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List of Publications from the Research Institute for Catalysis (1977)

In 1977, the following papers by the members of the Research Institute for Catalysis, Hokkaido University were published.*)

I. Ordinary articles

The Kinetic Study of Electron Transfer Step of Hydrogen Electrode Reaction on Ga and Ni in Aqueous Sodium Hydroxide Solutions
A. MATSUDA, R. NOTOYA, T. OHMORI, K. KUNIMATSU and T. KUSHIMOTO
Elektrokhimiya, **13**, 726 (1977) (in Russian).

The Study of Kinetics of Electron Transfer Step in Hydrogen Evolution Reaction on Metals
A. MATSUDA, R. NOTOYA, T. OHMORI, K. KUNIMATSU and T. KUSHIMOTO
Elektrokhimiya, **13**, 1659 (1977) (in Russian).

The Study of pH Effect on Surface States of Iridium Electrode in Aqueous KCl Solutions
R. NOTOYA
Elektrokhimiya, **13**, 1702 (1977) (in Russian).

Friedel-Crafts Reaction in Heterogeneous System VI. Friedel-Crafts Isopropylation of Toluene with Isopropyl Halides Catalyzed by Calcined Iron Sulfates. Substrate and Positional Selectivity
K. ARATA and I. TOYOSHIMA
J. Catalysis, **47**, 109 (1977).

Nitrogen Chemisorption on Cobalt Catalysts Promoted with and without Potassium Oxide
H. SUZUKI and I. TOYOSHIMA
Proc. 6th Int. Congr. on Catalysis, Vol. 2, p. 708 (1977).

Catalytic Activity of Fe_2O_3 Prepared from Iron Sulfates by Thermal Decomposition
K. ARATA, K. YABE, M. HINO and I. TOYOSHIMA
Shokubai (Catalyst), **19**, 136 P (1977) (in Japanese).

Electroreduction of Acetone on Platinum in Sulfuric Acid Solution and Catalytic Action of Platinum and Mercury Electrodes
H. KITA, K. SAITO and A. KATAYAMA
J. Res. Inst. Catalysis, **25**, 45 (1977).

*) A similar list for 1976 appeared in Vol. 24, No. 3 (1976) of this Journal.

Study of Hydrogen Adsorption on Platinum-Graphite Catalysts
A. KATAYAMA and H. KITA
Shokubai (Catalyst), **19**, 94 P (1977) (in Japanese).

Change of Mechanism of the Hydrogen Electrode Reaction with Overpotential IV. Surface Coverage Effect
M. ENYO
J. Res. Inst. Catalysis, **25**, 17 (1977).

EHMO Calculation for Hydrogen Adsorption on Ni and Cu Atom Clusters
H. ITOH
Proc. Int. Meeting on Small Particles and Inorganic Clusters, 1976, Lyon, J. Phys. (Paris), Suppl. C 2–23 (1977).

Molecular Orbital Calculations of Adsorption of CO on Ni and Cu Metal Clusters
H. ITOH
Japan. J. Appl. Phys., **17**, 2125 (1977).

Resonance in Atom Diffraction by Crystal Surfaces
Y. HAMAUZU
J. Phys. Soc. Japan, **42**, 961 (1977).

Oxyfunctionalization of Hydrocarbons 6. Electrophilic Oxygenation of Aliphatic Alcohols, Ketones, and Aldehydes with Ozone in Superacids. Preparation of Bifunctional Derivatives*)
G. A. OLAH, N. YONEDA and R. OHNISHI
J. Am. Chem. Soc., **98**, 7341 (1976).

Adsorption States of Hydrogen on Pt, W, Cu and Alloy Systems of $Cu_{1-x}Ni_x$ Studied by NMR
T. ITŌ and T. KADOWAKI
Proc. 7th Int. Vacuum Congress and 3rd Int. Conference on Solid Surfaces, Vienna, 1977, Vol. II, p. 979 (1977).

NMR Study of Adsorption of Hydrogen on Tungsten
T. ITŌ, T. KUMAGAI and T. KADOWAKI
Japan. J. Appl. Phys., **16**, 1919 (1977).

Polarization of Atoms in the Vicinity of Solid Surfaces by Surface Electric Field: Effect of Field Inhomogeneity
T. NAKAMURA and H. TATEWAKI
J. Res. Inst. Catalysis, **25**, 159 (1977).

*) This paper was published in 1976, but not included in the 1976 list in Vol. 24, No. 3 (1976) of this Journal (Editor).

List of Publications

The Reactivity and Auger Chemical Shift of Oxygen Adsorbed on Platinum
T. MATSUSHIMA, D. B. ALMY and J. M. WHITE
Surface Science, **67**, 89 (1977).

An Auger Spectroscopic Study of the Kinetic Behavior of Adsorbed Oxygen on Palladium
T. MATSUSHIMA and J. M. WHITE
Surface Science, **67**, 122 (1977).

Reaction Structure of the CO Oxidation on Palladium Metal
T. MATSUSHIMA and J. M. WHITE
Shokubai (Catalyst), **19**, 118 P (1977) (in Japanese).

Hydrogenation of Ethylene on a MoS_2 Catalyst
T. OKUHARA, K. TANAKA and K. MIYAHARA
J. Catalysis, **48**, 229 (1977).

Oriented Addition of HD Molecule to Butadiene on a ZnO Catalyst
K. TANAKA, T. OKUHARA and K. MIYAHARA
The 4th Japan-Soviet Catalysis Seminar Preprints 3-1 (1977).

Intermediates of Catalyzed Hydrogenation
T. OKUHARA, T. KONDO, K. TANAKA and K. MIYAHARA
Shokubai (Catalyst), **19**, 41 P (1977) (in Japanese).

Catalysis on MoS_2 Single Crystal: Mechanism and Anisotropy of Catalysis
T. OKUHARA, K. TANAKA and K. MIYAHARA
Shokubai (Catalyst), **19**, 140 P (1977) (in Japanese).

Hydrogen Adsorption on ZnO and Its Isotope Effect at Low Temperatures
M. WATANABE
Shokubai (Catalyst), **19**, 91 P (1977) (in Japanese).

Scattering of Helium and Hydrogen Molecular Beams from the (111) Plane of Silver
H. ASADA
J. Res. Inst. Catalysis, **25**, 175 (1977).

Ab Initio SCF CI Calculations on the Ground and $\pi-\pi^*$ Excited States of the Pyrrole Molecule and Its Positive Ion
K. TANAKA, T. NOMURA, T. NORO, H. TATEWAKI, T. TAKADA, H. KASHIWAGI, F. SASAKI and K. OHNO
J. Chem. Phys., **67**, 5738 (1977).

II. Short Notes and Letters

Energy Distribution of Field Emission from the Oxide-Cluster on Mo Surface
H. YAMADA and K. AZUMA
Japan. J. Appl. Phys., **16**, 1065 (1977).

Homomolecular Oxygen Isotopic Exchange Reaction on Zinc Sulfide below −80°C
K. TANAKA, A. KAZUSAKA, A. YAMAZAKI and K. MIYAHARA
J. Phys. Chem., **81**, 2681 (1977).

Intermediates of the Hydrogenation of α-Olefins on a MoS_2 Catalyst
T. OKUHARA, T. KONDO, K. TANAKA and K. MIYAHARA
J. Phys. Chem., **81**, 90 (1977).

Superoxide Ion Formation Process on Reduced MoO_3–TiO_2
A. KAZUSAKA, T. WATANABE, K. MIYAHARA, K. TANAKA and K. TANABE
Chem. Phys. Letters, **50**, 491 (1977).

Change from a σ-Alkyl Intermediate to a Carbonium Ion Intermediate in Reactions of Olefins on a Molybdenum Sulfide Catalyst
T. OKUHARA, K. TANAKA and K. TANABE
J. Chem. Soc., Chem. Comm., 180 (1977).

Oriented Adsorption of HD on ZnO and Catalytic Addition of HD to Butadiene on It
T. OKUHARA, T. KONDO and K. TANAKA
J. Phys. Chem., **81**, 808 (1977).

N-Propenyl and σ-Alkyl Intermediates in the Hydrogenation of Methylacetylene and Allene on MoS_2
T. OKUHARA, T. KONDO and K. TANAKA
Chem. Letters, 119 (1977).

Preparation of Iridized Electrode by Reduction Method
R. NOTOYA
J. Res. Inst. Catalysis, **25**, 41 (1977).

Hydrogen Overvoltage on Titanium in Sulfuric Acid
T. OKADA and A. MATSUDA
J. Res. Inst. Catalysis, **25**, 193 (1977).

Erratum: Self-Consistent Theory of the Martensitic Phase Transformation in Metallic Lithium [Phys. Rev. **B 12**, 2194 (1975)]
R. P. BAJPAI, M. ONO, Y. OHNO and T. TOYA
Phys. Rev., **B 15**, 3285 (1977).

III. Review Articles

Regulation of Intermediates on Sulfided Nickel and MoS_2 Catalysts
K. TANAKA and T. OKUHARA
Catalysis Reviews, **15**, 249 (1977).

Structures of Active Sites and Their Catalyses
T. OKUHARA and K. TANAKA
Shokubai (Catalyst), **19**, 429 (1977) (in Japanese).

Ab Initio Calculations on the Electronic Structure of the Diatomic Molecules
H. TATEWAKI and S. OBARA
Nippon Butsurigakukai-shi (Butsuri), **32**, 205 (1977) (in Japanese).

Chemisorption in Ultra High Vacuum
I. TOYOSHIMA
Shin Zikken Kagaku Koza, Maruzen Co., Vol. 18 (Interface and Colloid), p. 142 (1977) (in Japanese).

Thermal Desorption
I. TOYOSHIMA and I. YASUMORI
Shin Zikken Kagaku Koza, Maruzen Co., Vol. 18 (Interface and Colloid), p. 136 (1977) (in Japanese).

Application of Electron Spin Resonance to the Study of Heterogeneous Catalysis
A. KAZUSAKA
Hyomen (Surface), **15**, 686 (1977) (in Japanese).