

## CURRICULUM VITAE

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**Education:** 1975 Bachelor, Chem. Eng., Kyushu Univ., Japan  
1977 Master, Chem. Eng., Kyoto Univ., Japan  
1981 Ph.D, Chem. Eng., Kyoto Univ., Japan

**Research and professional experience:**

- 1981-1994 National Chemical Laboratory for Industry/Agency of Industrial Science and Technology/  
Ministry of International Trade and Industry (METI)
- 1994-2001 Leader, Catalytic Materials Group, National Institute of Materials and Chemical Research/Agency of Industrial Science and Technology/Ministry of International Trade and Industry (METI)
- 2001-2004 Leader, Clean Fuel Group, Research Institute for Green Technology, National Institute for Advanced Industrial Science and Technology (AIST)
- 2004-2007 Leader, Hydrotreating Catalysis Group, Energy Technology Research Institute, National Institute for Advanced Industrial Science and Technology (AIST)
- 2007-2010 Leader, Hydrotreating Catalysis Team, Research Center for New Fuels and Vehicle Technology, National Institute for Advanced Industrial Science and Technology (AIST)
- 2008-2012 Prime Senior Researcher, Research Center for New Fuels and Vehicle Technology, National Institute for Advanced Industrial Science and Technology (AIST)

2013- AIST Emeritus Researcher  
Invited Senior Researcher, Research Institute of Energy Frontier,  
National Institute for Advanced Industrial Science and Technology  
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2016.4-2016.9  
Visiting Senior Researcher,  
Materials for Energy Research Unit, Room MP206  
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2017-  
JICA Senior Volunteer @ MTEC

***Research Activities abroad:***

1984-1985 (1 year): CANMET(Ottawa) /Energy, Mines and Resources  
(Now National Resources Canada)

Topics: Regeneration of spent hydrotreating catalysts  
Hydrotreating catalysts for bitumen upgrading

1992 (three months): IRCELYON/CNRS (Lyon/France)

Topics: HDS catalysts

***Teaching experience:*** 2002-2008 Visiting professor of Sofia University (Tokyo)  
Graduate school of engineering

***Research Activities:***

- Catalysis for clean fuels production and fuels upgrading  
e.g., HDS catalyst for ultra low sulfur diesel (sulfide catalysts), HDA catalysts  
for aromatics saturation (noble metal catalyst), Regeneration of spent HDS  
catalysts
- Catalysis for Biofuels production and fuels upgrading  
e.g., HYD catalysts for partial hydrogenation of FAME,  
HDO catalysts for triglyceride and bio-oils, catalytic fast pyrolysis of biomass.
- Catalysis for coal Liquefaction and coal-derive oils upgrading
- Catalytic cracking of Naphtha to Olefins
- Thermodynamic analysis of catalytic materials

***Collaboration experiences:***

Leader/Research Director  
Japan-Thailand JST-JICA SATREPS Project “Innovation on  
Production and Automotive Utilization of Biofuels from Non-food  
Biomass” (FY2010-FY2015)

***Present Position:*** AIST Emeritus Researcher  
National Institute for Advanced Industrial Science and Technology  
(AIST), Japan

JICA Senior Volunteer  
(JICA: Japan International Cooperation Agency) and  
Visiting Senior Researcher at

Materials for Energy Research Unit, Room MP206  
National Metal and Materials Technology Center (MTEC)  
114 Thailand Science Park, Paholyothin Rd.,

**Academic Awards:**

- 1992 Prize for academic achievement, Japan Institute of Energy, “Research on catalysis for upgrading coal-derived oil”
- 2001 Prize for a quality of paper, The Japan Petroleum Institute, “Catalytic cracking of n-butane over rare-earth modified HZSM-5 catalyst”
- 2001 Presidential award of National Institute of Materials and Chemical Research for development of noble metal catalysts for diesel fuel upgrading
- 2002 The 10th Tsukuba Prize on Chemistry and Bio-technology, Tsukuba Foundation for Chemical and Bio-technology “Noble Metal Catalysts for Clean Fuel Production”
- 2003 Prize for research achievement, Ministry of Education, Culture, Sports, Science and Technology (MEXT), “Research on Noble Metal Catalysts for Petroleum Refining”
- 2006 AIST President Award for Full Research Achievements

**Publications:**

**International Journal (peer-reviewed original papers): 119**

1. Shih-Yuan Chen,\* Masayasu Nishi, Takehisa Mochizuki, Hideyuki Takagi, Akira Takatsuki, Wuttichai Roschat, Makoto Toba, Yuji Yoshimura, Co-processing of Jatropha-derived Bio-oil with Petroleum Distillates over Mesoporous CoMo and NiMo Sulfide Catalysts, *Catalysts*, **2018**, 8, 59; doi:10.3390/catal8020059.

2. Shih-Yuan Chen,\* Lalita Attanatho, Albert Chang, Masayasu Nishi, Takehisa Mochizuki, Hideyuki Takagi, Chia-Min Yang, Yohko Abe, Makoto Toba, Nuwong Chollacoop, Yuji Yoshimura, Profiling and Catalytic Upgrading of Commercial Palm Oil-derived Biodiesel Fuels for High-Blend Fuels, *Catalysis Today* **2018**, revised. (Invited Paper)

3. Plaifa Hongmanorom, Apanee Luengnaruemitchai, Nuwong Chollacoop, Yuji Yoshimura, “Effect of the Pd/MCM-41 Pore size on the catalytic activity and cis-trans selectivity for partial hydrogenation of canola biodiesel”, *Energy & Fuel*, 2017, 31, 8202-8209.

4. Takehisa Mochizuki, Yohoko Abe, Shih-Yuan Chen, Makoto Toba, Yuji Yoshimura “Oxygen-assisted hydrogenation of Jatropha-oil-derived biodiesel fuel over an alumina-supported palladium catalyst to produce hydrotreated fatty acid methyl esters for high-blend fuels” *ChemcatChem*, 2017, 9, 2633-2637

5. Chachchaya Thunyaratchatanon, Apanee Luengnaruemitchai,\* Thanyalak Chaisuwan, Nuwong Chollacoop, Shih-Yuan Chen, Yuji Yoshimura, Synthesis and Characterization of Zr Incorporation into Highly Ordered Mesostructured SBA-15 Material and Its performance for CO<sub>2</sub> Adsorption, *Microporous and Mesoporous Materials* **2017**, 253, 18-28 (10.1016/j.micromeso.2017.06.015).

6. Shih-Yuan Chen,\* Lalita Attanatho, Takehisa Mochizuki, Qingxin Zheng, Yohko Abe, Makoto Toba, Yuji Yoshimura, Phunthinee Somwonhsa, Supranee Lao-ubol, Influences of the Support Property and

- Pd Loading on Activity of Mesoporous Silica-Supported Pd Catalysts in Partial Hydrogenation of Palm Biodiesel Fuel, *Advanced Nanoporous Materials* 2016, in press. (Invited Paper)
7. Shih-Yuan Chen,\* Lalita Attanatho, Takehisa Mochizuki, Yohko Abe, Makoto Toba, Yuji Yoshimura, Chiraphat Kumpidet, Phunthinee Somwonhsa, Supranee Lao-ubol, Upgrading of Palm Biodiesel Fuel over Supported Pd Catalysts, *CR Chimie.* 2016, 19, 1166-1173. (Invited Paper doi:10.1016/j.crci.2015.12.005)
  8. Shih-Yuan Chen,\* Takehisa Mochizuki, Yohko Abe, Makoto Toba, Yuji Yoshimura, Phunthinee Somwongsa, Supranee Lao-ubol, Carbonaceous Ti-incorporated SBA-15 with enhanced activity and durability for high-quality biodiesel production: synthesis and utilization of the P123 template as carbon source, *Appl. Catal. B: Environ.* 2016, 181, 800-809. (10.1016/j.apcatb.2015.08.053)
  9. Shih-Yuan Chen,\* Nattawee Teeranant, Thanita Sonthisawate, Piyanan Sreesiri, Chanakan Pueemchalad, Takahashi Mochizuki, Yohko Abe, Makoto Toba, Yuji Yoshimura, A Cost-effective Acid Degumming Process Produces High-quality Jatropha Oil in Tropical Monsoon Climates, *Eur. J. Lipid Sci. Technol.* 2015, 117, 1079-1087. (doi:10.1002/ejlt.201400293)
  10. Shih-Yuan Chen,\* Takehisa Mochizuki, Yohko Abe, Makoto Toba, Yuji Yoshimura, "Ti-incorporated SBA-15 Mesoporous Silica as an Efficient and Robust Lewis Solid Acid for the Production of High-quality Biodiesel Fuels, *Appl. Catal. B: Environ.* 2014, 148-149, 344-356. (doi:10.1016/j.apcatb.2013.11.009)
  11. S-Y Chen, Supranee Lao-ubol, T.Mochizuki, Y.Abe, M.Toba, Y.Yoshimura, Transformation of Non-edible Vegetable Oils into Biodiesel Fuels Catalyzed by Unconventional Sulfonic acid-functionalized SBA-15, *APPLIED CATALYSIS A-GENERAL*, 485-, pp.28-39, 2014/07
  12. S-Y Chen, Supranee Lao-ubol, T.Mochizuki, Y.Abe, M.Toba, Y.Yoshimura, Production of Jatropha Biodiesel Fuel over Sulfonic Acid-based Solid Acids, *BIORESOURCETECHNOLOGY*, 157-, pp.346-350, 2014/04
  13. S-Y Chen, T.Mochizuki, Y.Abe, M.Toba, Y.Yoshimura, Production of high-quality biodiesel fuels from various vegetable oils over Ti-incorporated SBA-15 mesoporous silica, *Catalysis Communications*, 41-, pp.136-139, 2013/08
  14. T.Mochizuki, S-Y Chen, M.Toba, Y.Yoshimura, Deoxygenation of Guaiacol and Woody Tar over Reduced Catalysts, *APPLIED CATALYSIS B-ENVIRONMENTAL*, 146, pp.237-243, 2013/06
  15. Natthida Numwong, Apanee Luengnaruemitchai, Nuwong Chollacoop, Y.Yoshimura, Effect of support acidic properties on sulfur tolerance of pd catalysts for partial hydrogenation of rapeseed oil-derived FAME, *JOURNAL OF THE AMERICAN OIL CHEMISTS SOCIETY*, 89-, pp.2117-2120, 2012/11
  16. Natthida Numwong, Apanee Luengnaruemitchai, Nuwong Chollacoop, Y.Yoshimura, Effect of SiO<sub>2</sub> pore size on partial hydrogenation of rapeseed oil-derived FAME, *APPLIED CATALYSIS A-GENERAL*, 441-442-, pp.72-78, 2012/10.
  17. T.Suzuta, m.Abe, M.Toba, , Y.Yoshimura, Iron oxide catalysts supported on porous silica for the production of biodiesel from crude Jatropha oil, Y.Yoshimura, T.Suzuta, , *JOURNAL OF THE AMERICAN OIL CHEMISTS SOCIETY*, 89-, pp.1981-1989, 2012/10
  18. Natthida Numwong, Apanee Luengnaruemitchai, Nuwong Chollacoop, Y.Yoshimura, Partial Hydrogenation of Polyunsaturated Fatty Acid Methyl Esters over Pd/activated carbon: Effect of type of reactor, *CHEMICAL ENGINEERING JOURNAL*, 210-, pp.173-181, 2012/09
  19. T.Mochizuki, M.Toba, Y.Yoshimura, Fast Pyrolysis of Jatropha Residues over Zeolite Catalysts, *JOURNAL OF THE JAPAN PETROLEUM INSTITUTE*, 55-1, pp.69-70, 2012/01
  20. T.Mochizuki, M.Toba, Y.Yoshimura,,

- Deoxygenation of Bio-oil over Reduced Catalysts JOURNAL OF THE JAPAN PETROLEUM INSTITUTE, 54-3, pp.222-223, 2011/07
21. M.Toba, Y.Abe, H.Kuramochi, M.Osako, Y.Yoshimura,  
Hydrodeoxygenation of waste vegetable oil over sulfide catalysts, CATALYSIS TODAY, 164-1, pp.533-537, 2011/04
  22. Hosain Mosharof, M.Toba, Y.Abe, T.Mochizuki, Y.Yoshimura,  
Effect of Antioxidant Species on Oxidation Stability of Fish Oil Biodiesel, JOURNAL OF THE JAPAN PETROLEUM INSTITUTE, 53-6, pp.365-366, 2010/11
  23. Juliette Blanchard, Fuxiang Zhang, Xavier Carrier, Jean-Marc Krafft, Y.Yoshimur.  
Insight into the structure and localization of the titania overlayer in TiO<sub>2</sub>-coated SBA-15 materials, NEW JOURNAL OF CHEMISTRY, 34-, pp.508-516, 2010/03
  24. Y.Abe, M.Toba, T.Mochizuki, Y.Yoshimura,,  
Oxidative Degradation behavior of fatty acid methyl ester in fish oil biodiesel and Improvement of oxidation stability by partial hydrogenation, JOURNAL OF THE JAPAN PETROLEUM INSTITUTE, 52-6, pp.307-315, 2009/11
  25. Y.Abe, M.Toba, T.Mochizuki, Y.Yoshimura,  
Influence of degree of unsaturation of fatty acid methyl ester on oxidative deterioration behavior of model biodiesel mixed diesel fuel, JOURNAL OF THE JAPAN PETROLEUM INSTITUTE, 52-6, pp.359-360, 2009/11
  26. Juliette Blanchard, K.Bando, Michele Breyse, C. Geantet, Michel Lacroix, Y.Yoshimura,  
Investigation of the thiotolerance of metallic ruthenium nanoparticles: A XAS study, CATALYSIS TODAY, 147-, pp.255-259, 2009/10
  27. T.Mochizuki, Y.Abe, M.Toba, Y.Yoshimura,  
Hydroisomerization of n-hexadecane over Pt/Beta and Pt/USY zeolite catalysts, JOURNAL OF THE JAPAN PETROLEUM INSTITUTE, 52-2, pp.143-144, 2009/05
  28. Zdenek Vit, Daniera Gulkova, Y.Yoshimura  
Mesoporous silica-alumina as support for Pt and Pt-Mo sulfide catalysts; effect of Pt loading on activity and selectivity in HDS and HDN of model compounds, APPLIED CATALYSIS B-ENVIRONMENTAL, 87-, pp.171-180, 2009/04
  29. N.Kijima, M.Toba, Y.Yoshimura,  
A Chemical Potential Diagram and an In-situ X-ray Diffraction Analysis of a V-Mg-O Catalyst Used in the Oxidative Dehydrogenation of n-Butane, CATALYSIS LETTERS, 127-1-2, pp.63-69, 2009/01
  30. Maria Arias, Dorothee Laurenti, Virginie Belliere, Christophe Geantet, Michel Vrinat, Y.Yoshimura,  
Preparation of supported H<sub>3</sub>PW<sub>12</sub>O<sub>40</sub>.6H<sub>2</sub>O for thiophenic compounds alkylation in FCC gasoline, APPLIED CATALYSIS A-GENERAL, 348-, pp.142-147, 2008/09
  31. T.Mochizuki, Y.Morita M.Toba, Y.Yoshimura,  
Effect of Extraframework Alumina of USY zeolite on Sulfur tolerance of Pd-Pt/USY catalyst, JOURNAL OF THE JAPAN PETROLEUM INSTITUTE, 51-5, pp.315-316, 2008/09
  32. Analysis of Sulfur Compounds in Straight-run Naphtha and FCC Gasoline, Y.Miki, M.Toba, Y.Yoshimura, JOURNAL OF THE JAPAN PETROLEUM INSTITUTE, 51-4, pp.225-233, 2008/07
  33. H.Ito, M.Toba, T.Mochizuki, Y.Yoshimura,  
Effect of acidic properties on catalytic performances of CoMo sulfided catalysts in selective hydrodesulfurization of gasoline fraction, ENERGY & FUELS, 22-3, pp.1456-1462, 2008/05
  34. Maria Arias, Dorothee Laurenti, Christophe Geantet H.Ito, Y.Yoshimura,  
Gasoline desulfurization by catalytic alkylation over silica-supported heteropolyacids: From model reaction to real feed conversion., CATALYSIS TODAY, 130-, pp.190-194, 2008/01
  35. Y.Yoshimura, T.Mochizuki, M.Toba, Y.Morita,

- Effect of Yb loadings on aromatic hydrogenation activity of Pd-Pt/USY zeolite catalysts, *JOURNAL OF THE JAPAN PETROLEUM INSTITUTE*, 51-1, pp.58-64, 2008/01
36. Y.Miki, M.Toba, Y.Yoshimura,  
Separation of Sulfur Compounds in Straight-Run Naphtha *BULLETIN OF THE CHEMICAL SOCIETY OF JAPAN*, 80-11, pp.2157-2160, 2007/11
37. Y.Yoshimura, M.Toba, T.Matsui, M.Harada,, Y.Ichihashi, K.Bando, N.Matsubayashi, M.Imamura, H.Yasuda, T.Kameoka,  
Active phases and sulfur tolerance of bimetallic Pd-Pt catalysts used for hydrotreatment, *APPLIED CATALYSIS A-GENERAL*, 322-, pp.152-171, 2007/04
38. Juliette Blanchard, K.Bando, T.Matsui, M.Harada, M. Breyse, Y.Yoshimura,  
Ruthenium sulfide clusters in acid zeolite: in situ XAS characterization during sulfidation and reaction, *APPLIED CATALYSIS A-GENERAL*, 322-, pp.98-105, 2007/04
39. Y.Miki, M.Toba, Y.Yoshimura, K.Murata, ,  
Compositional Analysis of GTL and BTL diesel oils, *JOURNAL OF THE JAPAN PETROLEUM INSTITUTE*, 50-2, pp.108-116, 2007/03
40. K.Okabe, I.Takahara, M.Inaba, K.Murata, Y.Yoshimura,  
Effects of Ru Precursors on Activity of Ru-SiO<sub>2</sub> Catalysts Prepared by Alkoxide Method in Fischer-Tropsch Synthesis, *JOURNAL OF THE JAPAN PETROLEUM INSTITUTE*, 50-1, pp.65-68, 2007/01
41. M.Toba, Y.Miki, T.Matsui, M.harada, Y.Yoshimura,  
Reactivity of olefins in the hydrodesulfurization of FCC gasoline over CoMo sulfide catalyst, *APPLIED CATALYSIS B-ENVIRONMENTAL*, 70-1-4, pp.542-547, 2007/01
42. T.Yamamoto, Y.Yoshimura, M.Toba, T.Matsui, Kim Seong-Ick, A.Endo, T.Ohmori, M.Nakaiwa,  
Synthesis of monodisperse platinum nanoparticles supported on carbon gel microspheres, *JOURNAL OF NON-CRYSTALLINE SOLIDS*, 352-26-27, pp.2929-2932, 2006/08
43. Mei Xue, Ramesh Chitrakar, Koji Sakane, T.Hirotsu, K.Ooi, Y.Yoshimura, M.Toba, Qi Feng,  
Preparation of cerium-loaded Y-zeolites for removal of organic sulfur compounds from hydrodesulfurized gasoline and diesel oil, *JOURNAL OF COLLOID AND INTERFACE SCIENCE*, 298-, pp.535-542, 2006/06
44. J.Fuchikami, H.Ishihara, Y.Yoshimura,  
Effect of SiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> ratio and crystalline structure of zeolite on hydrogenation and hydrodesulfurization over Pt-Pd catalyst supported on USY zeolite, *JOURNAL OF THE JAPAN PETROLEUM INSTITUTE*, -, pp.-, 2006/05
45. Virginie Belliere, Chantal Lorentz, Christophe Geantet, Dorothee Laurenti, Michel Vrinat, Y.Yoshimura, ,  
Kinetics and mechanism of liquid-phase alkylation of 3-methylthiophene with 2-methyl-2-butene over a solid phosphoric acid, *APPLIED CATALYSIS B-ENVIRONMENTAL*, 64-, pp.254-261, 2006/04
46. K.Bando, T.Kawai, K.Asakura, T.Matsui, Lionel Le Bihan, H.Yasuda, Y.Yoshimura, S.Oyama,, In-situ XAFS analysis of Pd-Pt Catalysts During Hydrotreatment of Model Oil, *CATALYSIS TODAY*, 111-, pp.199-204, 2006/02
47. K.Okabe, X.Li, M.Toba, Y.Yoshimura,  
Bimodal Porous Co-Ir-SiO<sub>2</sub> catalysts prepared by sol-gel process with alkoxide for Fisher-Tropsch synthesis, *JOURNAL OF THE JAPAN PETROLEUM INSTITUTE*, 49-1, pp.28-32, 2006/01
48. N.Kijima, Y.Takahashi, J.Akimoto, T.Tsunoda, K.Uchita, Y.Yoshimura,  
Preparation and Characterization of Pd Nanoparticles by Sonochemical Reduction of [Pd(NH<sub>3</sub>)<sub>4</sub>]<sup>2+</sup> in the Presence of 1-Propanol, *CHEMISTRY LETTERS*, 34-12, pp.1658-1659, 2005/12
49. T.Matsui, M.Toba, T.Harada, Y.Yoshimura,

- Effect of the coexistence of nitrogen compounds on the sulfur tolerance and catalytic activity of Pd and Pt monometallic catalysts supported on high-silica USY zeolite and amorphous silica, *APPLIED CATALYSIS A-GENERAL*, 293-, pp.137-144, 2005/09
50. K.Okabe, X. Li, M.Toba, Y.Yoshimura,  
Fischer-Tropsch Synthesis over Bimodal Co-Ir-SiO<sub>2</sub> Catalysts Prepared by the Alkoxide Method ,  
*REACTION KINETICS AND CATALYSIS LETTERS*, 86-1, pp.3-9, 2005/09
51. T.Matsui, K.Bando, M.Toba, T.Harada, Y.Yoshimura,  
EXAFS study on the sulfidation behavior of Pd, Pt and Pd-Pt catalysts supported on amorphous silica  
and high-silica USY zeolite, *APPLIED CATALYSIS A-GENERAL*, 290-1-2, pp.73-80, 2005/08
52. T.Matsui, K.Bando, N.Matsubayasi, M.Toba, T.Harada, Y.Yoshimura,  
Effect of noble metal particle size on the sulfur tolerance of monometallic Pd and Pt catalysts supported  
on high-silica USY zeolite, *APPLIED CATALYSIS A-GENERAL*, 286-2, pp.249-257, 2005/06
53. M.Toba, Y.Miki, Y.Kanda, T.Matsui, T.Harada, Y.Yoshimura,  
Selective hydrodesulfurization of FCC gasoline over CoMo/Al<sub>2</sub>O<sub>3</sub> sulfide catalyst, *CATALYSIS  
TODAY*, 104-1, pp.64-69, 2005/06
54. T.Kawai, S.Sato, K.Asakura, Yong-Kul Lee, S.Oyama, K.Bando, T.Matsui, Y.Yoshimura, T.Kubota,,  
Y.Okamoto,  
In Situ XAFS Studies on the structure of Nickel Phosphide Hydordesulfurization catalysts supported on  
USY zeolite, *PHYSICA SCRIPTA*, T115-, pp.822-824, 2005/03
55. K.Bando, T.Matsui, Y.Ichihashi, K.Sato, T.Tanaka, M.Imamura, N.Matsubayashi, Y.Yoshimura,  
In-situ XAFS Analysis of Dynamic Structural Change of Pd-Pt Nano-particles supported on catalyst  
surface under Sulfidation Conditions, *PHYSICA SCRIPTA*, T115-, pp.828-830, 2005/03
56. Virginie Belliere. Christophe Geantet, Michel Vrinat, Younes Ben-Taarit., Y.Yoshimura, Alkylation of  
3-Methylthiophene with 2-Methyl-2-butene over a Zeolite Catalyst, *ENERGY & FUELS*, 18-6,  
pp.1806-1813, 2004/10
57. T.Matsui, T.Harada, K.Bando, M.Toba,, Y.Yoshimura,  
Sulfur Tolerance of Pd,Pt and Pd-Pt Catalysts Supported on Amorphous Silica, *JOURNAL OF THE  
JAPAN PETROLEUM INSTITUTE*, -, pp.-, 2004/05
58. N.Kijima, T.Ikeda, K.Oikawa, F.Izumi, Y.Yoshimura,  
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based pattern fitting, *JOURNAL OF SOLID STATE CHEMISTRY*, 177-4-5, pp.1258-1267,  
2004/04
59. Y.Yoshimura, M.Toba, K.Sakanishi, Farag El-Said Hamdy,  
Ultra deep hydrodesulfurization of gas oils over sulfide and/or noble metal catalysts, *CATALYSIS  
SURVEYS FROM JAPAN*, 8-1, pp.47-60, 2004/02
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Effect of the preparation of Ir-Mo/Al<sub>2</sub>O<sub>3</sub> sulfide catalyst on activity and HDN/HDS selectivity ,  
*APPLIED CATALYSIS A-GENERAL*, 255-, pp.321-329, 2003/12
61. K.Shimada, Y.Yoshimura  
Ultra-deep hydrodesulfurization and aromatics hydrogenation of diesel fuel over a Pd-Pt catalysts  
supported on Yttrium modified USY, *JOURNAL OF THE JAPAN PETROLEUM INSTITUTE*,  
46-6, pp.368-373, 2003/11
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Y.Okamoto, Yong-Kul Lee, S.Oyama,  
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66. Dzwigaj, C. Louis, M.Breyse, M.Cattenot, V.Belliere, C.Geantet, M.Vrinat, P.Blanchard, E.Payen, S.Inoue, H.Kudo, Y.Yoshimura, New generation of titanium dioxide support for hrdrodesulfurization, APPLIED CATALYSIS B-ENVIRONMENTAL, 41-1-2, pp.181-191, 2003/03
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**Japanese Journal (peer-reviewed original papers): 54**

**Patents :**

32 patents (hydrotreating catalysts and processing, lower olefin production, biodiesel upgrading, etc.)