Al Mixed Oxide Catalyst

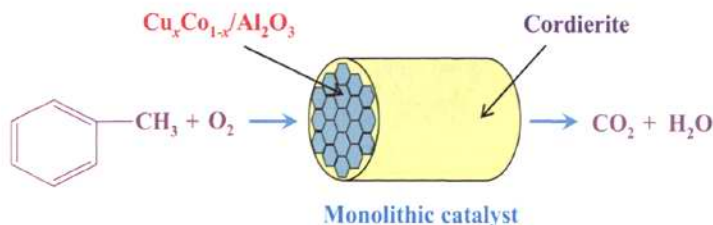
Lucie OBALOVÁ*, Květuše JIRÁTOVÁ, Kateřina KARÁSKOVÁ, František KOVANDA
VŠB-Technical University of Ostrava, Czech Republic
Institute of Chemical Process Fundamentals of the ASCR, v.v.i, Czech Republic
Institute of Chemical Technology, Prague, Czech Republic



A K-promoted Co-Mn-Al mixed oxide catalyst derived from a layered double hydroxide was used to estimate the size of a N₂O decomposition reactor for use in exhaust gas purification in a nitric acid production unit.

Preparation of Cu_xCo_{1-x}/Al₂O₃/Cordierite Monolithic Catalysts and the Catalytic Combustion of Toluene

ZHAO Fuzhen, ZHANG Guanghong, ZENG Penghui, YANG Xiao, JI Shengfu*
Beijing University of Chemical Technology; South-Central University for Nationalities; Ningxia Normal University



Cu_xCo_{1-x}/Al₂O₃/cordierite monolithic catalysts were prepared and their catalytic performance during toluene combustion was evaluated. The catalysts show good activity for the catalytic combustion of toluene.

Cetyltrimethylammonium Bromide Assisted Preparation and Characterization of Pd Nanoparticles with Spherical, Worm-like, and Network-like Morphologies

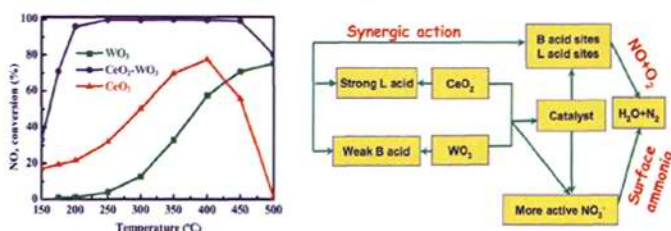
ZI Xuehong, WANG Rui, LIU Licheng, DAI Hongxing, ZHANG Guizhen, HE Hong*
Beijing University of Technology



Using a combination of different CTAB and NaBH₄ concentrations, we obtained Pd nanoparticles (NPs) with various morphologies like spheres, worm-like and nanowire networks in an aqueous system. The CTAB and NaBH₄ concentrations were important factors in controlling the final shape of the Pd nanoparticles.

Mechanism of Selective Catalytic Reduction of NO_x with NH₃ over CeO₂-WO₃ Catalysts

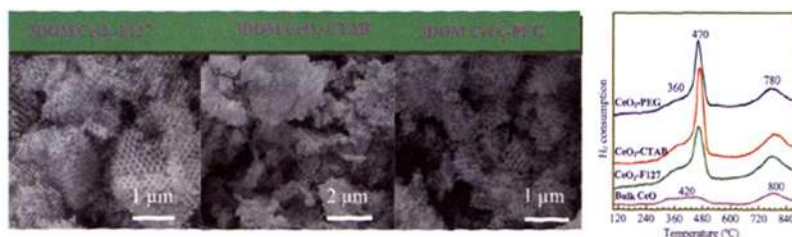
CHEN Liang, LI Junhua*, GE Maofa*, MA Lei, CHANG Huazhen
Institute of Chemistry, Chinese Academy of Sciences; Tsinghua University



The high catalytic activity of CeO₂-WO₃ was due to its having more acid sites and active nitrate species. The mechanism of selective catalytic reduction had two pathways.

Dual-Templating Preparation and Enhanced Low-Temperature Reducibility of Three-Dimensionally Ordered Macroporous Ceria with Mesoporous Walls

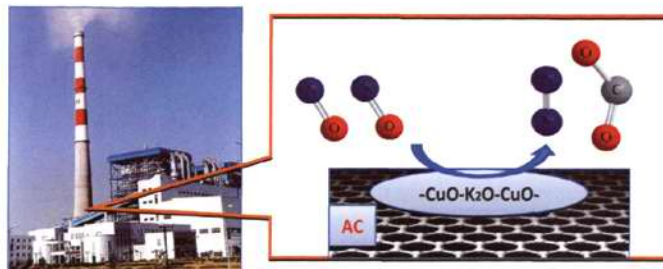
ZHANG Han, ZHANG Lei, DENG Jiguang, LIU Yuxi, JIANG Haiyan, SHI Fengjuan, JI Kemeng, DAI Hongxing*
Beijing University of Technology



High-surface-area three-dimensionally ordered macroporous ceria with mesoporous walls and excellent low-temperature reducibility were prepared with polymethyl methacrylate as a hard template and triblock copolymer Pluronic F127, cetyltrimethylammonium bromide or poly(ethylene glycol) as a soft template while cerium nitrate was used as the metal source.

Promoting Role of Potassium on the Catalytic Performance of Copper Oxide for the Reduction of NO by Activated Carbon

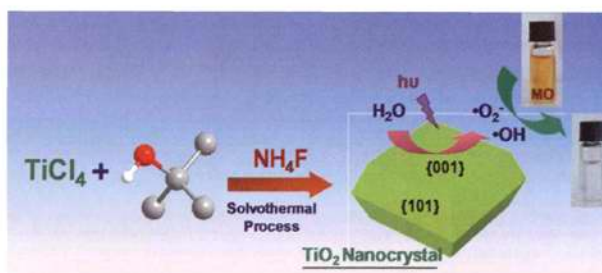
FENG Bingnan, LU Guanzhong^{*}, WANG Yanqin, GUO Yun, GUO Yanglong
East China University of Science and Technology



NO was effectively reduced by activated carbon over a Cu-K-O catalyst. Adding K to CuO/AC promoted the reaction between the surface carbon active sites and the surface oxygen species.

Synthesis and Photocatalytic Activity of F/TiO₂ Nanocrystals with Exposed {001} Facets via a Nonhydrolytic Solvothermal Route

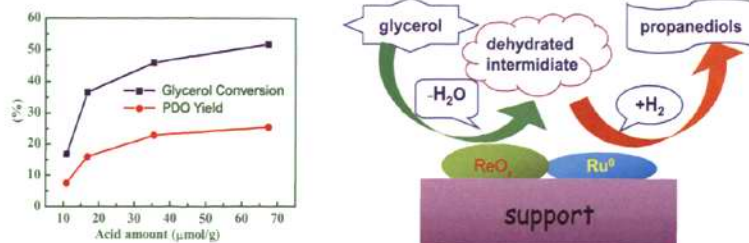
CAI Chenling, WANG Jinguo, CAO Fenglei, LI Hexing, ZHU Jian^{*}
Shanghai Normal University



A green solvothermal route is proposed for the synthesis of F/TiO₂ nanocrystals with exposed {001} facets and with high photocatalytic activity induced by photogenerated holes, •OH, and •O₂^{•-} active species.

Glycerol Hydrogenolysis to Propanediols over Ru-Re/SiO₂: Acidity of Catalyst and Role of Re

MA Lan, LI Yuming, HE Dehua^{*}
Tsinghua University: Institute of Chemical Defence



The addition of Re increased the acid sites of Ru-Re/SiO₂, which increased the activity for glycerol hydrogenolysis. A synergy of ReO_x acid sites and Ru⁰ metal sites gave the high activity.