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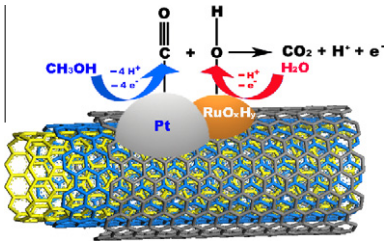
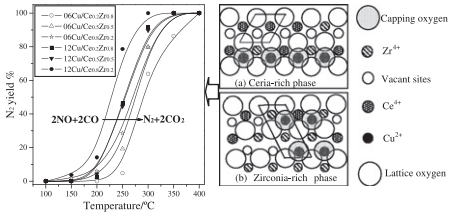
Contents

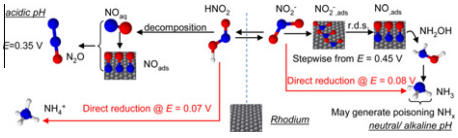
REGULAR ARTICLES



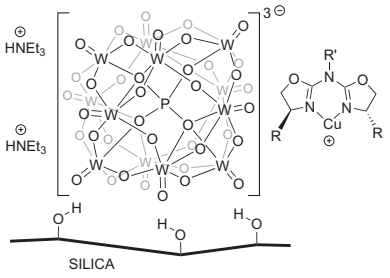
Amorphous hydrous ruthenium oxide (RuO_xH_y) alone is identified as an efficient promoter of Pt for the electro-oxidation of CO and methanol. However, its dissolution at potentials higher than 0.46 V (vs. SCE) would induce changes in Pt–RuO_xH_y proximity and even surface structure of Pt and thus alter the activity of Pt in electrocatalysis.



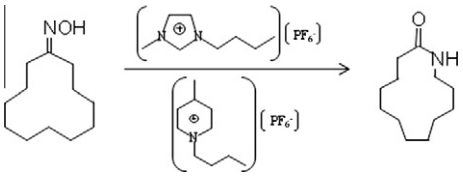
Copper species could incorporate into the vacant sites on the exposed (1 1 1) plane of ceria–zirconia, and its stronger interaction with ceria-rich phase determined the higher activity than zirconia-rich phase.



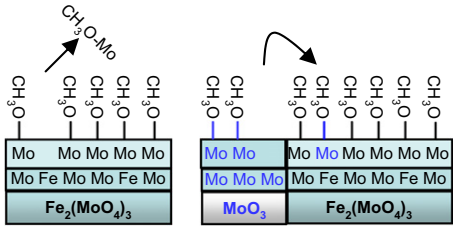
The electrochemical reduction of HNO_2/NO_2^- was studied on a rhodium electrode as a function of pH and potential (E). N_2O is detected only in acidic media, while NH_3 formation occurs at low E independently of pH.



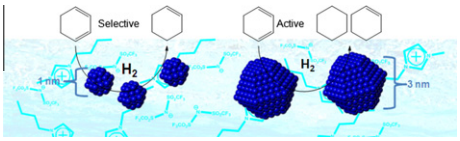
Supported ($PW_{12}O_{40}^{3-}$) is a suitable counterion to immobilize chiral azabis(oxazoline)-copper complexes by ion pair formation. Catalytic results are good to excellent in cyclopropanation reactions (up to 97% ee), with minimized leaching and good recovery after optimization of the recycling system.



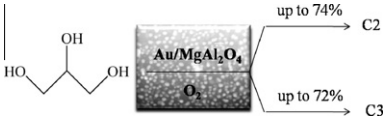
$[C_4mim]^+PF_6^-$ and $[C_4mpyr]^+PF_6^-$ ionic liquids can supply in a controlled way ppms of HF in the reaction media, which catalyze the Beckmann rearrangement of cyclododecanone oxime with excellent conversion and selectivity.



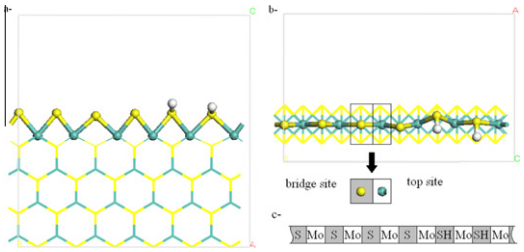
The catalytic active sites in bulk iron molybdate catalysts for methanol oxidation to formaldehyde are surface MoO_x species. The only function of excess molybdate is to replenish the volatilized surface MoO_x species. This maintains the activity and selectivity of the catalyst by preventing the exposure of iron sites responsible for yielding dimethyl ether.



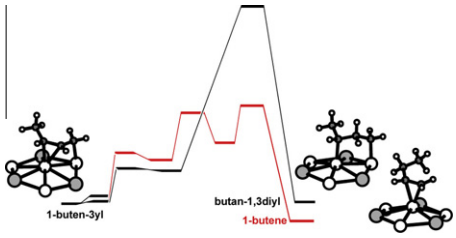
The effect of the size of ruthenium nanoparticles, produced in ionic liquids, in the catalytic hydrogenation of olefins has been investigated using 1,3-cyclohexadiene as a probe. It has been found that smaller nanoparticles are more selective, whereas larger nanoparticles present a higher activity.



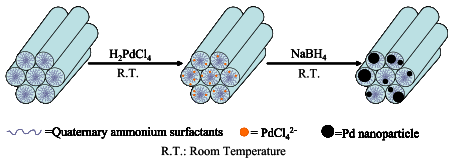
The catalytic activity of AuNPs on spinels is dependent on Au size and accessibility by the reactant, whereas selectivity is ruled out by the Mg/Al ratio at the surface.



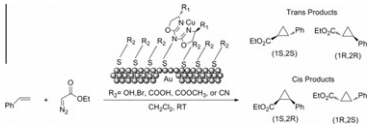
Temperature-programmed reduction profiles of pre-sulfided MoS_2/γ-Al_2O_3 hydrotreating catalysts are reproduced by first-principles kinetic Monte Carlo simulations.



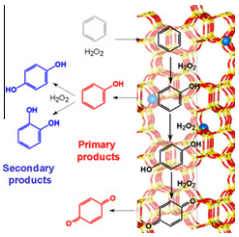
DFT calculations reveal the atomic scale mechanism of butadiene hydrogenation on a platinum-tin alloy and explain the high selectivity toward butene.



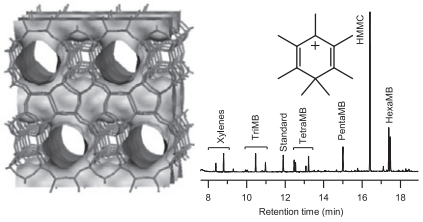
A facile method was reported to prepare as-synthesized mesostructured material supported Pd catalysts which exhibited high and stable activity in hydrogenation of allyl alcohol.



Aza-bis(oxazoline) copper complex has been immobilized onto alkanethiol self-assembled monolayers utilizing five different background tail groups with different electronic characteristics.

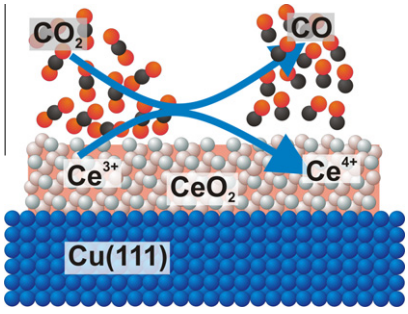


The control of selectivity in benzene hydroxylation: unraveling some controversial aspects of the catalytic behavior of TS-1. The hydroxylation of benzene with hydrogen peroxide, catalyzed by TS-1, leads to the only primary formation of phenol and benzoquinone, whereas diphenols are produced on external Ti sites and in the bulk liquid phase by consecutive phenol hydroxylation. New insights into the role of solvent and on the nature of Ti sites are also reported.



Co-reaction studies and isotopic labeling reveal profound similarities in the nature and reactivity of the reaction intermediates and the reaction steps leading to deactivation during the conversion of methanol to hydrocarbons over large cavity acidic zeolites.

RESEARCH NOTE



Reduced ceria can be reoxidized by CO_2 at room temperature in complete absence of any noble metal co-catalysts, surface hydroxyl groups, or water on its surface.