Journal of Catalysis 273 (2010) iii–v

Contents lists available at ScienceDirect

Journal of Catalysis

journal homepage: www.elsevier.com/locate/jcat

Journal of Catalysis Vol. 273, Issue 1, 2010

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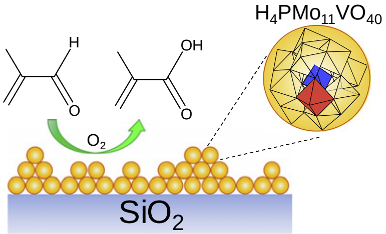
REGULAR ARTICLES

Catalytic oxidation of methacrolein to methacrylic acid over silica-supported 11-molybdo-1-vanadophosphoric acid with different heteropolyacid loadings **pp 1–8**

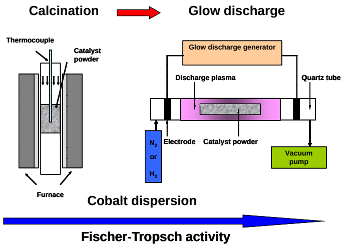
Mitsuru Kanno, Toshiya Yasukawa, Wataru Ninomiya, Ken Ooyachi, Yuichi Kamiya*



$H_4PMo_{11}VO_{40}/SiO_2$ showed high activity for oxidation of methacrolein to methacrylic acid comparing with unsupported $H_4PMo_{11}VO_{40}$ due to high dispersion of $H_4PMo_{11}VO_{40}$ on SiO_2, as determined by temperature-programmed desorption of benzonitrile.

Cobalt species and cobalt-support interaction in glow discharge plasma-assisted Fischer–Tropsch catalysts **pp 9–17**

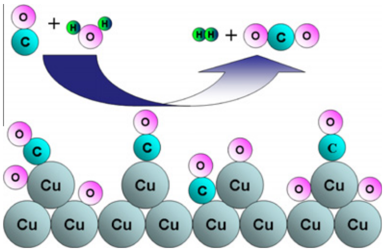
Jingping Hong, Wei Chu*, Petr A. Chernavskii, Andrei Y. Khodakov**



Pretreatment of silica-supported cobalt catalysts with glow discharge plasma leads to smaller cobalt particles without any significant increase in the concentration of barely reducible cobalt silicate. Due to the combination of higher cobalt dispersion and optimized reducibility, ruthenium promoted plasma-assisted cobalt catalyst exhibited an enhanced activity in Fischer–Tropsch synthesis.

Effect of active sites for a water–gas shift reaction on Cu nanoparticles **pp 18–28**

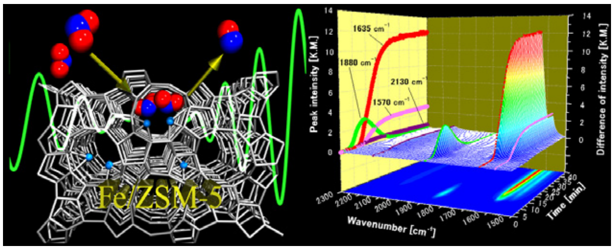
Ching-Shiun Chen*, Tzu-Wen Lai, Chen-Chih Chen



The defect sites on the Cu nanoparticles play a key role in the redox mechanism in the WGS reaction, which causes intense dissociation of H_2O to form atomic oxygen.

NO evolution reaction with NO_2 adsorption over Fe/ZSM-5: In situ FT-IR observation and relationships with Fe sites **pp 29–38**

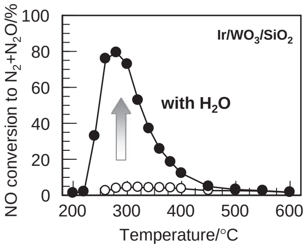
Masaoki Iwasaki*, Hirofumi Shinjoh



NO_2 is decomposed into NO and atomic oxygen at the Fe sites on Fe/ZSM-5 catalyst. NO then evolves and is subsequently replaced by follow-on NO_2.

Promotional role of H_2O in the selective catalytic reduction of NO with CO over $Ir/WO_3/SiO_2$ catalyst **pp 39–49**

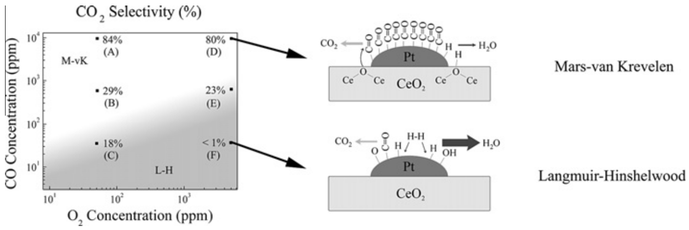
Masaaki Haneda*, Hideaki Hamada



Promotional role of H_2O in the selective reduction of NO with CO over $Ir/WO_3/SiO_2$ was accounted for by the formation of the catalytically active Ir sites interacting strongly with W oxide.

Selectivity loss of Pt/CeO_2 PROX catalysts at low CO concentrations: mechanism and active site study **pp 50–58**

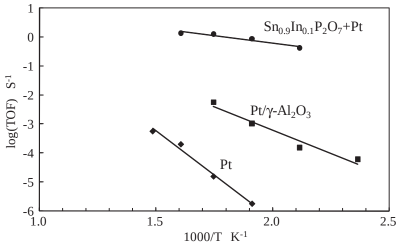
Christopher S. Polster, Rong Zhang, Michael T. Cyb, Jeffrey T. Miller, Chelsey D. Baertsch*



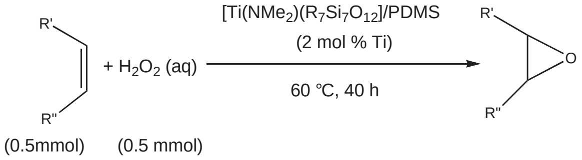
A dual pathway mechanism for CO and H_2 oxidation on Pt/CeO_2 is proposed and evaluated. Reaction selectivity depends heavily on the prevalent dominant pathway.

Low-temperature hydrocarbon combustion over proton conductor/metal–mixed catalysts **pp 59–65**

Kota Tsuneyama, Shinya Tetanishi, Takashi Hibino*, Satoshi Nagao, Hirohito Hirata, Shin-ichi Matsumoto



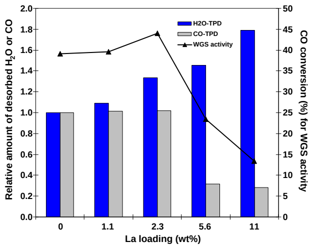
A micro-scale electrochemical reactor using a $Sn_{0.9}In_{0.2}P_2O_7$ + Pt catalyst provided two to four orders of magnitude higher catalytic activity for propane oxidation under stoichiometric conditions, compared to that of a reactor using a $Pt/\gamma\text{-}Al_2O_3$.



R = i-C_4H_9 or c-C_6H_{11}

R'R'' = $(CH_2)_4$; R' = $CH_3(CH_2)_5$, R'' = H

Polydimethylsiloxane (PDMS)-immobilized Ti silsesquioxane catalysts [Ti(NMe$_2$){(c-C_6H_{11})$_7$Si$_7$O$_{12}$}]/PDMS (**3**) and [Ti(NMe$_2$){(i-C_4H_9)$_7$Si$_7$O$_{12}$}]/PDMS (**4**), displayed high activity and recyclability, as well as excellent epoxide selectivity (⩾97%), and H_2O_2 efficiency (⩾97%) in cyclohexene- and 1-octene epoxidation with aqueous H_2O_2.



The influence of La-doping on Cu/ZnO catalyst for low-temperature water–gas shift reaction showed improvement on activation energy and stability of the catalysts to a certain extent, however La loadings above 2.3 wt% promoted H_2O adsorption at the expense of CO, thus lowering catalyst activity.

CORRIGENDUM