Curriculum Vitae

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Kyoto University

Date and place of Birth: October 3, 1958, Osaka, Japan
Gender: Male, Age: 56, Nationality: Japan

DEGREES

Graduated in 1982 with Bachelor's degree from Kyoto University (Department of Hydrocarbon Chemistry, Faculty of Engineering)
1984 Master of Engineering, Kyoto University
1987 PhD in Chemistry, Kyoto University

PROFESSIONAL CARRIER

1987 Assistant Professor at Department of Chemistry, Faculty of Science, Hokkaido University
1990 Assistant professor at Department of Hydrocarbon Chemistry, Faculty of Engineering Kyoto University
1993 Assistant professor at Department of Molecular Engineering, Graduate School of Engineering, Kyoto University
1997 Associate professor at the same department
2004 Professor at the same department.
2012 Director at Elements Strategy Initiative for Catalysts & Batteries, Kyoto University
2013 Associate Editor, Royal Society of Chemistry, Catalysis Science & Technology

1994 Guest professor at Lanzhou Institute of Chemical Physics, China.
1996 Guest scholar at Department of Physical, Inorganic and Material Chemistry, University of Turin, Italy

AWARD

1995 Catalysis Society of Japan Award for Young Researchers
[XAFS study of the structural analysis of surface vanadate species over supported vanadium oxide]
2018 Catalysis Society of Japan Award (Academic field)
[Development of efficient photocatalytic system on the basis of the reaction mechanism]

RESEARCH PROJECTS

1. Heterogeneous Photocatalysis
   - Phototransformation of CO_2
   - Photoabatement of NO and NH_3; Photo-SCR
   - Selective photooxidation of alkanes, alkenes, alcohols and amines
2. Environmental Catalysis
   - Development of three-way-catalyst with less or without noble metals
   - Development of materials for oxygen storage. OSC
   - Development of NOx trap materials
3. Characterization of Catalytic Reactions
   - Development of X-ray Absorption Fine Structure (XAFS) spectroscopy
   - Simulation of catalytic reactions by quantum chemical method
   - Elucidation of catalytic reaction mechanism at a molecular level

PUBLICATIONS

BOOKS AND REVIEWS

Books and reviews excluding 12 items written in English and 77 items written in Japanese.

1. **"Acid-Base Catalysis"**, Proceedings of the International Symposium on Acid-Base Catalysis, Sapporo, 1988, Ed by Kozo Tanabe, Tsutomu Yamaguchi, Hideshi Hattori and Tsunehiro Tanaka, Kodansha, Tokyo, 1989.

2. **XANES of Catalyst Materials Other Than Metal Oxides and Metals**
   Tsunehiro Tanaka and Satohiro Yoshida,
   "X-Ray Absorption Fine Structure for Catalysts and Surfaces", Chapter 8, pp. 326-330., Ed. Yasuhiro Iwasawa, World Scientific, Singapore 1996.

3. **Propylene Oxide Synthesis and Selective Oxidation over Supported Metal Oxide Photocatalysts with Molecular Oxygen**
   Fumiaki Amano and Tsunehiro Tanaka
   Chem. Lett., 2006, **35**, 468 – 473.

4. **Unique Photo-activation Mechanism by "in situ doping" for Photo-assisted Selective NO Reduction with Ammonia over TiO_2 and Photooxidation of Alcohols over Nb_2O_5**
   Tetsuya Shishido, Kentaro Teramura, Tsunehiro Tanaka
   Catalysis Science & Technology, 2011, **1**, 541-551.

ORIGINAL REFEREED PAPERS

The selected papers published within last five years excluding 310 papers as a whole.

1. Reaction Mechanism of Selective Photooxidation of Amines over Niobium Oxide: Visible Light-Induced Electron Transfer Between Adsorbed Amine and Nb_2O_5
   S. Furukawa, Y. Ohno, T. Shishido, K. Teramura, T. Tanaka
   J. Phys. Chem. C., 2013, **117**(1), 442-450.

2. Characterization of Thermally Stable Brønsted Acid Sites on Alumina-Supported Niobium Oxide Calcined at High Temperature
   T. Kitano, T. Shishido, K. Teramura, T. Tanaka
   ChemPhysChem, 2013, **14**(11), 2560-2569.

3. Vibronically Induced Activation Mechanism in Photocatalysis of Highly Dispersed Vanadium Oxide Supported on Silica, V_2O_5/SiO_2: Evidence in Phosphorescence Spectra
   T. Sato, N. Iwahara, K. Tanaka, T. Tanaka
   Chem. Phys.Lett., 2013, **584**, 63-66.

4. Ultrathin Rhodium Nanosheets
   H. Duan, N. Yan, R. Yu, C.-R. Chang, G. Zhou, J. Zhang, H.-S. Hu, H. Rong, J. Mao, Z. Niu, Y. Wu, S. Zhang, L. Chen, H. Asakura, T. Tanaka, P. J. Dyson, J. Li, Y. Li
   Nature Commun., 2014, 5:3093.

5. Effect of High-Temperature Calcination on the Generation of Brønsted Acid Sites on WO_3/Al_2O_3
   T. Kitano, T. Hayashi, T. Uesaka, T. Shishido, K. Teramura, T. Tanaka
   ChemCatChem, 2014, **6(7)**, 2011-2020.

6. Local Structure and La L_1, and L_3-edge XANES Spectra of Lanthanum Complex Oxides
   H. Asakura, H. T. Shishido., K. Teramura, T. Tanaka
   Inorg. Chem., 2014, **53**, 6048-6053.

7. Selective Aerobic Oxidation of Primary Alcohols to Aldehydes over Nb_2O_5 Photocatalyst with Visible Light
   Z. Wang, K. Teramura, S. Hosokawa,T. Tanaka
   Appl. Catal. B:Environmental., 2015, **163**, 241-247.

8. Visible-Light-Assisted Selective Catalytic Reduction of NO with NH_3 on Porphyrin Derivative-Modified TiO_2 Photocatalysts
   A. Yamamoto, Y. Mizuno, K. Teramura, S. Hosokawa, T. Shishido, T. Tanaka
   Catal. Sci. Technol., 2015, **5**, 556-561.

9. Noble-Metal-Free NOx Storage over Ba-Modified TiO_2 Photocatalysts under UV-Light Irradiation at Low Temperatures
   A. Yamamoto, Y. Mizuno, K. Teramura, S. Hosokawa, T. Shishido, T. Tanaka
   ACS Catalysis, 2015, **5**, 2939-2943.

10 Highly Efficient Photocatalytic Conversion of CO_2 into Solid CO Using H_2O as a Reductant over Ag-Modified $ZnGa_2O_4$
   Z. Wang, K. Teramura, S. Hosokawa, T. Tanaka
   J. Mater. Chem. A, 2015, **3**, 11313-11319.

11 Oxygen Storage Capacity of $Sr_3Fe_2O_{7-\delta}$ Having High Structural Stability
   K. Beppu, S. Hosokawa, K. Teramura, T. Tanaka
   J. Mater. Chem. A, 2015, **3**, 13540-13545.

12 $ZnTa_2O_6$ Photocatalyst Synthesized via Solid State Reaction for Conversion of CO_2 into CO in Water
   S. Iguchi, K. Teramura, S. Hosokawa, T. Tanaka
   Catal. Sci. Technol., 2016, **6**, 4978 – 4985.

13 Synthesis of Niobium Oxide Nanoparticles with Plate Morphology Utilizing Solvothermal Reaction and Their Performances for Selective Photooxidation
   K. Tamai, S. Hosokawa, K. Teramura, T. Shishido, T. Tanaka
   Appl. Catal. B., 2016, **182**, 469-475.

14 Promoter Effect of Pd Species on Mn Oxide Catalysts Supported on Rare-Earth-Iron Mixed Oxide
   S. Hosokawa, R. Tada, T. Shibano, S. Matsumoto, K. Teramura, T. Tanaka
   Catal. Sci. Technol., 2016, **6**, 7868-7874.

15 Highly Active and Stable Pt-Sn/SBA-15 Catalyst Prepared by Direct Reduction for Ethylbenzene Dehydrogenation: Effects of Sn Addition
   L. Deng, T. Arakawa, T. Ohkubo, H. Miura, T. Shishido, S. Hosokawa, K. Teramura, T. Tanaka
   Ind. Eng. Chem. Res., 2017, **56**, 7160-7172.

16 Synthesis of Niobium Oxide Nanoparticles with Plate Morphology Utilizing Solvothermal Reaction and Their Performances for Selective Photooxidation
   K. Tamai, S. Hosokawa, K. Teramura, T. Shishido, T. Tanaka
   Appl. Catal. B., 2016, **182**, 469-475.

17 Thermally Stable Single Atom Pt/m-Al_2O_3 for the Selective Hydrogenation and CO Oxidation
   Zailei Zhang, Yihan Zhu, Hiroyuki Asakura, Bin Zhang, Jiaguang Zhang, Maoxiang Zhou, Yu Han, Tsunehiro Tanaka, Ai-Qin Wang, Tao Zhang, Ning Yan
   Nature Communications, 2017, 8:16100.

18 Efficient Photocatalytic Carbon Monoxide Production from Ammonia and Carbon Dioxide by the Aid of Artificial Photosynthesis
   Z. Huang, K. Teramura, H. Asakura, S. Hosokawa, T. Tanaka
   Chem. Sci., 2017, **8**, 5797-5801.

19 Modification of Ga_2O_3 by Ag−Cr Core−shell Cocatalyst Enhances Photocatalytic CO Evolution for the Conversion of CO_2 by H_2O
   R. Pang, K. Teramura, H. Tatsumi, H. Asakura, S. Hosokawa, T. Tanaka
   Chem. Commun., 2018, **54**, 1053-1056