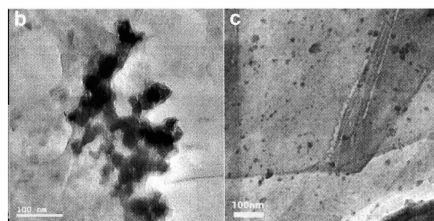


### Novel Ruthenium Catalyst for Glucose Hydrogenation

DIAO Ming-hui , ZHANG Ming-hui ,  
LI Wei , TAO Ke-yi

J. Mol. Catal. (China) **2007**, 21(4) , 289 ~ 293

A new typical ruthenium catalyst prepared by ultrasonic impregnation of expanded graphite support with  $\text{Ru}^{3+}$  solution adding HMT as a ligand followed by chemical reduction had

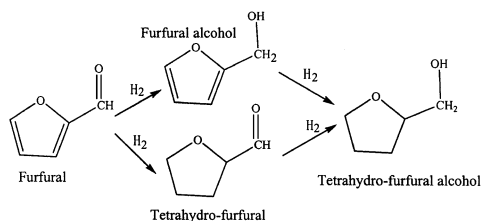


smaller particles and higher dispersion and exhibited dramatically higher activity than traditional ruthenium catalyst.

### Selective Hydrogenation of Furfural to Furfural Alcohol over Nickel Supported $\gamma\text{-Al}_2\text{O}_3$ Catalysts

LIU Qi-ying, LI Yong, CAI Wei-jie,  
LI Juan, XU Yi-de, SHEN Wen-jie

J. Mol. Catal. (China) **2007**, 21(4) , 294 ~ 299

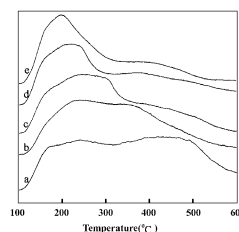


### Effects of Hydrothermal and Oxalic Acid Treatment on the Structure and Acidity of Y-Type Zeolite

LIU Bai-jun, LI Min, FENG Zhi

J. Mol. Catal. (China) **2007**, 21(4) , 300 ~ 303

Y zeolites were modified with hydrothermal treatment and oxalic acid. The amount of strong and total acid sites gradually



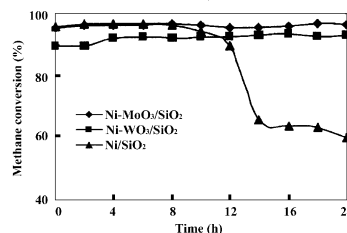
decreased with the increase in the amount of oxalic acid, owing to the leaching of nonframework Al rather than framework Al caused by oxalic acid.

### Effects of Mo、W Metal Oxide on the Performance of Ni-based Catalysts for $\text{CO}_2$ Reforming of $\text{CH}_4$

LIU Hai-tao, TIAN Hong,  
WANG Xiao-lai

J. Mol. Catal. (China) **2007**, 21(4) , 304 ~ 307

Addition of  $\text{WO}_3$  or  $\text{MoO}_3$  to  $\text{Ni}/\text{SiO}_2$  improves the stability



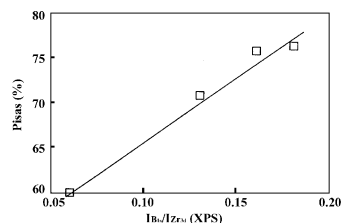
of catalyst in  $\text{CO}_2$  reforming of  $\text{CH}_4$ , and  $\text{WO}_3$  and  $\text{MoO}_3$  have done contribution to the isolation and dispersion of the Ni.

**The Texture, Structure and Surface Acidity  
of  $B_2O_3/ZrO_2$  Solid Acid  
Catalyst Calcined at 700 °C**

LI Wen-sheng, YIN Shuang-feng, DAI Wei-li,  
XU Bo-qing, ZHOU Xiao-ping

J. Mol. Catal. (China) **2007**, 21(4), 308 ~ 314

The percentage of the intermediate strong acid sites (PI-SAS%) increases with the increase of the atomic ratio of B/



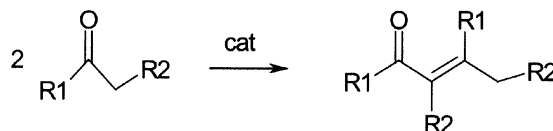
Zr ( $I_{B1s}/I_{Zr3d}$ ) on the surface of  $B_2O_3/ZrO_2$ , suggesting the  $BO_3$  structure units is mainly responsible for the formation of intermediate strong acid sites which are active for catalyzing gas-phase Beckmann rearrangement of cyclohexanone oxime into caprolactam.

**Study on the Catalytic Aldol Condensation by Superacid  
and Its Solvent Effect**

ZHAO Yue-chang, LIANG Xue-zheng, GAO Shan,  
LIU Ling, YANG Jiang-guo, HE Ming-yuan

J. Mol. Catal. (China) **2007**, 21(4), 315 ~ 318

The self-condensation of carbonyl compounds using superacids as catalysts was studied. Effect of reaction time and



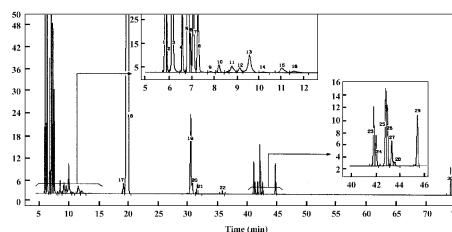
amount of catalyst on yield were investigated. The solvent effect was also observed. Results show that superacids were efficient catalysts for the reaction with high conversion (over 40%) and selectivity (over 95%) under mild conditions. The best reaction condition is given below: catalyst amount 2g/1 mol aldehydes or ketones, reaction time 5 h.

**Catalytic Conversion of Thiophene over  
Nano-sized HZSM-5 Catalysts**

ZUO Guang-Ling, WANG Wen-Shou,  
WANG Ren, GUO Hong-Chen,  
WANG Xiang-sheng, ZHAO Le-ping

J. Mol. Catal. (China) **2007**, 21(4), 319 ~ 323

GC-MS was used to analyze the distribution of reaction products under different conditions. This figure show the pro-

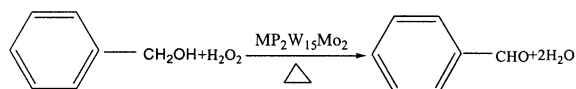


ducts of thiophene conversion in  $H_2$  atmosphere over nano HZSM-5 zeolite (HZnm-C) catalyst. Results show that, in addition to the formation of  $H_2S$  by desulfurization, new sulfur-containing compounds such as *t*-butyl sulfolcohol, 2-methyl-thiophene, 3-methylthiophene and benzothiophene are also produced.

**Study of Selective Oxidation of Benzylalcohol to  
Benzaldehyde over Metal-substituted the Lacunary  
Dawson-type Molybdotungstophosphoric Compounds**

HU Dong-cheng, LI Gui-xian, WANG Xiao-ning,  
NIE Xiao-yan, SI Hai-juan, CHEN Xing-wei

J. Mol. Catal. (China) **2007**, 21(4), 324 ~ 328



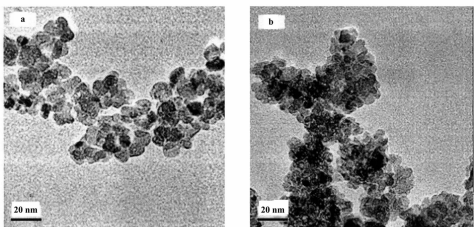
A series of metal-substituted lacunary Dawson-type molybdotungstophosphoric compounds  $MP_2W_{15}Mo_2$  ( $M = Co, Ni, Cu, Zn, Fe, Mn, Mg, Al$ ) were synthesized. The catalyzed oxidation of benzyl alcohol to benzaldehyde in water-benzylalcohol biphasic system has been investigated in detail.

Study on Preparation of Au/CeO<sub>2</sub> Catalyst and Catalytic Performance for CO Oxidation

HAI feng, LI Yan-feng, BAI Feng-rong, SAGALA, ZHAORIGE, ZHAORIGETU, JIA Mei-lin

J. Mol. Catal. (China) 2007,21(4) , 329 ~332

A series of Au/CeO<sub>2</sub> catalysts were prepared by deposition-precipitation method. The BET, XRD and TEM were carried out

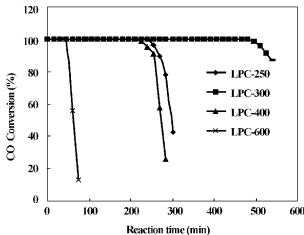


to analyze the influence factor on the catalysts activity. The results indicated that catalyst supported on CeO<sub>2</sub> treated by microwave showed high activity, which seemed related to the intimate contacting between the active component and support.

Effect of Calcination Temperature on the Catalytic Performance for CO Oxidation over Co<sub>3</sub>O<sub>4</sub> Catalysts at Ambient Temperature

WANG Yong-zhao, ZHAO Yong-xiang, GAO Chun-guang, LIU Dian-sheng

J. Mol. Catal. (China) 2007,21(4) , 333 ~337



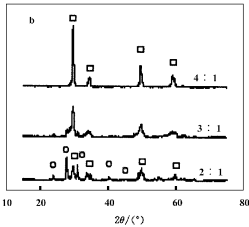
Co<sub>3</sub>O<sub>4</sub> catalysts calcined at various temperatures have high catalytic activity for CO oxidation at ambient temperature. Calcination temperatures have a large effect on the catalytic stability.

Preparation of Ceria-zirconia Solid Solution by Solid-state Reaction - Surfactant Templating Coupling Method

WU Shao-liang, GAO Xiao, LIU Xin-mei, YAN Zi-feng

J. Mol. Catal. (China) 2007,21(4) , 338 ~343

Solid-state reaction-surfactant templating coupling method is an effective synthesis approach . The ratio of OH<sup>-</sup>/Zr is the



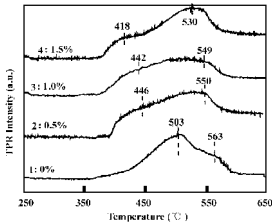
main factor to affect the structure of solid solution. It obviously decides the process of crystal phase transformation. The crystal phase is changed from monoclinic to tetragonal with OH<sup>-</sup>/Zr from 2: 1 to 4: 1.

Study of Oxygen Species on CeO<sub>2</sub>-NiO/A<sub>2</sub>O<sub>3</sub> for Oxidative Dehydrogenation of Ethane to Ethylene

YU Lin, SUN Jian, SUN Ming, HAO Zhi-feng, FANG Yi-wen

J. Mol. Catal. (China) 2007,21(4) , 344 ~350

Oxidative dehydrogenation of ethane to ethylene (ODE)



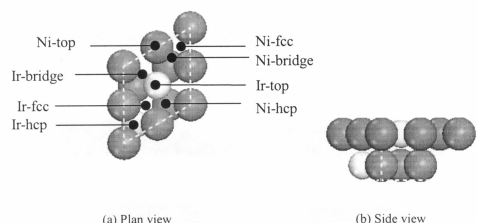
was investigated over Ni-based catalyst, and the oxygen species which play an important role in the reaction were studied by O<sub>2</sub>-TPD-MS , TPR and XPS.

## The Resistance of Carbon Deposition of Methane Partial Oxidation Catalyst : the DFT Study

CHEN Yi-fei, ZHANG Min-hua,  
JIANG Hao-xi

J. Mol. Catal. (China) **2007**, 21(4), 351 ~ 355

DMol<sup>3</sup> module based on density functional theory (DFT)



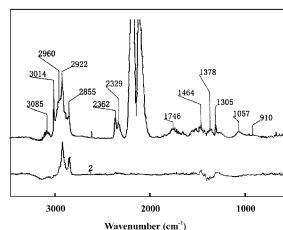
has been used for Ni-Ir slab model. The resistance of carbon deposition of partial oxidation of methane on Ni(111), Pt(111) and NiPt(111) NiIr(111) has been researched.

## In-situ DR-FTIR Study of Ethanol Synthesis from CO/H<sub>2</sub> over Rhodium-based Catalyst

CHEN Wen , WANG Cun-wen , YING Wei-yong ,  
YU Chuan-bo , JIN Ya-li , WANG Wei-guo ,  
WU Yuan-xin , CHI Ru-an

J. Mol. Catal. (China) **2007**, 21(4), 356 ~ 361

At 250 °C and 3.5 MPa, a lot of carbenes can form quickly over Rh-Mn-Li/SiO<sub>2</sub> catalyst after the CO/H<sub>2</sub> mixed gas is lead-



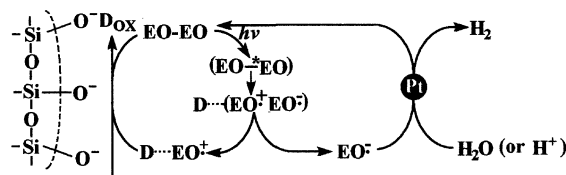
ed into the reactor. but part of inert carbenes probably exist which don't take part in reaction but control some of the surface of the catalyst and lead to reduce reactivity of the catalyst . the building-up process of carbene is not an rate-determining step and whether ethanol can be produced rapidly or not is decided by the content of acetyl on the surface of the catalyst.

## Photocatalytic Hydrogen Production over SiO<sub>2</sub>/Eosin Y-Pt Catalyst by Visible Light Irradiation

ZHANG Xiao-jie, CHU Guo-hai,  
LI Shu-ben, LU Gong-xuan

J. Mol. Catal. (China) **2007**, 21(4), 362 ~ 364

Triethanolamine (TEOA) as an electron donor, Eosin Y as



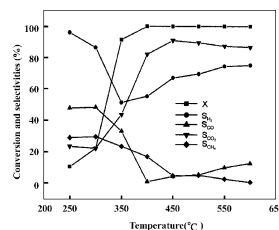
a sensitizer, silica gel as a matrix, and Pt as a cocatalyst, the rate of hydrogen evolution and the apparent quantum efficiency under visible light irradiation ( $\lambda \geq 420$  nm) could reach about 43  $\mu\text{mol h}^{-1}$  and 10.4%, respectively.

## Comparative Study of Ni/Al<sub>2</sub>O<sub>3</sub> and Fe/Al<sub>2</sub>O<sub>3</sub> Catalysts for Ethanol Steam Reforming

MAO Li-ping, LU Gong-xuan

J. Mol. Catal. (China) **2007**, 21(4), 365 ~ 367

A Ni-Fe/Al<sub>2</sub>O<sub>3</sub> for ethanol reforming was developed. The

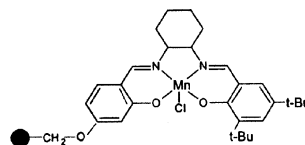


catalyst showed high conversion of ethanol and high selectivity for CO<sub>2</sub> and lower methane selectivity.

**Synthesis and Characterization of New Type of salen  
Mn( III ) Supported on Zirconium  
Oligo-polystyrenyl-phosphonate-phosphate**

FU Dan, FU Xiang-kai,  
BAO He-bin, REN Wen-shan

J. Mol. Catal. ( China ) **2007**, 21( 4 ) , 368 ~ 370

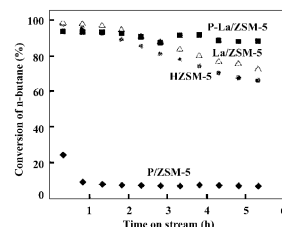


C<sub>2</sub>-unsymmetry salen was supported to Zirconium-oligo-polystyrenely-phosphonate-phosphate, the new catalyst was characterized by IR, SEM, element analysis and BET surface area.

**Study on the Surface Modification of ZSM-5 Zeolite  
Molecular Sieves for Increasing  
Propylene Production**

JI Dong, SU YI, LIU Tao, WANG Yi,  
ZHANG Zhong-dong, ZHANG Hai-tao,  
GAO Xiong-hou

J. Mol. Catal. ( China ) **2007**, 21( 4 ) , 371 ~ 377



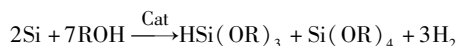
cracking conditions in the presence of steam is particularly important in practical application. Although the n-butane conversion over ZSM-5 ( SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> = 200 ) and La/ZSM-5 slowly decreased with time on stream, the conversions over La P/ZSM-5 and P/ZSM-5 were relatively stable.

The structural stability of the zeolite catalysts under the

**Copper-series Catalysts for preparing  
Hydrogenalkoxysilanes  
by Direct Catalyzed Synthesis**

HU Hua-ming, HU Wen-bin,  
LI Feng-yi

J. Mol. Catal. ( China ) **2007**, 21( 4 ) , 378 ~ 383



The Copper-series catalysts, pretreatment and reaction mechanism for preparing hydrogenalkoxysilanes by direct catalyzed synthesis was analyzed.