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List of Publications from the Research Institute for Catalysis (1983)

In 1983, the following papers by the members of the Research Institute for Catalysis, Hokkaido University, were Published.*)

I. Ordinary Articles

Alkali Metal Carbonate Catalyzed Carbon-Carbon Dioxide Reaction. (Part 1) Reaction Mechanism
S. Yokoyama, K. Miyahara, K. Tanaka and J. Tashiro
J. Jpn. Petrol. Inst., **26**, 455 (1983).

XPS Characterization of Reduced $LaCoO_3$ Perovskite
E. A. Lombardo, K. Tanaka and I. Toyoshima
J. Catal., **80**, 340 (1983).

Photo-Kolbe Reaction at Gas-Solid Interfaces
S. Sato
J. Phys. Chem., **87**, 3531 (1983).

Photocatalytic Reactions on Pt/TiO_2. III. Dependence of the Water-Photolysis Activity on the Preparation Method of Catalysts
K. Yamaguti and S. Sato
Shokubai (Catalyst), **25**, 389 (1983) (in Japanese).

Metal Electrodes Bonded on Solid Polymer Electrolyte Membranes (SPE)—The Behaviour of Platinum Bonded on SPE for Hydrogen and Oxygen Electrode Processes
A. Katayama-Aramata, H. Nakajima, K. Fujikawa and H. Kita
Electrochim. Acta, **28**, 777 (1983).

Rates of the Elementary Steps of the Hydrogen Electrode Reaction on Pd-Au Alloys in Sulfuric Acid
M. Enyo and K. Machida
J. Res. Inst. Catal., **31**, 67 (1983).

Amorphous Pd-Zr Alloys for Water Electrolysis Cathode Materials
M. Enyo, T. Yamazaki, K. Kai and K. Suzuki
Electrochim. Acta, **28**, 1573 (1983).

Amorphous Ni-Ti and Ni-Zr Alloys for Water Electrolysis Cathode Materials
K. Machida, M. Enyo, I. Toyoshima, K. Miyahara, K. Kai and K. Suzuki
Bull. Chem. Soc. Jpn., **56**, 3393 (1983).

*) A similar list for 1982 appeared in Vol. 31, No. 1 (1983) of this Journal.

On the Electrochemical Behavior of H_2O_2 at Ag in Alkaline Solution
M. Honda, T. Kodera and H. Kita
Electrochim. Acta, **28**, 727 (1983).

The Relationship between the Electron Accepting Strength of Monoatomic Cations and These Catalytic Activities in Homogeneous and Heterogenous Catalysis
R. Notoya and A. Matsuda
Shokubai (Catalyst), **25**, 365 (1983) (in Japanese).

Kinetic Study of Electron Transfer Step of Hydrogen Evolution Reaction on Metals in Aqueous Media
R. Notoya and A. Matsuda
Int. Soc. Electrochem. 34th Meeting, Extended Abstracts, 1983, No. 515

Study of Adsorption at the Electrode/Solution Interphase by In-Situ Infrared Reflectance Spectroscopy—Adsorption of Methanol on a Platinum Electrode
K. Kunimatsu
J. Electron Spectrosc. Relat. Phenomena, **30**, 215 (1983).

Reaction Mechanism of CO Oxidation on Pt(111) and Angular Distribution of Product Desorption
T. Matsushima
Shokubai (Catalyst), **25**, 338 (1983) (in Japanese).

The Mechanism of the CO_2 Formation on Pt(111) and Polycrystalline Surfaces at Low Temperatures
T. Matsushima
Surf. Sci., **127**, 403 (1983).

Angular Distribution of the Desorption of CO_2 Produced on Well-Polished Polycrystalline Rhodium Surfaces
T. Matsushima
J. Catal., **83**, 446 (1983).

Multilayer Lattice Gas Model for the Zero Order Desorption Kinetics
H. Asada
J. Res. Inst. Catal., **31**, 1 (1983).

Critical Temperature of Two-Dimensional Condensation of Atoms Adsorbed in Registry with Solid Surfaces. I. Registered Cell Molel in the Mean Field Approximation
H. Asada
Surf. Sci., **133**, 279 (1983).

List of Publications

NMR of Xe Adsorbed on Graphite
T. Shibanuma, H. Asada, S. Ishi and T. Matsui
Japan. J. Appl. Phys., **22**, 1656 (1983).

Ellipsometric Studies of Oxygen Adsorbed on Silver Films
M. Watanabe and P. Wissmann
J. Physique, **44**, Supple. 12, 459 (1983).

Dielectric Constants of Adsorbed Layers on Metal Surface
M. Watanabe
Shinku (Vacuum), **26**, 614 (1983) (in Japanese).

Nuclear Magnetic Resonance Study of Xenon Adsorbed on Metal-NaY-Zeolites—Nature of Xenon—Metal Interactions
T. Ito, L.-C. De Menorval and J. P. Fraissard
J. chim. phys. **80**, 573 (1983).

^{129}Xe NMR Study of Xenon Adsorbed on Y-Zeolites
T. Ito and J. Fraissard
J. Chem. Phys., **76**, 5225 (1982).

Nuclear Magnetic Resonance Study of Xenon Adsorbed on Metal-NaY-Zeolites—A New Method for the Determination of the Mean Number of Atoms in Small Metallic Particles Supported on Y-Zeolites
L.-C. de Menorval, J. P. Fraissard and T. Ito
J. Chem. Soc., Faraday Trans. 1, **78**, 403 (1982).

Nuclear Magnetic Resonance Study of Xenon Adsorbed on Metal-NaY-Zeolites (Size of Metal Particles and Chemisorption)
J. Fraissard, T. Ito, L. C. de Menorval and M. A. Springuel-Hust
Metal Microstructures in Zeolites, P. A. Jacobs *et al.* Ed., Elsevier Scientific Publishing Company, Amsterdam, 1982.

Electronic Structure of Small Copper Clusters
E. Miyoshi, H. Tatewaki and T. Nakamura
Int. J. Quant. Chem., **23**, 1201 (1983).

Electronic Structure of Small Copper Clusters. II. Localized d Hole in Excited States and Ionized States of Cu_2 and Cu_3
E. Miyoshi, H. Tatewaki and T. Nakamura
J. Chem. Phys., **78**, 815 (1983).

A Model of Magneto-Structural Phase Transition in MnAs
T. Kato, K. Nagai and T. Aisaka
J. Phys. C: Solid State Phys., **16**, 3183 (1983).

II. Letters and Communications

Direct Synthesis of Hydrazine over Metal Oxide Catalysts under Silent Discharge
K. Miyahara
Chem. Lett., 1871 (1983).

UPS and XPS Studies on Adsorption of Gases over Ag-NaCl Systems.
H. Miura, A. Ayame, H. Kano, K. Miyahara and I. Toyoshima
Shinku (Vacuum), **26**, 406 (1983) (in Japanese).

Zero-Valent Iron Catalyst Derived from $Fe(CO)_5$ Supported on KOH-Doped Alumina: High Activity for the Hydrogenation of Ethylene
A. Kazusaka, H. Suzuki and I. Toyoshima
J. Chem. Soc., Chem. Commun., 150 (1983).

Chromatographic Resolution of a Racemic Cyclic Organic Compound on a *Δ*-Tris (1, 10-phenanthroline) Ruthenium (II) Montmorillonite Column
A. Yamagishi and R. Ohnishi
Angew. Chem. Suppl., 140 (1983).

Chromatographic Resolution of Cyclic Organic Compounds on a *Δ*-Tris (1, 10-phenanthroline) Ruthenium (II) Montmorillonite Column
A. Yamagishi and R. Ohnishi
Angew. Chem. Int. Ed. Engl., **22**, 162 (1983).

Metal Electrode Bonded on Solid Polymer Electrolytes: Platinum Bonded on Solid Polymer Electrolyte for Electrooxidation of Methanol in Perchloric Acid Solution
A. Katayama-Aramata and R. Ohnishi
J. Am. Chem. Soc., **105**, 658 (1983).

Electrocatalytic Activity of Amorphous Alloys for Hydrogen Evolution Reaction
M. Enyo, T. Yamazaki, K. Machida, K. Suzuki and K. Kai
Denki Kagaku (Electrochemistry), **51**, 123 (1983) (in Japanese).

UPS from Adsorbed Hg on Metal Surfaces
S. Ishi and Y. Ohno
Surf. Sci., **133**, L465 (1983).

III. Note

Catalytic Activity and Some Characteristics of Ag-NaCl Catalysts for Epoxidation of Ethylene
A. Ayame, T. Kimura, M. Yamaguchi, H. Miura, N. Takeno, H. Kanoh and I. Toyoshima
J. Catal., **79**, 233 (1983).

Measurement of the Potential of Zero-Charge on Nickel Electrode by the Galvanostatic Transient Method
T. Ohmori
J. Electroanal. Chem., **157**, 159 (1983).

IV. Reviews

Hydrogen Electrode Reaction on Electrocatalytically Active Metals
M. Enyo
The Comprehensive Treatise of Electrochemistry, Vol. 7 : Kinetics and Mechanism of Electrode Processes, Ed. B. E. Conway, J. O'M. Bockris, E. Yeager, S. U. M. Khan and R. E. White, Plenum, New York, (1983), p. 241.

Perspective on Electrochemical Energy Conversion in Future—5th Japan-USSR Seminar on Electrochemistry
K. Honda, V. S. Bagotzky, V. E. Kazarinov and A. Matsuda
J. Res. Inst. Catal., **31**, 95 (1983).

Study of Catalysis by Field Emission Microscopy
K. Ishizuka
Catalysis on Solid Surfaces II, T. Toya and K. Azuma, Ed., Kyoritsu Shuppan, Tokyo, (1983), p. 1 (in Japanese).

Study of Molecular Adsorption on Metals by Vibrational Spectroscopy
K. Kunimatsu
Catalysis on Solid Surfaces II, T. Toya and K. Azuma, Ed., Kyoritsu Shuppan, Tokyo, (1983), p. 71 (in Japanese).

Study of Solid Surfaces by Molecular Beam Diffraction
Y. Ohno
Catalysis on Solid Surfaces II, T. Toya and K. Azuma, Ed., Kyoritsu Shuppan, Tokyo, (1983), p. 159 (in Japanese).

Adsorption of Rare Gases on Metals
S. Ishi and T. Matsui
Catalysis on Solid Surfaces II, T. Toya and K. Azuma, Ed., Kyoritsu Shuppan, Tokyo, (1983), p. 217 (in Japanese).

Utilization of Computer for Education of Physics, Especially of Quantum Mechanics
T. Nakamura
Report of Center for Information Processing Education, Hokkaido University, **3**, 19, (1983) (in Japanese).