RESUME

NAME:

Takashi Hibiki

WORK ADDRESS:

School of Nuclear Engineering, Purdue University
Nuclear Engineering Building
400 Central Drive, West Lafayette, IN 47907-2017, USA
TEL. +1-765-543-5873, FAX. +1-765-494-9570
E-mail: hibiki@purdue.edu

EDUCATION:

Ph.D., Chemical Engineering, Osaka University (1990)
M.E., Chemical Engineering, Osaka University (1987)
B.E., Chemical Engineering, Osaka University (1985) (Highest Distinction)

PRESENT POSITION:

Professor Emeritus
School of Nuclear Engineering, Purdue University, USA
Distinguished Professor
College of Engineering, Chulalongkorn University, Thailand
Guest Professor
Institute for Integrated Radiation and Nuclear Science, Kyoto University, Japan
Faculty of Engineering Science, Osaka University, Japan
Adjunct Professor
Collage of Engineering, RMIT University, Australia
College of Engineering, Xi'an Jiaotong University, China
Collage of Engineering, Pusan National University, South Korea

PROFESSIONAL EXPERIENCE:

2019-present Distinguished Professor of College of Engineering, Chulalongkorn University
2019-present Guest Professor of Institute for Integrated Radiation and Nuclear Science, Kyoto University
2019-present Adjunct Professor of College of Engineering, Pusan National University

2017-present Guest Professor of College of Engineering, Xi'an Jiaotong University

2015-2017 Associate Head, School of Nuclear Engineering

2015 Acting Head, School of Nuclear Engineering

2013-2015 Associate Head, School of Nuclear Engineering

2012-2013 Associate Director, USNRC Institute of Thermal-Hydraulics

2009-2016 Associate Director, Mitsubishi Center of Thermal-Hydraulics

2008-present Adjunct Professor of College of Engineering, RMIT University

2006-present Invited Professor of Faculty of Engineering Science, Osaka University

2006-2018 Professor, School of Nuclear Engineering, Purdue University

1) Teaching thermal-hydraulics and reactor safety

2) Research in two-phase flow, heat transfer and reactor safety

- Measurement of Local Interfacial Area
- Modeling of Interfacial Area Transport
- Subcooled Boiling Study for Boiling Water Reactor
- Modeling Interfacial Transfer
- Modeling of Microgravity Flow
- Modeling and Measurement of Mini Channel Flow
- SBWR Integral Test Project (PUMA Project)
- Computational Fluid Dynamics

3) University Senate

4) Principle Investigator for Use of Radioactive Material and Radiation Producing Devices

2001-2003 Adjunct Associate Professor of Graduate School of Engineering Science, Osaka University

1) Teaching energy and environmental science

2001-2002 Visiting Associate Professor of School of Nuclear Engineering, Purdue University

1) Research

- Measurement of Local Interfacial Area of Subcooled Boiling Flow
- Modeling of Interfacial Area Transport
- Interpretation of Interfacial Area Transport of Downward Flows
- Development of Drift-Flux Model at Microgravity

2000 Visiting Scientist, School of Nuclear Engineering at Purdue University

1) Research

- Modeling of Interfacial Area Concentration
- Developing Drift-Flux Model for a Large Diameter Pipe

1998-1999 Adjunct Associate Professor of Institute of Materials Structure Science at High Energy Accelerator Research Organization

1) Research

- Thermal-Hydraulic Design of N-Arena Solid-Target System in JHF Project

1997-2006 Associate Professor of Research Reactor Institute at Kyoto University
Adjunct Associate Professor of Graduate School of Energy Science at Kyoto University

1) Teaching energy transport

2) Research

- Modeling and Experimental Study of Two-phase Flow
- Subcooled Boiling Study Using Neutron Radiography
- Development of Real-Time Fast Neutron Radiography

3) Research reactor operation and maintenance

1996-1997 Visiting Scientist, School of Nuclear Engineering at Purdue University

1) Research

- Measurement of Local Interfacial Area
- Development of Measuring Techniques to Local
- Two-Phase Flow Measurements
- Modeling of Interfacial Area Transport

1990-1997 Instructor of Research Reactor Institute at Kyoto University

1) Teaching experimental training

2) Research

- Development of High-Frame-Rate Thermal Neutron Radiography System
- Development of Scattering Neutron Correction Method in NR Images
- Measurement of Two-Phase Flow in Micro-Channels
- Modeling Flow Regime Transition in Micro-Channels
- Critical Heat Flux under Oscillatory Flow Conditions
- Measurement of Critical Heat Flux

3) Research reactor operation and maintenance

1987-1990 Ph. D. student of Department of Chemical Engineering at Osaka University

1) Research

- Jet Breakup Study
- Modeling Droplet Size from Jets in Electric Fields
- Measurement of Droplet Size from Jets in Electric Fields

TEACHING EXPERIENCE:

2019-present	Distinguished Professor of College of Engineering, Chulalongkorn University
2019-present	Guest Professor of Institute for Integrated Radiation and Nuclear Science, Kyoto University
2019-present	Adjunct Professor of College of Engineering, Pusan National University
2017-present	Guest Professor of College of Engineering, Xi'an Jiaotong University
2006-2018	Professor of School of Nuclear Engineering at Purdue University
2008-present	Adjunct Professor of College of Engineering, RMIT University
2006-present	Invited Professor of Graduate School of Engineering Science, Osaka University
2001-2003	Adjunct Associate Professor of Graduate School of Engineering Science, Osaka University
2001-2002	Visiting Associate Professor of School of Nuclear Engineering, Purdue University
1997-1998	Adjunct Associate Professor of Institute of Materials Structure Science at High Energy Accelerator Research Organization
1997-2006	Associate Professor of Research Reactor Institute, Kyoto University
1990-1997	Instructor of Research Reactor Institute, Kyoto University

PROFESSIONAL SOCIETIES:

Fellow, American Nuclear Society
Member, Atomic Energy Society of Japan
Fellow, The Japan Society of Mechanical Engineers
Member, The Society of Chemical Engineers, Japan
Member, The Japanese Society for Multiphase Flow
Member, The Heat Transfer Society of Japan

PROFESSIONAL COMMITTEE PARTICIPATION

- Paper Review Committee, Japan Atomic Energy Society of Japan, 1995
- Governing Board, Power and Energy System Division, The Japan Society of Mechanical Engineers, 1998-2000
- Planning Committee, Thermal-Hydraulics Division, Atomic Energy Society of Japan, 1998
- Exploratory Committee, R & D of Improvement of Thermal-Hydraulic Analysis Methods in Nuclear Reactors, Japan Space Utilization Promotion Center, 1998
- Research Committee, Application of Photocatalysis to Fluid Engineering, Japan Space Utilization Promotion Center, 1999
- Research Planning Committee, Nuclear Engineering Laboratory, University of Tokyo, 1999

- Higher Education Committee, Educational Division, The Society of Chemical Engineering, Japan, 1999-2001
- R & D Committee, R & D of Radiation Detector, Japan Space Utilization Promotion Center, 2000
- Research Committee, Improvement of Boiling Performance Using Radiation Induced Surface Activity, Power and Energy System Division, The Japan Society of Mechanical Engineers, 2001
- International Advisory Committee, Plutonium Futures-The Science 2003, 4-Day Topical Conference on Plutonium and Actinides, Los Alamos National Laboratory, July 6-10, 2003
- Scientific Committee, 5th International Conference on Multiphase Flows, Yokohama, Japan, May 30-June 4, 2004
- Technical Program Committee, 11th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Avignon, France, October 2-6, 2005
- Reviewers Committee, Nuclear Engineering and Technology, 2004
- Editorial Board, Nuclear Engineering and Technology, 2006
- Session Organizer, 15th International Conference on Nuclear Engineering, Nagoya, Japan, April 22-25, 2007
- Session Organizer, 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Kanazawa, Japan, October 2-6, 2009.
- Editorial Board, Journal of Computational Multiphase Flow, 2009
- Editorial Board, International Journal of Microscale and Nanoscale Thermal and Fluid Transport Phenomena, 2010
- Session Organizer, International Conference of PM2.5 & Energy Security 2014, March 5-7, 2014, Kyoto, Japan.
- Session Organizer, 16th International Conference on Nuclear Engineering, Chicago, Japan, August 30-September 4, 2015
- Editorial Board, Experimental and Computational Multiphase Flow, 2018

CURRENT RESERCH INTERESTS:

- Basic two-phase flow experiments and modeling
- Interfacial area transport equation development
- Development of neutron radiography system
- Thermal-hydraulic research at micro-gravity conditions
- Critical heat flux and heat transfer in mini channels
- Two-phase flow in micro and mini channels
- Drift-flux model development in various channels

- Subcooled boiling experiments and modeling
- Flow-induced vibration analysis
- LWR safety analysis
- Research reactor utilization for industrial purposes

AWARDS AND HONORS:

- 2021 Engineering Achievement Award, Thermal-hydraulics Division, Atomic Energy Society of Japan in recognition of extensive and original research contributions to development of thermo-hydraulic constitutive equations, construction of database, and improvement of safety analysis codes for rod bundle
- 2021 Elected The Japan Society of Mechanical Engineers, Fellow
- 2020 Research Award, Kansai Chapter, The Japan Society of Mechanical Engineers for Comprehensive research on development of three-dimensional simulation code for two-phase flow in steam generators
- 2019 Preeminent Monograph Award, The Japan Institute of Marine Engineering for Experimental study of two-phase flow structure and drag reduction in horizontal rectangular channel
- 2019 Preeminent Monograph Award, Atomic Energy Society of Japan for modeling of distribution parameter, void fraction covariance and relative velocity covariance for upward steam-water boiling flow in vertical rod bundle
- 2018 Preeminent Monograph Award, Japanese Society for Multiphase Flow for fundamental research of gas-liquid two-phase flow in large diameter channels
- 2017 Outstanding Engineering Graduate Student Mentor Award, Nuclear Engineering Graduate Organization, School of Nuclear Engineering, Purdue University
- 2016 Award for Eminent Achievements in Nuclear Science and Technology in recognition of extensive and outstanding original research contributions to nuclear thermal-hydraulics, instrumentation methods and modeling of two-phase flow
- 2015 JSME Best Paper Award for “Study of unsteady gas-liquid two-phase flow induced force fluctuation”, The Japan Society of Mechanical Engineers
- 2015 Osaka University Global Alumni Fellow, Osaka University, Japan
- 2012 Best Teacher Award, School of Nuclear Engineering, Purdue University
- 2011 Elected American Nuclear Society Fellow

• 2011 Distinguished Service Award, Heat Transfer Society of Japan
• 2010 Preeminent Monograph Award, Japanese Society for Multiphase Flow for Measurement and Modeling of Two-Phase Flow at Microgravity Conditions,
• 2007 Engineering Achievement Award, Thermal-hydraulics Division, Atomic Energy Society of Japan in recognition of extensive and outstanding original research contributions to nuclear thermal-hydraulics and modeling of two-phase flow,
• 2005 Research & Development Award, Japanese Society for Multiphase Flow for Development of Advanced Neutron Radiography Technique,
• 2001 Young Member Engineering Achievement Award, American Nuclear Society in recognition of extensive and outstanding original research contributions to nuclear thermal-hydraulics, instrumentation methods and modeling of two-phase flow,
• 2001 Preeminent Monograph Award, Japanese Society for Multiphase Flow for Development of Interfacial Area Transport Equation in Bubbly Flow Systems,
• 2001 Certificate of Merit for Outstanding Presentation from Japan Society of Mechanical Engineers for Interfacial Area Concentration in Steady Fully-Developed Bubbly Flow presented in the 9th International Conference on Nuclear Engineering held at Nice in France in 2001,
• 1995 Promising Endeavor Award, Atomic Energy Society of Japan for Visualization and Measurement of Thermal and Fluid Phenomena Using Neutrons as Microscopic Probes,
• 1984 Kusumoto Award, Osaka University for Highest Distinction,

• 2020 Best Paper-Asia/Japan Award in Student Paper Competition, ICONE-28 for Han, X., Shen, X., Yamamoto, T., Nakajima, K., Hibiki, T., Flow characteristics of upward two-phase flows in a rod bundle geometry, ICONE28-POWER2020-14568.

PUBLICATIONS:

A. Ph. D. Thesis

1. T. Hibiki, "Study on Formation of Single Drops from a Laminar Jet in Electric Fields", Osaka University, Japan (1990).

B. Books and Book Chapter

1. K. Mishima, and T. Hibiki, "Measurement of Interfacial Area Concentration Using a Probe Method," Advanced Measurement in Multiphase Flow, pp.84-92, Morikita Publishing Company, Tokyo, Japan (2003).
2. M. Ishii, and T. Hibiki, "Thermo-fluid Dynamics of Two-phase Flow," Springer Verlag (2005).
3. J. E. Julia, T. Hibiki, M. Ishii, "Two-Phase Flow Regime Identification Methodologies in Thermal-Hydraulic Applications," Advances in Multiphase Flow and Heat Transfer (Volume 1), pp.93-113, Bentham Science Publishers Ltd. (2010).
4. M. Ishii, and T. Hibiki, "Thermo-fluid Dynamics of Two-phase Flow," 2nd Edition, Springer Verlag (2010).
5. X. Shen, J. Schlegel, S. W. Chen, S. Rassame, M. J. Griffiths, T. Hibiki and M. Ishii, "Flow Characteristics and Void Fraction Prediction in Large Diameter Pipes," Frontiers and Progress in Multiphase Flow, Springer, Chapter 2 (2014) pp.55-103.

C. Journal Publications

1. T. Hibiki, M. Yamaguchi, and T. Katayama, "Formation of Single Charged Drops from a Laminar Water Jet in a Uniform Electric Field," *Kagaku Kogaku Ronbunshu*, vol.14, pp.476-482 (1988).

2. T. Hibiki, M. Yamaguchi, and T. Katayama, "Stability of a Dielectric Liquid Jet in a Nonuniform Electric Field," *Kagaku Kogaku Ronbunshu*, vol.15, pp.269-275 (1989).

3. T. Hibiki, M. Yamaguchi, and T. Katayama, "Formation of Single Charged Drops from a Laminar Liquid Jet in a Nonuniform Electric Field and Dynamic Behavior of the Jet," *Kagaku Kogaku Ronbunshu*, vol.15, pp.1153-1159 (1989).

4. T. Hibiki, M. Yamaguchi, and T. Katayama, "Formation of Single Charged Drops from a Dielectric Liquid Jet in a Nonuniform Electric Field -Theoretical Analysis on Liquid Jet in the Center of a Cylindrical Electrode-," *Kagaku Kogaku Ronbunshu*, vol.16, pp.694-699 (1990).

5. T. Hibiki, M. Yamaguchi, and T. Katayama, "Formation of Single Charged Drops from a Dielectric Liquid Jet in a Nonuniform Electric Field -Experiment on Liquid Jet in the Center of a Cylindrical Electrode-," *Kagaku Kogaku Ronbunshu*, vol.16, pp.700-705 (1990).

6. T. Hibiki, M. Yamaguchi, and T. Katayama, "Formation of Single Charged Droplets from a Laminar Liquid Jet in a Uniform Electric Field," *International Chemical Engineering*, vol.30, pp.300-307 (1990).

7. T. Hibiki, M. Yamaguchi, and T. Katayama, "Effect of Flow Rate and Electric Field on Transition from Undeveloped Liquid Jet to Laminar Liquid Jet," *Kagaku Kogaku Ronbunshu*, vol.18, pp.87-93 (1992).

8. T. Hibiki, M. Yamaguchi, and T. Katayama, "Prediction of Breakup Length of Laminar Liquid Jets in Electric Fields," *Kagaku Kogaku Ronbunshu*, vol.19, pp.963-970 (1993).

9. K. Mishima, T. Hibiki, and H. Nishihara, "Some Characteristics of Gas-Liquid Flow in Narrow Rectangular Ducts," *International Journal of Multiphase Flow*, vol.19, pp.115-124 (1993).

10. T. Hibiki, K. Mishima, K. Yoneda, S. Fujine, K. Kanda, H. Nishihara, A. Tsuruno, and M. Matsubayashi, "Application of Neutron Radiography to Visualization and Void Fraction Measurement of Air-Water Two-Phase Flow in a Small Diameter Tube," *Journal of Nuclear Science and Technology*, vol.30, pp.516-523 (1993).

11. T. Hibiki, K. Mishima, K. Yoneda, S. Fujine, A. Tsuruno, and M. Matsubayashi, "Visualization of Fluid Phenomena Using a High Frame-Rate Neutron Radiography with a Steady Thermal Neutron Beam," *Nuclear Instruments and Methods in Physics Research*, vol.A351, pp.423-436 (1994).

12. H. Umekawa, M. Ozawa, A. Miyazaki, K. Mishima, and T. Hibiki, "Critical Heat Flux in Boiling Channel under Oscillatory Flow Condition," *Transactions of the Japan Society of Mechanical Engineers*, vol.61, pp.1048-1054 (1995).

13. K. Mishima, and T. Hibiki, "Effect of Inner Diameter on Some Characteristics of Air-Water Two-Phase Flows in Capillary Tubes," *Transactions of the Japan Society of Mechanical Engineers*, vol.61, pp.3197-3204 (1995).

14. K. Mishima, T. Hibiki, S. Fujine, K. Yoneda, A. Tsuruno, M. Matsubayashi, and M. Sobajima, "Visualization and Measurements of Two-Phase Flows in Metallic Ducts by Neutrons as Microscopic Probes (1st Report, Time-Resolved Neutron Radiography and Its Limited Time-Resolution)," *Transactions of the Japan Society of Mechanical Engineers*, vol.61, pp.3959-3966 (1995).

15. K. Mishima, T. Hibiki, and H. Nishihara," Effect of Pressure on Critical Heat Flux for Water in an Internally Heated Annuli," *Nuclear Science Journal*, vol.32, pp.34-41 (1995).

16. T. Hibiki, K. Mishima, and M. Matsubayashi, "Application of High Frame-Rate Neutron Radiography with a Steady Thermal Neutron Beam to Two-Phase Flow Measurements in a Metallic Rectangular Duct," *Nuclear Technology*, vol.110, pp.422-435 (1995).

17. K. Mishima, and T. Hibiki, "Visualization and Measurements of Two-Phase Flows in Metallic Ducts by Neutrons as Microscopic Probes (2nd Report, Measurements of Some Flow Characteristics Using Image Processing Techniques)," *Transactions of the Japan Society of Mechanical Engineers*, vol.62, pp.137-144 (1996).

18. T. Hibiki, and K. Mishima, "Visualization and Measurements of Two-Phase Flows in Metallic Ducts Using Neutrons as Microscopic Probes (3rd Report, Quantitative Method of Neutron Radiography Image)," *Transactions of the Japan Society of Mechanical Engineers*, vol.62, pp.919-926 (1996).

19. T. Hibiki, and K. Mishima, "Visualization and Measurements of Two-Phase Flows in Metallic Ducts Using Neutrons as Microscopic Probes (4th Report, Effect of Image Gray-Scale and Pixel-Number on Image-Quantification)," *Transactions of the Japan Society of Mechanical Engineers*, vol.62, pp.1781-1787 (1996).

20. T. Hibiki, and K. Mishima, "Visualization and Measurements of Two-Phase Flows in Metallic Ducts Using Neutrons as Microscopic Probes (5th Report, Radial Void Distribution Measurement Method of Two-Phase Flow in a Round Tube)," *Transactions of the Japan Society of Mechanical Engineers*, vol.62, pp.3002-3008 (1996).

21. K. Mishima, and T. Hibiki, "Quantitative-Measurement Limits of Thermal and Fluid Phenomena Using Neutron Attenuation Characteristics in Materials," *International Journal of Experimental Heat Transfer, Thermodynamics, and Fluid Mechanics, Experimental Thermal and Fluid Science*, vol.12, pp.461-472 (1996).

22. K. Mishima, and T. Hibiki, "Some Characteristics of Air-Water Two-Phase Flow in Small Diameter Tubes," *International Journal of Multiphase Flow*, vol.22, pp.703-712 (1996).

23. H. Umekawa, M. Ozawa, A. Miyazaki, K. Mishima, and T. Hibiki, "Critical Heat Flux in Boiling Channel under Oscillatory Flow Condition," *JSME International Journal*, vol.39, pp.412-418 (1996).

24. T. Hibiki, and K. Mishima, "Feasibility of High Frame-Rate Neutron Radiography by Using a Steady Thermal Neutron Beam with 10^6 n/(cm^2・s) Flux," *Nuclear Instruments and Methods in Physics Research*, vol.A369, pp.186-194 (1996).

25. T. Hibiki, and K. Mishima, "Approximate Method for Measurement of Phase-Distribution in Multiphase Materials with Small Neutron-Attenuation Using a Neutron Beam as a Probe," *Nuclear Instruments and Methods in Physics Research*, vol.A374, pp.345-351 (1996).

26. K. Mishima, and T. Hibiki, "Quantitative Method to Measure Void Fraction of Two-Phase Flow Using Electronic Imaging with Neutrons," *Nuclear Science and Engineering*, vol.124, pp.327-338 (1996).

27. T. Hibiki, K. Mishima, and H. Nishihara, "Influence of Scattered Neutrons on Void Fraction Measurement of Two-Phase Flow Using Real-Time Thermal Neutron Radiography," *Journal of Nuclear Science and Technology* vol.34, pp.996-1005 (1997).

28. K. Mishima, T. Hibiki, and H. Nishihara, "Visualization and Measurement of Two-Phase Flow by Using Neutron Radiography," *Nuclear Engineering and Design*, vol.175, pp.25-35 (1997).

29. T. Hibiki, and K. Mishima, "Prediction of Measurement Error Due to Low Gray-Scale and Spatial-Resolution of an Imaging System on Quantification of Neutron Radiographic Image, " *Nuclear Instruments and Methods in Physics Research*, vol.A388, pp.204-211 (1997).

30. T. Hibiki, K. Mishima, and H. Nishihara, "Measurement of Radial Void Fraction Distribution of Two-Phase Flow in a Metallic Round Tube Using Neutrons as Microscopic Probes," *Nuclear Instruments and Methods in Physics Research*, vol.A399, pp.432-438 (1997).

31. H. Umekawa, M. Ozawa, T. Mitsunaga, K. Mishima, T. Hibiki, and Y. Saito, "Scaling Parameter of CHF under Oscillatory Flow Condition", *Transactions of the Japan*

Society of Mechanical Engineers, vol.64, pp.161-166 (1998).

32. K. Mishima, and T. Hibiki, "Development of High-Frame-Rate Neutron Radiography and Quantitative Measurement Method for Multiphase Flow Research," *Nuclear Engineering and Design*, vol.184, pp.183-201 (1998).

33. T. Hibiki, S. Hogsett, and M. Ishii, "Local Measurements of Interfacial Area, Interfacial Velocity and Liquid Turbulence in Two-Phase Flow," *Nuclear Engineering and Design*, vol.184, pp.287-304 (1998).

34. T. Hibiki, and M. Ishii, "Effect of Flow-Induced Vibration on Local Flow Parameters of Two-Phase Flow," *Nuclear Engineering and Design*, vol.185, pp.113-125 (1998).

35. J. T. Hsu, M. Ishii, and T. Hibiki, "Experimental Study on Two-Phase Natural Circulation and Flow Termination in a Loop," *Nuclear Engineering and Design*, vol.186, pp.395-409 (1998).

36. H. Unesaki, T. Hibiki, and K. Mishima, "Verification of Neutron Radiographic Measurement of Void Fraction by Monte Carlo Simulation," *Nuclear Instruments and Methods in Physics Research*, vol.A405, pp.98-104 (1998).

37. H. Unesaki, T. Hibiki, and K. Mishima, "Evaluation of Scattered Neutron Component in Thermal Neutron Radiography Image -Influence of Scattered Neutrons and Unparallelness of Incident Neutron Beam," *Nuclear Instruments and Methods in Physics Research*, vol.A413, pp.143-150 (1998).

38. H. Umekawa, M. Ozawa, T. Mitsunaga, K. Mishima, T. Hibiki, and Y. Saito, "Scaling Parameter of CHF Under Oscillatory Flow Conditions," *Heat Transfer – Asian Research*, vol.28, pp.541-550 (1999).

39. T. Hibiki, and M. Ishii, "Experimental Study on Interfacial Area Transport in Bubbly Two-Phase Flow," *International Journal of Heat and Mass Transfer*, vol.42, pp.3019-3035 (1999).

40. K. Mishima, T. Hibiki, Y. Saito, J. Sugimoto, and K. Moriyama, "Visualization Study of Molten Metal-Water Interaction by Using Neutron Radiography," *Nuclear Engineering and Design*, vol.189, pp.391-403 (1999).

41. K. Mishima, T. Hibiki, Y. Saito, H. Nakamura, and M. Matsubayashi, "The Review of

the Application of Neutron Radiography to Thermal Hydraulic Research," *Nuclear Instruments and Methods in Physics Research*, vol.A424, pp.66-72 (1999).

42. Y. Saito, K. Mishima, T. Hibiki, A. Yamamoto, J. Sugimoto, and K. Moriyama, "Application of High-Frame-Rate Neutron Radiography to Steam Explosion Research," *Nuclear Instruments and Methods in Physics Research*, vol.A424, pp.142-147 (1999).

43. K. Mishima, T. Hibiki, Y. Saito, H. Nishihara, Y. Tobita, K. Konishi, and M. Matsubayashi, "Visualization and Measurement of Gas-Liquid Metal Two-Phase Flow with Large Density Difference Using Thermal Neutrons as Microscopic Probes," *Nuclear Instruments and Methods in Physics Research*, vol.A424, pp.229-234 (1999).

44. H. Nakamura, Y. Sibamoto, Y. Anoda, Y. Kukita, K. Mishima, and T. Hibiki, "Visualization of Molten-Metal/Water Interaction Using High-Frame-Rate Neutron Radiography," *Nuclear Technology*, vol.125, pp.213-224 (1999).

45. T. Hibiki, and M. Ishii, "One-Group Interfacial Area Transport of Bubbly Flows in Vertical Round Tubes," *International Journal Heat and Mass Transfer*, vol. 43, pp. 2711-2726 (2000).

46. T. Hibiki, and M. Ishii, "Experimental Study on Hot-Leg U-bend Two-Phase Natural Circulation in a Loop with a Large Diameter Pipe," *Nuclear Engineering and Design*, vol.195, pp.69-84 (2000).

47. T. Hibiki, Y. Saito, K. Mishima, Y. Tobita, K. Konishi, and M. Matsubayashi, "Study on Flow Characteristics in Gas-Molten Metal Mixture Pool," *Nuclear Engineering and Design*, vol.196, pp.233-245 (2000).

48. T. Hibiki, and M. Ishii, "Two-Group Interfacial Area Transport Equations at Bubbly-to-Slug Flow Transition," *Nuclear Engineering and Design*, vol.202, pp.39-76 (2000).

49. M. Matsubayashi, H. Kobayashi, T. Hibiki, and K. Mishima, "Design and Characteristics of JRR-3M Thermal Neutron Radiography Facility and Its Imaging Systems," *Nuclear Technology*, vol.132, pp.309-324 (2000).

50. S. Kakuno, T. Yamagishi, T. Hibiki, and T. Sekimoto, "An Analyses of Entrained Bubble Volume in the Breaker Zone Using the Void-Probe and the Effect of Reaeration," *Annual Journal of Coastal Engineering*, vol. 48, pp.71-75 (2001).

51. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto, "Measurement of Boiling Flow by High-Frame-Rate Neutron Radiography (1st Report, Error Estimation and Void Fraction Measurement)," *Transactions of the Japan Society of Mechanical Engineers*, vol.67, pp.179-188 (2001).

52. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto, Measurement of Boiling Flow by High-Frame-Rate Neutron Radiography –2nd Report Point of Net Vapor Generation of Flow Boiling in Rectangular Channels with Short Heated Length," *Transactions of the Japan Society of Mechanical Engineers Transfer*, vol. 67, pp.2295-2303 (2001).

53. T. Hibiki, M. Ishii, and Z. Xiao, "Axial Interfacial Area Transport of Vertical Bubbly Flows," *International Journal of Heat and Mass Transfer*, vol.44, pp.1869-1888 (2001).

54. T. Hibiki, and M. Ishii, "Interfacial Area Concentration in Steady Fully Developed Bubbly Flow," *International Journal of Heat and Mass Transfer*, vol.44, pp.3443-3461 (2001).

55. T. Hibiki, T. Takamasa, and M. Ishii, "Interfacial Area Transport of Bubbly Flow in a Small Diameter Pipe," *Journal of Nuclear Science and Technology*, vol. 38, pp.614-620 (2001).

56. F. Tanaka, T. Hibiki, Y. Saito, T. Takeda, and K. Mishima, "Heat Transfer Study for Thermal-Hydraulic Design of the Solid-Target of Spallation Neutron Source", *Journal of Nuclear Science and Technology*, vol. 38, pp.832-843 (2001).

57. M. Matsubayashi, T. Hibiki, and K. Mishima, "Present Status on the Development of a High-Frame-Rate Neutron Radiography System in JRR-3M," *Nondestructive Testing and Evaluation*, vol. 16, pp.267-275 (2001).

58. T. Hibiki, and K. Mishima, "Flow Regime Transition Criteria for Upward Two-Phase Flow in Vertical Narrow Rectangular Channels," *Nuclear Engineering and Design*, vol.203, pp.117-131 (2001).

59. T. Hibiki, and M. Ishii, "Effect of Inlet Geometry on Hot-Leg U-Bend Two-Phase Natural Circulation in a Loop with a Large Diameter Pipe," *Nuclear Engineering and Design*, vol.203, pp.209-228 (2001).

60. M. Matsubayashi, T. Hibiki, K. Mishima, K. Yoshii, and K. Okamoto, "Preliminary

Examination of the Applicability of Imaging Plates to Fast Neutron Radiography," *Nuclear Instruments and Methods in Physics Research*, vol.463, pp.324-330 (2001).

61. M. Kureta, H. Akimoto, T. Hibiki, and K. Mishima, "Void Fraction Measurement in Subcooled-Boiling Flow Using High-Frame-Rate Neutron Radiography," *Nuclear Technology*, vol. 136, pp.241-254 (2001).

62. M. Ozawa, H. Umekawa, K. Mishima, and T. Hibiki, and Y. Saito, "CHF in Oscillatory Flow Boiling Channels", *Trans ICheE, Part A - Chemical Engineering Research and Design*, vol. 79, pp.389-401 (2001).

63. T. Hibiki, and M. Ishii, "Distribution Parameter and Drift Velocity of Drift-Flux Model in Bubbly Flow," *International Journal of Heat and Mass Transfer*, vol. 45, pp.707-721 (2002).

64. T. Hibiki, and M. Ishii, "Development of One-Group Interfacial Area Transport Equation in Bubbly Flow Systems," *International Journal of Heat and Mass Transfer*, vol.45, pp.2351-2372 (2002).

65. T. Hibiki, and M. Ishii, "Interfacial Area Concentration of Bubbly Flow Systems," *Chemical Engineering Science*, vol.57, pp.3967-3977 (2002).

66. S. Kakuno, T. Sekimoto, and T. Hibiki, "A Concept of "Gas Volume Rate Coefficient" for Evaluation of Air/Water Gas Transfer at the Breaker Zone," *Annual Journal of Coastal Engineering*, vol. 50, pp.106-110 (2003).

67. S. Kakuno, T. Suzuki, T. Sekimoto, and T. Hibiki, "Development of Double Void Probe for Measurement of Entrained Bubble Characteristics in the Breaker Zone and Verification of Its Applicability," *Annual Journal of Coastal Engineering*, vol. 50, pp.1405-1409 (2003).

68. T. Hibiki, H. Goda, S. Kim, M. Ishii, and J. Uhle, "Experimental Study on Interfacial Area Transport of Vertical Downward Bubbly Flow," *Experiments in Fluid*, vol.35, pp.100-111 (2003).

69. T. Hibiki, R. Situ, Y. Mi, and M. Ishii, "Experimental Study on Interfacial Area Transport of Vertical Upward Bubbly Two-Phase Flow in an Annulus," *International Journal of Heat and Mass Transfer*, vol. 46, pp.427-441 (2003).

70. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto, "Study on the Point of Net Vapor Generation of Boiling Flow in Narrow Rectangular Channels with a Short Heated Length by Using Neutron Radiography," *International Journal of Heat and Mass Transfer*, vol.46, pp.1171-1181 (2003).

71. T. Hibiki, R. Situ, Y. Mi, and M. Ishii, "Modeling of Bubble-Layer Thickness for Formulation of One-Dimensional Interfacial Area Transport Equation in Subcooled Boiling Two-Phase Flow," *International Journal of Heat and Mass Transfer*, vol.46, pp.1409-1423 (2003).

72. T. Hibiki, R. Situ, Y. Mi, and M. Ishii, "Local Flow Measurements of Vertical Upward Bubbly Flow in an Annulus," *International Journal of Heat and Mass Transfer*, vol.46, pp.1479-1496 (2003).

73. T. Hibiki, and M. Ishii, "One-Dimensional Drift-Flux Model for Two-Phase Flow in a Large Diameter Pipe," *International Journal of Heat and Mass Transfer*, vol.46, pp. 1773-1790 (2003).

74. T. Hibiki, and M. Ishii, "Active Nucleation Site Density in Boiling Systems," *International Journal of Heat and Mass Transfer*, vol.46, pp. 2587-2601 (2003).

75. H. Goda, T. Hibiki, S. Kim, M. Ishii, and J. Uhle, "Drift-Flux Model for Downward Two-Phase Flow," *International Journal of Heat and Mass Transfer*, vol.46, pp. 4835-4844 (2003).

76. T. Hibiki, and M. Ishii, "One-Dimensional Drift-Flux Model and Constitutive Equations for Relative Motion between Phases in Various Two-Phase Flow Regimes," *International Journal of Heat and Mass Transfer*, vol.46, pp.4935-4948 (2003).

77. T. Hibiki, Y. Mi, R. Situ, and M. Ishii, "Interfacial Area Transport of Vertical Upward Bubbly Two-phase Flow in an Annulus," *International Journal of Heat and Mass Transfer*, vol.46, pp. 4949-4962 (2003).

78. T. Takamasa, T. Iguchi, T. Hazuku, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Bubbly Flow under Microgravity Environment," *International Journal of Multiphase Flow*, vol.29, pp.291-304 (2003).

79. T. Takamasa, T. Gotoh, T. Hibiki, and M. Ishii, "Experimental Study of Interfacial Area Transport of Bubbly Flow in Small Diameter Pipe," *International Journal of*

Multiphase Flow, vol.29, pp.395-409 (2003).

80. M. Matsubayashi, T. Hibiki, K. Mishima, K. Yoshii, and K. Okamoto, "Development of a Fast Neutron Radiography Converter Using Wavelength-Shifting Fibers," *Nuclear Instruments and Methods in Physics Research*, vol.A510, pp.325-333 (2003).

81. S. Kakuno, T. Suzuki, Y. Onishi, and T. Hibiki, "A Field Experiment on the Characteristics of Bubbles Entrained by Small Scale Breakers," *Annual Journal of Coastal Engineering*, vol. 51, pp.91-95 (2004).

82. T. Hazuku, N. Fukamachi, T. Takamasa, and T. Hibiki, "Measurement on Liquid Film Interface in FEP-Microchannels Using Laser Focus Displacement Meter," *Transactions of the Japan Society of Mechanical Engineers*, vol.B70, pp. 481-488 (2004).

83. T. Hibiki, T. Takamasa, and M. Ishii, "Development of Drift-Flux Model at Microgravity Conditions," *Transactions of the Japan Society of Mechanical Engineers*, vol.B70, pp. 2043-2050 (2004).

84. T. Takamasa, T. Hazuku, N. Fukamachi, N. Tamura, T. Hibiki, and M. Ishii, "Effect of Gravity on Axial Development of Bubbly Flow at Low Liquid Reynolds Number," *Experiments in Fluids*, vol.37, pp. 631-644 (2004).

85. R. Situ, T. Hibiki, X. Sun, Y. Mi, M. Ishii, "Axial Interfacial Area Transport of Subcooled Boiling Flow in an Internally Heated Annulus," *Experiments in Fluids*, vol.37, pp. 589-603 (2004).

86. T. Hibiki, H. Goda, S. Kim, M. Ishii, and J. Uhle, "Structure of Vertical Downward Bubbly Flow," *International Journal of Heat and Mass Transfer*, vol.47, pp.1847-1862 (2004).

87. R. Situ, T. Hibiki, X. Sun, Y. Mi, M. Ishii, "Flow Structure of Subcooled Boiling Flow in an Internally Heated Annulus," *International Journal of Heat and Mass Transfer*, vol.47, pp. 5351-5364 (2004).

88. W. Zhang, T. Hibiki, and K. Mishima, "Correlation for Flow Boiling Heat Transfer in Mini-channels," *International Journal of Heat and Mass Transfer*, vol.47, pp. 5749-5763 (2004).

89. M. Matsubayashi, T. Hibiki, K. Mishima, K. Yoshii, and K. Okamoto, "An Improved Fast Neutron Radiography Quantitative Measurement Method," *Nuclear Instruments and Methods in Physics Research*, vol.A533, pp. 481-490 (2004).

90. T. Hazuku, N. Fukamachi, T. Takamasa, T. Hibiki, and M. Ishii, "Measurement of Liquid Film in Microchannels Using Laser Focus Displacement Meter," *Experiments in Fluids*, vol.38, pp. 780-788 (2005).

91. T. Hibiki, H. Goda, S. Kim, M. Ishii, and J. Uhle, "Axial Interfacial Area Transport of Vertical Downward Bubbly Flow," *International Journal of Heat and Mass Transfer*, vol.48, pp. 749-764 (2005).

92. R. Situ, T. Hibiki, M. Ishii, and M. Mori, "Bubble Lift-off Size in Forced Convective Subcooled Boiling Flow," *International Journal of Heat and Mass Transfer*, vol.48, pp.5536-5548 (2005).

93. W. Zhang, T. Hibiki, and K. Mishima, "Correlation for Flow Boiling Heat Transfer at Low Liquid Reynolds Number," *Journal of Heat Transfer*, vol.127, pp.1214-1221 (2005).

94. T. Hibiki, T. Takamasa, M. Ishii, and K. Gabriel, "One-dimensional drift-flux model at microgravity conditions," *AIAA Journal*, vol.44, pp.1635-1642 (2006).

95. T. Hibiki, T. H. Lee, J. Y. Lee and M. Ishii, "Interfacial Area Concentration in Boiling Bubbly Flow Systems," *Chemical Engineering Science*, vol.61, pp.7979-7990 (2006).

96. W. Zhang, T. Hibiki, K. Mishima, and Y. Mi, "Correlation of Critical Heat Flux for Flow Boiling of Water in Mini-Channels," *International Journal of Heat and Mass Transfer*, vol.49, pp.1058-1072 (2006).

97. T. Hazuku, T. Hibiki, T. Takamasa, and M. Ishii, "Axial Development of Interfacial Area Concentration in Annular Two-phase Flow," *Transactions of the Japan Society of Mechanical Engineers*, vol.72, pp.1189-1196 (2006).

98. T. Hibiki, and M. Ishii, "Lift Force in Bubbly Flow Systems," *Chemical Engineering Science*, vol. 62, pp. 6457-6474 (2007).

99. T. Hibiki, T. Hazuku, T. Takamasa, and M. Ishii, "Some Characteristics of Developing Bubbly Flow in a Vertical Mini Pipe," *International Journal of Heat and Fluid Flow*, vol. 28, pp. 1034-1048 (2007).

100. T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Interfacial Area Concentration in Annular Two-phase Flow," *International Journal of Heat and Mass Transfer*, vol. 50, pp.2986-2955 (2007).

101. H. S. Park, T. H. Lee, T. Hibiki, W. P. Baek, and M. Ishii, "Modeling of the Condensation Sink Term in an Interfacial Area Transport Equation," *International Journal of Heat and Mass Transfer*, vol. 50, pp.5041-5053 (2007).

102. K. Abe, Y. Hirose, T. Hazuku, Y. Fukuhara, T. Takamasa, and T. Hibiki, Effect of Gravity on Interfacial Area Transport of Vertical-Upward Bubbly Flow, *Progress in Multiphase Flow Research-II* , pp.1-8 (2007).

103. T. Hazuku, N. Tamura, K. Abe, Y. Fukuhara, T. Takamasa, and T. Hibiki, Effect of Wall Wettability on Flow Characteristics in Vertical Upward Gas-Liquid Two-Phase Flow, *Transactions of the Japan Society of Mechanical Engineers*, Series B, vol. 73, pp. 1502-1509 (2007).

104. B. Ozar, J. J. Jeong, A. Dixit, J. E. Julia, T. Hibiki, and M. Ishii, " Flow Structure of Gas-liquid Two-phase Flow in an Annulus," *Chemical Engineering Science*, vol. 15, pp.3998-4011 (2008).

105. J. J. Jeong, B. Ozar, A. Dixit, J. E. Julia, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Vertical Upward Air-water Two-phase Flow in an Annulus Channel," *International Journal of Heat and Fluid Flow*, vol. 29, pp.178-193 (2008).

106. Y. Liu, T. Hibiki, X. Sun, M. Ishii, and J. M. Kelly, "Drag Coefficient in One-Dimensional Two-Group Two-Fluid Model," *International Journal Heat and Fluid Flow*, vol. 29, pp.1402-1410 (2008).

107. T. Takamasa, T. Hazuku, and T. Hibiki, "Visualization Study of Gas-liquid Two-phase Flow Affected by Wall Surface Wettability," *International Journal of Heat and Fluid Flow*, vol. 29, pp. 1593-1602 (2008).

108. R. Situ, M. Ishii, T. Hibiki, J. Y. Tu, G. H. Yeoh, and M. Mori, "Bubble Departure Frequency in Forced Convective Subcooled Boiling Flow," *International Journal of Heat and Mass Transfer* , vol. 51, pp. 6268-6282 (2008).

109. B. J. Yun, G. C. Park, J. E. Julia, and T. Hibiki, "Flow Structure of Subcooled Boiling Water Flow in a Sub-channel of 3 × 3 Rod Bundles," *Journal of Nuclear Science and Technology* vol. 45, pp.402-422 (2008).

110. T. H. Lee, B. J. Yun, M. O. Kim, G. C. Park, S. O. Kim, and T. Hibiki, "Local Flow Structure of Subcooled Boiling Flow in an Internally Heated Annulus," *Journal of Nuclear Science and Technology*, vol.45, pp.683-697 (2008).

111. K. Abe, X. Yu, T. Hazuku, Y. Fukuhara, T. Takamasa, and T. Hibiki, "Effect of Gravity on Flow Characteristics of Developing Vertical Upward Bubbly Flow: 1st Report, Measurement of Local Flow Parameter," *Transactions of the Japan Society of Mechanical Engineers*, Series B, vol. 74, pp. 575-582 (2008).

112. T. Hazuku, K. Abe, X. Yu, T. Takamasa, and T. Hibiki, "Effect of Gravity on Flow Characteristics of Developing Vertical Upward Bubbly Flow: 2nd Report, Cross-sectional Phase Distribution Pattern," *Transactions of the Japan Society of Mechanical Engineers*, Series B, vol. 74, pp. 779-786 (2008).

113. T. H. Lee, R. Situ, T. Hibiki, H. S. Park, M. Ishii, and M. Mori, "Axial Developments of Interfacial Area and Void Concentration Profiles in Subcooled Boiling Flow of Water," *International Journal of Heat and Mass Transfer*, vol. 52, pp.473-487 (2009).

114. T. Hibiki, and M. Ishii, "Interfacial Area Transport Equations for Gas-liquid Flow," *Journal of Computational Multiphase Flow*, vol.1, pp.1-22 (2009).

115. S. Y. Lee, T. Hibiki, and M. Ishii, "Formulation of Time and Volume Averaged Two-fluid Model Considering Structural Materials in a Control Volume," *Nuclear Engineering and Design*, vol. 239, pp.127-139 (2009).

116. J. E. Julia, T. Hibiki, M. Ishii, B. J. Yun, and G. C. Park, "Drift-flux Model in a Sub-channel of Rod Bundle Geometry," *International Journal of Heat and Mass Transfer*, vol. 52, pp. 3032-3041 (2009).

117. F. Tanaka, T. Hibiki, and K. Mishima, "Correlation for Flow Boiling Critical Heat Flux in Thin Rectangular Channels," *Journal of Heat Transfer*, vol.131, pp. 121003-1-121003-7 (2009).

118. J. E. Julia, B. Ozar, A. Dixit, J. J. Jeong, T. Hibiki, and M. Ishii, "Axial Development of Flow Regime in Adiabatic Upward Two-phase Flow in a Vertical Annulus," *Journal of Fluid Engineering*, vol.131, pp. 021302-1-021302-11 (2009).

119. T. Hibiki, T. Hazuku, T. Takamasa, and M. Ishii, "Interfacial Area Transport Equation at Reduced Gravity Conditions," *AIAA Journal*, vol.47, pp. 1123-1131 (2009).

120. M. Ishii, S. Kim, X. Sun, and T. Hibiki, "Interfacial Area Transport Equation and Implementation into Two-Fluid Model," *Journal of Thermal Science and Engineering Applications*, vol.1, 0110050-1-0110050-7 (2009).

121. J. P. Schlegel, P. Sawant, S. Paranjape, B. Ozar, T. Hibiki, and M. Ishii, "Void Fraction and Flow Regime in Adiabatic Upward Two-Phase Flow in Large Diameter Vertical Pipes," *Nuclear Engineering and Design*, vol.239, pp. 2864-2874 (2009).

122. L. Hernandez, J. E. Julia, S. Paranjape, T. Hibiki, and M. Ishii, "On the Use of Area-Averaged Void Fraction and Local Bubble Chord Length Entropies as Two-Phase Flow Regime Indicators," *Experiments in Fluids*, vol.49, pp.1147-1160 (2010).

123. W. Zhang, T. Hibiki, and K. Mishima, "Correlations of Two-Phase Frictional Pressure Drop and Void Fraction in Mini-Channel," *International Journal of Heat and Mass Transfer*, vol.47, pp. 453-465 (2010).

124. T. Hazuku, T. Takamasa, T. Hibiki, Interfacial-Area Transport of Vertical Upward Bubbly Flow in Mini Pipes, *International Journal of Microscale and Nanoscale Thermal and Fluid*, vol. 1, 59-84 (2010).

125. D. Euh, B. Ozar, T. Hibiki, M. Ishii and C. H. Song, "Characteristics of Bubble Departure Frequency in a Low-Pressure Subcooled Boiling Flow," *Journal of Nuclear Science and Technology*, vol. 47, pp.608-617 (2010).

126. S. Paranjape, M. Ishii and T. Hibiki, "Modeling and Measurement of Interfacial Area

Concentration in Two-Phase Flow," *Nuclear Engineering and Design*, vol. 240, pp.2329-2337 (2010).

127. J. Schlegel, T. Hibiki and M. Ishii, "Development of a Comprehensive Set of Drift-Flux Constitutive Models for Pipes of Various Hydraulic Diameters," *Progress in Nuclear Energy*, vol. 52, 666-677 (2010).

128. J. E. Julia, B. Ozar, J. J. Jeong, T. Hibiki and M. Ishii, "Flow Regime Development Analysis in Adiabatic Upward Two-Phase Flow in a Vertical Annulus," *International Journal of Heat and Fluid Flow*, vol. 32, 164-175 (2011).

129. J. E. Julia and T. Hibiki, "Flow Regime Transition Criteria for Two-Phase Flow in a Vertical Annulus," *International Journal of Heat and Fluid Flow*, vol. 32, 993-1004 (2011).

130. R. Situ, T. Hibiki, R. J. Brown, T. Hazuku and T. Takamasa, "Flow Regime Transition Criteria for Two-Phase Flow at Reduced Gravity Conditions," *International Journal of Multiphase Flow*, vol. 37, 1165-1177 (2011).

131. S. Paranjape, S. W. Chen, T. Hibiki and M. Ishii, "Flow Regime Identification under Adiabatic Upward Two-Phase Flow in a Vertical Rod Bundle Geometry," *Journal of Fluid Engineering*, vol. 133, 091302-1-8 (2011).

132. L. Hernandez, J. E. Julia, B. Ozar, T. Hibiki and M. Ishii, "Flow Regime Identification in Boiling Two-Phase Flow in a Vertical Annulus," *Journal of Fluid Engineering*, vol. 133, 091304-1-10 (2011).

133. Y. Liu, S. Miwa, T. Hibiki, M. Ishii, H. Morita, Y. Kondoh and K. Tanimoto, "Experimental Study of Internal Two-Phase Flow Induced Fluctuating Force on a 90^{o} Elbow," *Chemical Engineering Science*, vol. 76, 173-187 (2012).

134. J. P. Schlegel, S. Miwa, S. W. Chen, T. Hibiki and M. Ishii, "Experimental Study of Two-Phase Flow Structure in Large Diameter Pipes," *Experimental Thermal and Fluid Science*, vol. 41, 12-22 (2012).

135. T. R. Smith, J. P. Schlegel, T. Hibiki and M. Ishii, "Two-Phase Flow Structure in Large

Diameter Pipes," *International Journal of Heat and Fluid Flow*, vol.33, 156-167 (2012).

136. S. W. Chen, Y. Liu, T. Hibiki, M. Ishii, Y. Yoshida, I. Kinoshita, M. Murase and K. Mishima, "Experimental Study of Air-water Two-Phase Flow in an 8×8 Rod Bundle under Pool Condition for One-Dimensional Drift-Flux Analysis," *International Journal of Heat and Fluid Flow*, vol.33, 168-181 (2012).

137. X. Shen, T. Hibiki, and H. Nakamura, "Developing Structure of Two-Phase Flow in a Large Diameter Pipe at Low Liquid Flow Rate," *International Journal of Heat and Fluid Flow International Journal of Heat and Fluid Flow*, vol. 34, 70-84 (2012).

138. X. Yang, J. P. Schlegel, Y. Liu, S. Paranjape, T. Hibiki and M. Ishii, "Measurement and Modeling of Two-Phase Flow Parameters in Scaled 8×8 BWR Rod Bundle," *International Journal of Heat and Fluid Flow*, vol. 34, 85-97 (2012).

139. X. Shen, T. Hibiki, K. Sato, T. Ono, and K. Mishima, "One-Dimensional Interfacial Area Transport of Vertical Upward Bubbly Flow in Narrow Rectangular Channel," *International Journal of Heat and Fluid Flow*, vol. 36, 72-82 (2012).

140. C. S. Brooks, S. S. Paranjape, B. Ozar, T. Hibiki and M. Ishii, "Two-Group Drift-Flux Model for Closure of the Modified Two-Fluid Model," *International Journal of Heat and Fluid Flow*, vol. 37, 196-208 (2012).

141. B. Ozar, A. Dixit, S. W. Chen, T. Hibiki and M. Ishii, "Interfacial Area Concentration in Gas-Liquid Bubbly Flow to Churn-Turbulent Flow Regime," *International Journal of Heat and Fluid Flow*, vol. 38, 168-179 (2012).

142. C. S. Brooks, B. Ozar, T. Hibiki and M. Ishii, "Two-Group Drift-Flux Model in Boiling Flow," *International Journal of Heat and Mass Transfer*, vol. 55, 6121-6129 (2012).

143. T. Hazuku, T. Takamasa and T. Hibiki, "Characteristics of Developing Vertical Bubbly Flow under Normal and Microgravity Conditions," *International Journal of Multiphase Flow*, vol. 38, 53-66 (2012).

144. S. W. Chen, Y. Liu, T. Hibiki, M. Ishii, Y. Yoshida, I. Kinoshita, M. Murase and K.

Mishima, "One-Dimensional Drift-Flux Model for Two-Phase Flow in Pool Rod Bundle Systems," *International Journal of Multiphase Flow*, vol.40, 166-177 (2012).

145. T. R. Smith, J. P. Schlegel, T. Hibiki, and M. Ishii, "Mechanistic Modeling of Interfacial Area Transport in Large Diameter Pipes," *International Journal of Multiphase Flow*, vol. 47, 1-16 (2012).

146. J. Yang, S. W. Choi, J. Lim, D. Y. Lee, S. Rassame, T. Hibiki and M. Ishii, "Assessment of Performance of BWR Passive Safety Systems in a Small Break LOCA with Integral Testing and Code Simulation," *Nuclear Engineering and Design*, vol. 247, 128-135 (2012).

147. C. S. Brooks, T. Hibiki, and M. Ishii, "Interfacial Drag Force in One-Dimensional Two-Fluid Model," *Progress in Nuclear Engineering*, vol. 61, 57-68 (2012).

148. S. Miwa, Y. Liu, T. Hibiki, M. Ishii, Y. Kondo, N. Ukai, and K. Tanimoto, "Experimental Study of Counter-Current Gas-Droplet Flow Limitation in a 30 cm Pipe," *Chemical Engineering Science*, vol. 92, 167-179 (2013).

149. J. E. Julia, Y. Liu, T. Hibiki and M. Ishii, "Local Flow Regime Analysis in Vertical Co-Current Downward Two-Phase Flow," *Experimental Thermal and Fluid Science*, vol. 44, 345-355 (2013).

150. B. Ozar, C. S. Brooks, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Vertical Upward Steam-Water Two-Phase Flow in an Annular Channel at Elevated Pressures," *International Journal of Heat and Mass Transfer*, vol. 57, 504-518 (2013).

151. X. Yang, J. P. Schlegel, Y. Liu, S. Paranjape, T. Hibiki, and M. Ishii, "Experimental Study of Interfacial Area Transport in Air-Water Two-Phase Flow in a Scaled 8 × 8 BWR Rod Bundle," *International Journal of Multiphase Flow*, vol.50, 16-32 (2013).

152. B. Ozar, C. S. Brooks, T. Hibiki, and M. Ishii, "Investigation of One-Dimensional Interfacial Area Transport for Vertical Air-Water Two-Phase Flow in an Annular Channel at Elevated Pressures," *Nuclear Engineering and Design*, vol. 362, 362-379 (2013).

153. J. Yang, S. W. Choi, J. Lim, D. Y. Lee, S. Rassame, T. Hibiki, and M. Ishii, "Counterpart Experimental Study of ISP-42 PANDA tests and PUMA facility," *Nuclear Engineering Design*, vol. 258, 249-257 (2013).

154. D. Y. Lee, Y. Liu, T. Hibiki, M. Ishii, and J. R. Buchanan, "A Study of Adiabatic Two-Phase Flows Using the Two-Group Interfacial Area Transport Equation with a Modified Two-Fluid Model," *International Journal of Multiphase Flow*, vol. 57 (2013) 115-130.

155. T. Ozaki, R. Suzuki, H. Mashiko, and T. Hibiki, "Development of Drift-Flux Model based on 8 × 8 BWR Rod Bundle Geometry Experiments under Prototypic Temperature and Pressure Conditions, *Journal of Nuclear Science and Technology*, vol. 50, 563-580 (2013).

156. A. Dixit, T. Hibiki, M. Ishii, K. Tanimoto, Y. Kondoh, and K. Hibi, "Experimental Stability Maps for a Two-Phase Natural Circulation Reactor with and without Void-Reactivity Feedback Effect," *Nuclear Engineering and Design*, vol. 261 (2013) 181-200.

157. J. P. Schlegel, C. J. Macke, T. Hibiki, and M. Ishii, "Modified Distribution Parameter for Churn-Turbulent Flows in Large Diameter Channels," *Nuclear Engineering and Design*, vol. 263 (2013) 138-150.

158. X. Z. Shen, and T. Hibiki, "One-group interfacial area transport equation and its sink and source terms in narrow rectangular channel," *International Journal of Heat and Fluid Flow*, vol. 44, 312-326 (2013).

159. A. Dixit, T. Hibiki, M. Ishii, K. Tanimoto, Y. Kondo, and K. Hibi, "Start-Up Transient Test Simulation with and without Void-Reactivity Feedback for Two-Phase Natural Circulation Reactor," *Nuclear Engineering Design*, vol. 265, 1131-1147 (2013).

160. J. Lim, S. W. Choi, J. Yang, D. Y. Lee, S. Rassame, T. Hibiki, and M. Ishii, "Assessment of Passive Safety System Performance under Main Steam Line Break Accident," *Annals of Nuclear Energy*, vol. 64, 287-294 (2014).

161. S. W. Chen, T. Hibiki, M. Ishii, M. Mori, and F. Watanabe, "Experimental Study of

Adiabatic Two-Phase Flow in an Annular Channel under Low-Frequency Vibration," *Journal of Engineering for Gas Turbines and Power*, vol. 136, 032501-1-11 (2014).

162. J. P. Schlegel, S. Miwa, M. Griffiths, T. Hibiki, and M. Ishii, "Development of Impedance Void Meter for Evaluation of Flow Symmetry," *Annals of Nuclear Energy*, vol. 63, 525-532 (2014).

163. C. S. Brooks, Y. Liu, T. Hibiki, and M. Ishii, "Effect of Void Fraction Covariance on Relative Velocity in Gas-Dispersed Two-Phase Flow," *Progress in Nuclear Engineering*, vol. 70, 209-220 (2014).

164. S. Miwa, Y. Liu, T. Hibiki, M. Ishii, Y. Kondo, H. Morita, K. Tanimoto, "Study of Unsteady Gas-Liquid Two-Phase Flow Induced Force Fluctuation (Part 1: Evaluation and Modeling of Two-Phase Flow Induced Force Fluctuation)," *Transactions of the Japan Society of Mechanical Engineers*, Series B, vol. 80, DOI: 10.1299/transjsme.2014tep0005, (2014).

165. S. Miwa, Y. Liu, T. Hibiki, M. Ishii, Y. Kondo, H. Morita, K. Tanimoto, "Study of Unsteady Gas-Liquid Two-Phase Flow Induced Force Fluctuation (Part 2: Horizontal-Downward Two-Phase Flow)," *Transactions of the Japan Society of Mechanical Engineers*, Series B, vol. 80, DOI: 10.1299/transjsme.2014tep0046, (2014).

166. M. J. Griffiths, J. P. Schlegel, T Hibiki, M. Ishii, I. Kinoshita, and Y. Yoshida, "Phenomena Identification and Ranking Table for Thermal-Hydraulic Phenomena During a Small-Break LOCA with Loss of High Pressure Injection," *Progress in Nuclear Energy*, vol. 73, 51-63 (2014).

167. C. S. Brooks, B. Ozar, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Subcooled Boiling Flow in a Vertical Annulus," *Nuclear Engineering Design*, vol. 268, 152-163 (2014).

168. C. H. Lin and T. Hibiki, "Databases of Interfacial Area Concentration in Gas-Liquid Two-Phase Flow," *Progress in Nuclear Energy*, vol. 74, 91-102 (2014).

169. J. Lim, J. Yang, S. W. Choi, D. Y. Lee, S. Rassame, T. Hibiki and M. Ishii,

"Assessment of Passive Safety System Performance under Gravity Driven Cooling System Drain Line Break Accident," *Progress in Nuclear Energy*, vol. 74, 136-142 (2014).

170. M.J. Griffiths, J.P. Schlegel, C. Clark, S. W. Chen , T. Hibiki, M. Ishii, I. Kinoshita and Y. Yoshida, "Uncertainty Evaluation of the Chexal-Lellouche Correlation for Void Fraction in Rod Bundles," *Progress in Nuclear Energy*, vol. 74, 143-153 (2014).

171. C. Clark, M. Griffiths, S. W. Chen, T. Hibiki, M. Ishii, I. Kinoshita, and Y. Yoshida, "Experimental Study of Void Fraction in an 8 × 8 Rod Bundle at Low Pressure and Low Liquid Flow Conditions," *International Journal of Multiphase Flow*, vol. 62, 87-100 (2014).

172. C. Clark, M. Griffiths, S. W. Chen, T. Hibiki, M. Ishii, T. Ozaki, I. Kinoshita, and Y. Yoshida, "Drift Flux Model for Rod Bundle Geometries," *International Journal of Heat and Fluid Flow*, vol. 48, 1-14 (2014).

173. J. P. Schlegel, S. Sharma, R. M. Cuenca, T. Hibiki, and M. Ishii, "Local Flow Structure beyond Bubbly Flow in Large Diameter Channels," International Journal of Heat and Fluid Flow, vol. 47, 42-56 (2014).

174. S. Rassame, M. Griffiths, J. Yang, D. Y. Lee, P. Ju, S. W. Choi, T. Hibiki, and M. Ishii, "Experimental Investigation of Void Distribution in Suppression Pool during the Initial Blowdown Period of a Loss of Coolant Accident using Air-Water Two-Phase Mixture, Annuls of Nuclear Energy, vol. 73, 53-67 (2014).

175. D. Prabhudharwadkar, M. A. Lopez de Bertodano, T. Hibiki, J. Buchanan, "Assessment of the Subcooled Boiling Wall Boundary Conditions for CFD Simulation," International Journal of Heat and Mass Transfer, vol. 79, 602-617 (2014).

176. S. Rassame, M. Griffiths, J. Yang, S. Sharma, T. Hibiki, and M. Ishii, "Experimental Investigation of Void Distribution in Suppression Pool over the Duration of a Loss of Coolant Accident Using Steam-Water Two-Phase Mixture, Annuls of Nuclear Energy vol. 75, 570-580 (2015).

177. Y. Takeya, S. Miwa, T. Hibiki, M. Mori, "Application of Steam Injector to Improved

Safety of Light Water Reactors," Progress in Nuclear Energy, vol. 78 (2015) 80-100.

178. S. Miwa, T. Hibiki, M. Mori, "Two-Phase Flow Induced Vibration in Piping Systems," Progress in Nuclear Energy, vol.78, 270-284 (2015).

179. R. Martinez-Cuenca, C. S. Brooks, J. E. Julia, T. Hibiki, M. Ishii, "Stochastic Nature of Wall Nucleation and its Impact on the Time Average Boundary Condition," J. Heat Transfer, vol.137, 021504-1-021504-7 (2015).

180. X. Shen, T. Hibiki, H. Nakamura, "Bubbly-to-Cap Bubbly Flow Transition in a Long-26 m Vertical Large Diameter Pipe at Low Liquid Flow Rate," International Journal of Heat and Fluid Flow, vol. 52, 140-155 (2015).

181. C. S. Brooks, N. Silin, T. Hibiki, M. Ishii, "Experimental Investigation of Wall Nucleation Characteristics in Flow Boiling," Journal of Heat Transfer, vol.137, 051501-1-051501-19 (2015).

182. J. Yang, S. W. Choi, J. Lim, D. Y. Lee, S. Rassame, T. Hibiki, M. Ishii, "Behaviors of Passive Safety Systems under a Feed Water Line Break LOCA on a Generation III+ Boiling Water Reactor," Progress in Nuclear Energy, vol. 83, 35-42 (2015).

183. C. S. Brooks and T. Hibiki, "Wall Nucleation Modeling in Subcooled Boiling Flow," International Journal of Heat and Mass Transfer, vol. 86, 183-196 (2015).

184. T. Ozaki and T. Hibiki, "Drift-Flux Model for Rod Bundle Geometry," Progress in Nuclear Energy, vol. 83, 229-247 (2015).

185. J. Schlegel and T. Hibiki, "A Correlation for Interfacial Area Concentration in High Void Fraction Flows in Large Diameter Channels," Chemical Engineering Science, vol. 131, 172-286 (2015).

186. T. Hazuku, T. Takamasa and T. Hibiki, "Phase Distribution Characteristics of Bubbly Flow in Mini Pipes Under Normal and Microgravity Conditions," Microgravity Science and Technology, vol. 27, 75-96 (2015).

187. X. Shen and T. Hibiki, "Interfacial Area Concentration in Gas-Liquid Bubbly to Churn

Flow Regimes in Large Diameter Pipes," International Journal of Heat and Fluid Flow, vol. 54, 107-118 (2015).

188. P. Ju, C. S. Brooks, M. Ishii, Y. Liu, and T. Hibiki, "Film Thickness of Vertical Upward Co-Current Adiabatic Flow in Pipes," International Journal of Heat and Mass Transfer, 89, 985-995 (2015).

189. S. Shi, J. P. Schlegel, C. S. Brooks, Y. C. Lin, J. Eoh, Z. Liu, Q. Zhu, Y. Liu, T. Hibiki and M. Ishii, "Experimental Investigation of Natural Circulation Instability in a BWR-type Small Modular Reactor," Progress in Nuclear Energy, 85, 96-107 (2015).

190. J. P. Schlegel, T. Hibiki and M. Ishii, "Two-Group Modeling of Interfacial Area Transport in Large Diameter Channels," Nuclear Engineering and Design, vol. 293, 75-86 (2015).

191. L. Pan, H. He, P. Ju, T. Hibiki and M. Ishii, "The Influences of Gas-Liquid Interfacial Properties on Interfacial Shear Stress for Vertical Annular Flow," International Journal of Heat and Mass Transfer, 89, 1172-1183 (2015).

192. L. Pan, H. He, P. Ju, T. Hibiki and M. Ishii, "Experimental Study and Modeling of Disturbance Wave Height of Vertical Annular Flow," International Journal of Heat and Mass Transfer, 89, 165-175 (2015).

193. T. J. Chuang and T. Hibiki, "Vertical Upward Two-Phase Flow CFD Using Interfacial Area Transport Equation," Progress in Nuclear Energy, 85 (2015) 415-427.

194. C. S. Brooks and T. Hibiki, "Modeling and Validation of Interfacial Area Transport Equation in Subcooled Boiling Flow," Journal of Nuclear Science and Technology, vol. 53, 1192-1204 (2016).

195. S. Rassame, T. Hibiki, M. Ishii, "Void Penetration Length from Air Injection through a Downward Large Diameter Submerged Pipe in Water Flow," Annals of Nuclear Energy, vol. 94, 832-840 (2016).

196. R. Martinez-Cuenca, R. Mondragon, L. Hernandez, C. Segarra, J. C. Jarque, T. Hibiki, J. E. Julia, "Forced-Convective Heat-Transfer Coefficient and Pressure Drop of

Water-Based Nanofluids in a Horizontal Pipe," Applied Thermal Engineering, vol. 98, 841-849 (2016).

197. S. W. Chen, S. Miwa, M. Griffiths, S. Shi, T. Hibiki, M. Ishii, L. Cheng, Y. Kondo, K. Tanimoto, H. Goda, "Experimental Study of Gas-Liquid Two-Phase Flow through Packed Bed under Natural Circulation Conditions," Journal of Nuclear Science and Technology, vol. 53, 34-47 (2016).

198. T. Ozaki, T. Hibiki, "Effect of Compensation Error in Drift-Flux Parameters on Predictions of Thermal-Hydraulic Parameters in Nuclear Safety System Analysis Codes," Progress in Nuclear Energy, vol. 88, 398-411 (2016).

199. X. Shen, H. Sun, B. Deng, T. Hibiki, H. Nakamura, "Gas-Liquid Bubbly Flow Structure in a Vertical Large-Diameter Square Duct," Progress in Nuclear Energy, vol. 89, 140-158 (2016).

200. C. Clark, J. P. Schlegel, T. Hibiki, M. Ishii, "Uncertainty in RELAP5/MOD3.2 Calculations for Interfacial Drag in Downward Two-Phase Flow," Annals of Nuclear Energy, vol. 94, 230-240 (2016).

201. S. Shi, T. Hibiki, M. Ishii, "Startup Instability in Natural Circulation Driven Nuclear Reactors," Progress in Nuclear Energy, vol. 90, 140-150 (2016).

202. S. Miwa, T. Hibiki, M. Mori, "Analysis of Flow Induced Vibration due to Stratified Wavy Two-Phase Flow, Journal of Fluid Engineering, vol. 138, 091302-1-9 (2016).

203. S. W. Chen, C. Macke, T. Hibiki, M. Ishii, Y. Liu, P. Ju, S. Sharma, Y. Kondo, T. Kawamizu, T. Yoshimoto, S. Kagawa, K. Tanimoto, "Experimental Study of Horizontal Bubble Plume with CFD Benchmarking," Journal of Fluid Engineering, vol. 138, 111301-1-14 (2016).

204. T. Hazuku, T. Hibiki, T. Takamasa, "Interfacial Area Transport due to Shear Collision of Bubbly Flow in Small-Diameter Pipes," Nuclear Engineering and Design, vol. 310, 592-603 (2016).

205. M. Lokanathan, T. Hibiki, "Flow Regime, Void Fraction and Interfacial Area Transport

and Characteristics of Co-Current Downward Two-Phase Flow," Nuclear Engineering and Design, vol. 307, 39-63 (2016).

206. S. Miwa, H. Endo, T. Moribe, H. Sakashita, M. Mori, T. Hibiki, "Investigation of the Thermal-Hydraulics of Supersonic Steam Injector," Applied Thermal Engineering, vol. 109, 261-271 (2016).

207. J. P. Schlegel, T. Hibiki, and M. Ishii, "Characteristics of Two-Phase Flows in Large Diameter Channels," Nuclear Engineering and Design, vol. 310, 544-551 (2016).

208. X. Yang, J. P. Schlegel, Y. Liu, S. Paranjape, T. Hibiki, M. Ishii, S. Bajorek, and A. Ireland, "Prediction of Interfacial Area Transport in a Scaled 8×8 BWR Rod Bundle," Nuclear Engineering and Design, vol. 310, 638-647 (2016).

209. S. L. Sharma, T. Hibiki, M. Ishii, J. P. Schlegel, C. S. Brooks, Y. Liu, J. R. Buchanan, Jr., "Turbulence-Induced Bubble Collision Force Modeling and Validation in Adiabatic Two-Phase Flow Using CFD," Nuclear Engineering and Design, vol. 312, 399-409 (2017).

210. S. L. Sharma, T. Hibiki, M. Ishii, J. P. Schlegel, J. R. Buchanan, Jr., K. J. Hogan, P. W. Guilbert, "An Interfacial Shear Term Evaluation Study for Adiabatic Dispersed Air-Water Two-Phase Flow with the Two-Fluid Model Using CFD," Nuclear Engineering and Design, vol. 312, 389-398 (2017).

211. K. Mao, and T. Hibiki, "Flow Regime Transition Criteria for Upward Two-Phase Cross-Flow in Horizontal Tube Bundles," Applied Thermal Engineering, vol. 112, 1533-1546 (2017).

212. X. Li, and T. Hibiki, "Frictional Pressure Drop Correlation for Two-Phase Flows in Mini and Micro Single-Channels," International Journal of Multiphase Flow, vol. 90, 29-45 (2017).

213. S. Rassame, T. Hibiki, and M. Ishii, "ESBWR Passive Safety System Performance under Loss of Coolant Accidents," Progress in Nuclear Energy, vol. 96, 1-17 (2017).

214. H. Liu, and T. Hibiki, "Flow Regime Transition Criteria for Upward Two-Phase Flow in Vertical Rod Bundles," International Journal of Heat and Mass Transfer, vol. 108, 423-433 (2017).

215. J. P. Schlegel, T. Hibiki, X. Shen, S. Appathurai, H. Subrammani, "Prediction of Interfacial Area Transport in a Coupled Two Fluid Model Computation," Journal of Nuclear Science and Technology, vol. 54, 58-73 (2017).

216. T. Hibiki, K. Mao, T. Ozaki, "Development of Void Fraction-Quality Correlation for Two-Phase Flow in Horizontal and Vertical Tube Bundles," Progress in Nuclear Energy, vol. 97, 38-52 (2017).

217. X. Li, and T. Hibiki, "Frictional Pressure Drop Correlation for Two-Phase Flows in Mini and Micro Multi-Channels," Applied Thermal Engineering, vol. 116, 316-328 (2017).

218. K. Mao, and T. Hibiki, "Drift-Flux Model for Upward Two-Phase Cross-Flow in Horizontal Tube Bundles," International Journal of Multiphase Flow, vol. 91, 170-183 (2017).

219. S. W. Chen, T. Hibiki, M. Ishii, M. Mori, and F. Watanabe, "Experimental Investigation of Horizontal Forced-Vibration Effect on Air-Water Two-Phase Flow," International Journal of Heat and Fluid Flow, vol. 65, 33-46 (2017).

220. T. Hibiki and T. Ozaki, "Modeling of Void Fraction Covariance and Relative Velocity Covariance for Upward Boiling Flow in Vertical Pipe," International Journal of Heat and Mass Transfer, vol. 112, 620-629 (2017).

221. T. J. Chuang and T. Hibiki, "Interfacial Forces Used in Two-Phase Flow Numerical Simulation," International Journal of Heat and Mass Transfer, vol. 113, 741-754 (2017).

222. S. W. Chen, T. Hibiki, M. Ishii, M. Mori, and F. Watanabe, "Experimental Investigation of Void Fraction Variation in Subcooled Boiling Flow under Horizontal Forced Vibrations," International Journal of Heat and Mass Transfer, vol. 115, 954-968 (2017).

223. A. Vaidheeswaran and T. Hibiki, “Bubble-Induced Turbulence Modeling for Vertical Bubbly Flows,” International Journal of Heat and Mass Transfer, vol. 115, 741-752 (2017).

224. X. Shen, H. Sun, B. Deng, T. Hibiki, H. Nakamura, “Experimental Study on Interfacial Area Transport of Bubbly Two-Phase Flow in a Vertical Large-Diameter Square Duct,” International Journal of Heat and Fluid Flow, vol. 67, 168-184 (2017).

225. Ozaki, T., Hibiki, T., Modeling of Distribution Parameter, Void Fraction Covariance and Relative Velocity Covariance for Upward Steam-Water Boiling Flow in Vertical Rod Bundle,” Journal of Nuclear Science and Technology, vol. 55 (2018) 386-399.

226. Rassame, S., Hibiki, T., “Drift-Flux Correlation for Gas-Liquid Two-Phase Flow in a Horizontal Pipe,” International Journal of Heat and Fluid Flow, vol. 69 (2018) 33-42.

227. Lokanathan,M., Hibiki, T., Flow Regime Transition Criteria for Co-Current Downward Two-Phase Flow, Progress in Nuclear Engineering, vol. 103, 165-175 (2018).

228. Zhao, Q. and Hibiki, T., Condensation Regime Maps of Steam Submerged Jet Condensation, Progress in Nuclear Engineering, vol. 107, 31-47 (2018).

229. Hibiki, T., Schlegel, J. P., Ozaki, T., Miwa, S., Rassame, S., Simplified Two-Group Two-Fluid Model for Three-Dimensional Two-Phase Flow Computational Fluid Dynamics for Vertical Upward Flow, Progress in Nuclear Engineering, vol. 108, 503-516 (2018).

230. Ozaki, T., Hibiki, T., Miwa, S., Mori, M., Development of One-Dimensional Two-Fluid Model with Consideration of Void Fraction Covariance, Journal of Nuclear Science and Technology, 55, 720-732 (2018).

231. Miwa, S., Moribe, T., Tsutsumi, K., Hibiki, T., Experimental Investigation of Air Entrainment by Vertical Plunging Liquid Jet, Chemical Engineering Science, vol. 181, 251-263 (2018).

232. Ihara, T., Andayi, S. A., Hazuku, T., Takamasa, T., Hibiki, T., Experimental Study of Two-Phase Flow Structure and Drag Reduction in Horizontal Rectangular Channel, Journal of the Japan Institute of Marine Engineering, vol. 53, 336-341 (2018).

233. Ogura, T., Matsumoto, T., Miwa, S., Hibiki, T., Mori, M., Experimental Study on Molten Metal Spreading and Deposition Behaviors on Wet Surface, Progress in Nuclear Energy, vol. 106 (2018) 72-78.

234. Ozaki, T., Hibiki, T., Miwa, S., Mori, M., Code Performance with Improved Two-Group Interfacial Area Concentration Correlation for One-Dimensional Forced Convective Two-Phase Flow Simulation, Journal of Nuclear Science and Technology, vol. 55 (2018) 911-930.

235. Shen, X., Schlegel, J. P., Hibiki, T., Nakamura, H., "Some Characteristics of Gas-Liquid Two-Phase Flow in Vertical Large-Diameter Channels," Nuclear Engineering and Design, vol. 333, 87-98 (2018).

236. Ogura, T., Matsumoto, T., Miwa, S., Mori, Michitsugu, Hibiki, T., "Experimental Study on Molten Metal Spreading and Deposition Behaviors," Annals of Nuclear Energy, vol. 118, 353-362 (2018).

237. Liu, H., Hibiki, T., "Bubble Breakup and Coalescence Models for Bubbly Flow Simulation Using Interfacial Area Transport Equation," International Journal of Heat and Mass Transfer, vol. 126, 128-146 (2018).

238. Ozaki, T., Hibiki, T., Miwa, S., Mori, M., Effect of Void Fraction Covariance on Two-Fluid Model Based Code Calculation in Pipe Flow, Progress in Nuclear Energy, vol. 108, 319-333 (2018).

239. Dong, C., Hibiki, T., Heat Transfer Correlation for Two-Component Two-Phase Slug Flow in Horizontal Pipes, Applied Thermal Engineering, vol. 141, 866-876 (2018).

240. Liu, H., Pan, L. M., Hibiki, T., Zhou, W. X., Ren, Q. Y., Li, S. S., One-Dimensional Interfacial Area Transport Equation for Bubbly Two-Phase Flow in Vertical 5×5 Rod Bundle, International Journal of Heat and Fluid Flow, vol. 72, 257-273 (2018).

241. Dong, C., Hibiki, T., Correlation of Heat Transfer Coefficient for Two-Component Two-Phase Slug Flow in a Vertical Pipe, International Journal of Multiphase Flow, vol. 108 (2018) 124-139.

242. Ju, P., Yang, X., Schlegel, J. P., Liu, Y., Hibiki, T., Ishii, M., Average Liquid Film Thickness of Annular Air-Water Two-Phase Flow in 8×8 Rod Bundle, International Journal of Heat and Fluid Flow, vol. 7, 63-73 (2018).

243. Ju, P., Liu, Y., Ishii, M., Hibiki, T., Prediction of Rod Film Thickness of Vertical Upward Co-Current Adiabatic Flow in Rod Bundle, Annals of Nuclear Energy, vol. 121, 1-10 (2018).

244. Shen, X, Hibiki, T., Bubble Coalescence and Breakup Model Evaluation and Development for Two-Phase Bubbly Flows, International Journal of Multiphase Flow, vol. 109, 131-149 (2018).

245. Hibiki, T., Ozaki, T., Shen, X., Miwa, S., Kinoshita, I., Hazuku, T., Rassame, S., Constitutive Equations for Vertical Upward Two-Phase Flow in Rod Bundle, International Journal of Heat and Mass Transfer, vol. 127, 1252-1266 (2018).

246. Liu, H., Pan, L. M., Hibiki, T., Zhou, W. X., Ren, Q. Y., Li, S. S., Axial Development of Gas-Liquid Flow Regime Maps in a Vertical 5×5 Rod Bundle with Prototypic Spacer Grids, Nuclear Engineering and Design, vol. 339 (2018) 1-10.

247. Abbs, T., Hibiki, T., One-Dimensional Drift-Flux Correlation for Vertical Upward Two-Phase Flow in a Large Size Rectangular Channel, Progress in Nuclear Energy, vol. 110 (2019) 311-324.

248. Baotong, S., Rassame, S., Nilsuwankosit, S., Hibiki, T., Drift-Flux Correlation of Oil-Water Flow in Horizontal Channels, Journal of Fluids Engineering, vol. 141 (2019) 031301-1-11.

249. Sharma, S. L., Ishii, M., Hibiki, T., Schlegel, J. P., Liu, Y., Buchanan, Jr., J. R., Beyond Bubbly Two-Phase Flow Investigation Using a CFD Three-Field Two-Fluid Model, International Journal of Multiphase Flow, vol. 113 (2019) 1-15.

250. Zhao, Q., Hibiki, T., One-Dimensional Drift-Flux Correlation for Vertical Upward Two-Phase Flow in Large Size Concentric and Eccentric Annuli, International Journal of Multiphase Flow, vol. 113 (2019) 33-44.

251. Hibiki, T., One-Dimensional Drift-Flux Correlations for Two-Phase Flow in Medium-Size Channels, Experimental and Computational Multiphase Flow, vol. 1 (2019) 85-100.

252. Hibiki, T., Rassame, S., Analytical Model for Predicting Oil Fraction in Horizontal Oil-Water Two-Phase Flow, Experimental and Computational Multiphase Flow, vol. 1 (2019) 73-84.

253. Miwa, S., Xiao, Y. G, Saito, Y., Hibiki, T., Experimental Study of Air Entrainment Rates due to Inclined Liquid Jets, Chemical Engineering Technology, vol. 42 (2019) 1059-1069.

254. Shen, X. Z., Miwa, S., Xiao, Y., Han, Xu, Hibiki, T., Local Measurements of Upward Air-Water Two-Phase Flows in a Vertical 6×6 Rod Bundle, Experimental and Computational Multiphase Flow, vol. 1 (2019) 186-200.

255. Kinoshita, I., Miwa, S., Hibiki, T., Development of Drift-Flux Correlation for Predicting Void Fraction in Downcomer Regions, Journal of Nuclear Science and Technology, Vol. 56 (2019) 588-598.

256. Ju, P., Yang, X., Zhu, Q., Yan, Y., Liu, Y., Ishii, M., Hibiki, T., Prediction of Flow Distribution of Vertical Upward Co-Current Adiabatic Annular Flow in 8×8 Rod Bundle, Annals of Nuclear Energy, vol. 132 (2019) 555-562.

257. Han, X., Shen, X. Z., Yamamoto, T., Nakajima, K., Sun, H. Hibiki, T., Experimental Study on Local Interfacial Parameters in Upward Air-Water Bubbly Flow in a Vertical 6×6 Rod Bundle, International Journal of Heat and Mass Transfer, vol. 144 (2019) 118696.

258. Dong, C., Rassame, S., Zhang, L., Hibiki, T., Drift-Flux Correlation for Upward Two-Phase Flow in Inclined Pipes, Chemical Engineering Science, Vol. 213 (2020) 115395.

259. Kinoshita, I., Schlegel, J. P., Hibiki, T., Improved Drift-Flux Correlation to Enhance the Prediction of Void Fraction in Nuclear Reactor Fuel Bundles at Low Flow and Elevated Pressure Conditions, Journal of Nuclear Science and Technology, Vol. 57 (2020) 553-572.

260. Dong, C., Hibiki, T., Modeling of Heat Transfer Coefficient for Upward No-phase-change Two-phase Flow in Inclined Pipes, Applied Thermal Engineering, Vol. 169 (2020) 114921.

261. Han, X., Shen, X., Yamamoto, T., Nakajima, K., Hibiki, T., Drift-Flux Correlation for Upward Gas-Liquid Two-Phase Flow in Vertical Rod Bundle Flow Channel, International Journal of Heat and Mass Transfer, Vol. 162 (2020) 120341.

262. Miwa, S., Hibiki, T., State-of-the-Art in Plant Component Flow-Induced Vibration (FIV), Experimental and Computational Multiphase Flow, Vol. 2 (2020) 1-12.

263. Hazuku, T., Ihara, T., Hibiki, T., Measurement of Local Two-Phase Flow Parameters of Downward Bubbly Flow in Mini Pipes, Experimental and Computational Multiphase Flow, Vol. 2 (2020) 89-98.

264. Dong, C., Hibiki, T., Zhang, L., Lu, L. Falling Film Liquid Desiccant Air Dehumidification, Experimental and Computational Multiphase Flow, Vol. 2 (2020) 187-198.

265. Hibiki, T., Ozaki, T., Effect of Interfacial Drag Model on Code Prediction for Upward Adiabatic Two-Phase Bubbly Flow in Vertical Channels, Experimental and Computational Multiphase Flow, Vol. 2 (2020) 212-224.

266. Heo, J., Yoon, S. H., Kim, K. D., Ha, K. S., Hibiki, T., Validation of Interfacial Area Concentration Model for Simulating Bubbly and Cap/slug Flow Behaviors in Large Diameter Pipes using LSTF, ATLAS, and Horizontal Pipe Experimental Data, Progress in Nuclear Energy, Vol. 128 (2020) 103499.

267. Hibiki, T., Rassame, S., Liu, W., Wang, L., Zhao, Q., Chong, D., Yan, J. Modeling and simulation of onset of condensation-induced water hammer, Progress in Nuclear Energy, Vol. 130 (2020) 103589.

268. Shen, X. Z., Hibiki, T., Distribution parameter and drift velocity for upward gas-liquid metal two-phase flow, Applied Thermal Engineering, Vol. 184 (2021) 116242.

269. Miwa, S., Hara, Y., Hibiki, T., Sakashita, H., Sawa, K., Evaluation of high-performance steam-water condensing-injector, International Journal of Heat and Mass Transfer, Vol. 170 (2021) 120971.

270. Ozaki, T., Hibiki, T., Miwa, S., Mori, M., Sensitivity analysis using improved two-fluid model-based 1D code with the state-of-the-art constitutive equations for two-phase flow in rod bundle, Experimental and Computational Multiphase Flow (in print).

271. Dong, C., Hibiki, T., Drift-flux parameter modeling of vertical downward gas-liquid two-phase flows for interfacial drag force formulation, Nuclear Engineering Design (in print).

272. Swearingen, A., Schlegel, J. P., Hibiki, T., Sensitivity of two fluid model calculations to two-group drift-flux correlations used in the prediction of interfacial drag, Experimental and Computational Multiphase Flow (in print).

273. Chong, D., Liu, W., Zhao, Q., Yan, J., Hibiki, T., Oscillation characteristics of periodic condensation induced water hammer with steam discharged through a horizontal pipe, International Journal of Heat and Mass Transfer (in print).

274. Shen, X., Yamamoto, T., Han, X., Hibiki, T., Interfacial area concentration in gas-liquid metal two-phase flow, Experimental and Computational Multiphase Flow (in print).

D. Conference Papers

1. T. Hibiki, M. Yamaguchi, and T. Katayama, "Formation of Single Charged Drops from a Laminar Liquid Jet in Electric Fields," *Solvent Extraction 1990: Proceedings of the International Solvent Extraction Conference (ISEC'90)*, Part B, Process Metallurgy 7B, Edited by 1992 Elsevier Science Publishers B.V.

2. K. Mishima, T. Hibiki, and H. Nishihara, "Study on Two-Phase Flow in a Coolant Channel of a Plate-Type Fuel with Use of Neutron Radiography Technique," *Proceedings of the*

Third Asian Symposium on Research Reactor, November 11-14, 1991, Hitachi, Japan, pp.597-603 (1991).

3. K. Mishima, T. Hibiki, and H. Nishihara, "Some Characteristics of Gas-Liquid Flow in Narrow Rectangular Ducts," *Proceedings of the International Conference on Multiphase Flows '91 - Tsukuba*, September 24-27, 1991, Tsukuba, Japan, Vol..2, pp.485-488 (1991).

4. T. Hibiki, K. Mishima, K. Yoneda, S. Fujine, K. Kanda, and H. Nishihara, "Visualization and Measurement of Gas-Liquid Two-Phase Flow in a Narrow Rectangular Duct with Use of the Neutron Radiography and Image Processing Technique," *ANS Proceedings of 1992 National Heat Transfer Conference*, August 9-12, 1992, San Diego, U.S.A., Session : Thermal Hydraulics Instrumentation and Measurements I, HTC-Vol.6, pp.101-108 (1992).

5. K. Mishima, T. Hibiki, S. Fujine, K. Yoneda, K. Kanda, H. Nishihara, A. Tsuruno, M. Matsubayashi, M. Sobajima, and S. Ohtomo, "Visualization and Measurement of Fluid Phenomena Using Neutron Radiography Techniques," *Proceedings of the Fifth International Symposium of Advanced Atomic Energy -Neutrons as Microscopic Probes-*, Mar 10-12, 1993, Joyo Geibun Center, Mito, Japan, pp.788 - 795 (1993), *JAERI-M* 93-228 Vol.2 (JAERI-CONF2).

6. K. Mishima, T. Hibiki, and H. Nishihara, "Effect of Pressure on Critical Heat Flux for Water in an Internally Heated Annulus," *Proceedings of the Fourth international Topical Meeting on Nuclear Thermal Hydraulics, Operations, and, Safety*, April 5-8, 1994, Taipei, Taiwan, Vol.2, pp.54-B-1 - 54-B-6 (1994).

7. S. Fujine, T. Hibiki, K. Mishima, K. Yoneda, K. Kanda, H. Nishihara, J. T. Lindsay, H. S. Fogler, and J. C. Lee, "Study on Visualization of Fluid Phenomena Using Neutron Radiography Technique", *Neutron Radiography (4)* (Ed. by J.P.Barton),Gordon & Breach Science Publishers, Yverdon Switzerland, pp.309-316 (1994).

8. T. Hibiki, K. Mishima, K. Yoneda, S. Fujine, K. Kanda, H. Nishihara, A. Tsuruno, M. Matsubayashi, M. Sobajima, and S. Ohtomo, "Study on Two-Phase Flow Using Image Processing Technique", *Neutron Radiography (4)* (Ed. by J.P.Barton),Gordon & Breach Science Publishers, Yverdon Switzerland, pp.317-324 (1994).

9. J. T. Lindsay, C. W. Kauffman, J. D. Jones, B. P. Tullis, T. Hibiki, S. J. Wright, K. Mishima, S. Fujine, K. Yoneda, S. Elam, T. Koblish, P. Lee, D. McAuliffe, J. K. Jasti, and H. S. Fogler, "A Summary of Neutron Radiography and Neutron Radioscopy Applications at the University of Michigan Phoenix Memorial Laboratory," *Neutron Radiography (4)* (Ed. by J.P.Barton),Gordon & Breach Science Publishers, Yverdon Switzerland, pp.325-332 (1994).

10. K. Mishima, T. Hibiki, and M. Kureta, "Critical Heat Flux in Water-Cooled Narrow Channels," *Proceedings of the US-Japan Workshop on Helium Cooled High Heat Flux Components Design*, San Diego, California, USA (December, 1994).

11. K. Mishima, T. Hibiki, S. Fujine, K. Yoneda, K. Kanda, H. Nishihara, A. Tsuruno, M. Matsubayashi, and M. Sobajima, "Development of Temporally-Resolved Neutron Radiography Methods for Visualization of High-Speed Transient Fluid Phenomena," *Proceedings of the Second International Topical Meeting on Neutron Radiography System Design and Characterization*, Nov. 12-15, 1995, Shonan Village Center / Rikkyo University, Hayama, Japan, pp.309-315 (1995).

12. T. Hibiki, and K. Mishima, "Measurement of Radial Void Distribution of Two-Phase Flow in a Round Tube by Using Neutrons as a Probe," *Proceedings of the Second International Topical Meeting on Neutron Radiography System Design and Characterization*, Nov. 12-15, 1995, Shonan Village Center / Rikkyo University, Hayama, Japan, pp.316-323 (1995).

13. K. Mishima, T. Hibiki, and H. Nishihara, "Some Characteristics of Air-Water Flow in Small Diameter Tubes," *Proceedings of the International Conference on Multiphase Flows '95 -Kyoto*, April 3-7, 1995, Kyoto, Japan, vol.3, pp.P4-39 - P4-45 (1995).

14. T. Hibiki, K. Mishima, and A. Tsuruno, "High Frame-Rate Neutron Radiography for Visualization and Measurement of Gas-Liquid Two-phase Flow in a Metallic Rectangular Duct", *Proceedings of the 2nd Joint ASME/JSME Fluids Engineering Conference*, August 13-18, South Carolina, USA, FED-Vol.209, pp.243-250 (1995).

15. K. Mishima, T. Hibiki, H. Nishihara, T. Motomura, T. Ohtsuji, and A. Kurosawa, "Experimental Study on Critical Heat Flux in Laterally Non-Uniformly Heated Rectangular Channels," *Proceedings of the Second European Thermal-Sciences / 14th UIT National Heat Transfer Conference*, 1996, Rome, Italy, May 29-31 (1996).

16. K. Mishima, T. Hibiki, and H. Nishihara, "Visualization and Measurement of Two-Phase Flow by Using Neutron Radiography," *Proceedings of the Fifth Japan-US Seminar on Two-Phase Flow Dynamics*, 1996, pp.339-346 (1996).

17. K. Mishima, T. Hibiki, Y. Saito, H. Nakamura, Y. Kukita, K. Moriyama, and J. Sugimoto, "Visualization Study of Molten Metal-Water Interaction by Using Neutron Radiography," *Proceedings of the Workshop on Severe Accident Research in Japan*, Oct. 28-30, 1996, Tokyo, Japan (1996).

18. T. Hibiki, S. Hogsett, and M. Ishii, "Local Measurements of Interfacial Area, Interfacial Velocity and Liquid Turbulence in Two-Phase Flow," *Proc. OECD/CSNI Specialist Meeting on Advanced Instrumentation and Measurement Techniques*, Santa Barbara, CA, March 17-20, 1997 (1997).

19. K. Mishima, and T. Hibiki, "Development of High-Frame-Rate Neutron Radioscopy and Quantitative Measurement Method for Multiphase Flow Research," *Proc. OECD/CSNI Specialist Meeting on Advanced Instrumentation and Measurement Techniques*, Santa Barbara, CA, March 17-20, 1997 (1997).

20. M. Li, Y. Mi, Z. Xiao, T. Hibiki, L. H. Tsoukalas, and M. Ishii, "Neural Identification of Horizontal Two-Phase Flows," *Transactions of American Nuclear Society*, vol.76, pp.167-168 (1997).

21. H. Umekawa, M. Ozawa, T. Mitsunaga, K. Mishima, T. Hibiki, and Y. Saito, "Premature Dryout Due to Flow Oscillation in Upward/Downward Flow," *Proceedings of Eighth International Topical Meeting on Nuclear Reactor Thermal-Hydraulics*, Kyoto, Japan, September 30-Octover 4, 1997, vol.2, pp.1031-1037 (1997).

22. K. Mishima, T. Hibiki, S. Fujine, K. Yoneda, K. Kanda, H. Nishihara, A. Tsuruno, and M. Matsubayashi, "High-Frame-Rate Neutron Radioscopy with a Steady Thermal Neutron Beam," *Neutron Radiography (5)*, DGZfP, Germany, pp.140-147 (1997).

23. T. Hibiki, and K. Mishima, "Influence of Scattered Neutrons on Void Fraction Measurement of Two-Phase Flow Using Neutron Radioscopy," *Neutron Radiography (5)*, DGZfP, Germany, pp.132-139 (1997).

24. H. Unesaki, K. Mishima, and T. Hibiki, "Evaluation of Scattered Neutron Component in Thermal Neutron Radiography Image -Influence of Scattered Neutrons and Unparallelness of Incident Neutron Beam," *Neutron Radiography (5)*, DGZfP, Germany, pp.175-182 (1997).

25. H. Unesaki, K. Mishima, and T. Hibiki, "Verification of Neutron Radioscopic Measurement of Void Fraction by Monte Carlo Simulation," *Neutron Radiography (5)*, DGZfP, Germany, pp.168-174 (1997).

26. H. Nakamura, Y. Shibamoto, Y. Anoda, Y. Kukita, K. Mishima, and T. Hibiki, "High-Frame-Rate Video Visualization of Simulated Lower Head Behavior during TMI Accident Using High-Frame-Rate Neutron Radioscopy with a Steady Neutron Beam, "*Neutron Radiography*, DGZfP, Germany, pp.665-672 (1997).

27. J. T. Lindsay, S. Fujine, K. Mishima, T. Hibiki, K. Yoneda, H. Kobayashi, M. Matsubayashi, and M. N. Islam, "Coking Determination in Gas Turbine Engine Nozzles Using Neutron Radiography," *Neutron Radiography*, DGZfP, Germany, pp.571-577 (1997).

28. K. Mishima, T. Hibiki, Y. Saito, A. Yamamoto, K. Moriyama, and J. Sugimoto, "Visualization Study of Molten Metal-Water Interaction by Using Neutron Radiography," *Proceedings of International Seminar on Vapor Explosions and Explosive Eruptions*, May 22-24, 1997, Sendai, Japan (1997).

29. M. Ishii, Q. Wu, S. T. Revankar, T. Hibiki, W. H. Leung, S. Hogsett, and A. Kashyap, "Interfacial Area Transport in Bubbly Flow," *Proceedings of 15th Symposium on Energy Engineering Science*, Argonne, USA (1997).

30. T. Hibiki, and K. Mishima, "Development of Quantification Method of Neutron Radiographic Image," *Abstracts of Third International Topical Meeting on Neutron Radiography*, Lucerne, Switzerland, p.103 (1998).

31. K. Mishima, T. Hibiki, Y. Saito, S. Fujine, K. Yoneda, K. Kanda, H. Nishihara, M. Matsubayashi, and M. Sobajima, "Research Activity on Application of Neutron Radiography to Multiphase Flow Visualization and Measurement at Kyoto University," *Abstracts of Third International Topical Meeting on Neutron Radiography*, Lucerne, Switzerland p.66 (1998).

32. Y. Saito, K. Mishima, T. Hibiki, K. Moriyama, and J. Sugimoto, "Application of High-Frame-Rate Neutron Radiography to Steam Explosion Research," *Abstracts of Third International Topical Meeting on Neutron Radiography*, Lucerne, Switzerland p.91 (1998).

33. K. Mishima, T. Hibiki, Y. Saito, A. Yamamoto, K. Kanda, Y. Tobita, K. Konishi, and M. Matsubayashi, "Visualization and Void Fraction Measurement of Gas-Liquid Metal Two-Phase Flow with Large Density Difference Using Neutron Radioscopy," *Abstracts of Third International Topical Meeting on Neutron Radiography*, Lucerne, Switzerland, p.52 (1998).

34. K. Mishima, T. Hibiki, Y. Saito, and T. Takeda, "Thermal-Hydraulic Design Concept of the N-Arena Solid-Target System in JHF Project -Heat Transfer Experiment-," *Proceedings of The International Workshop on JHF Science* (1998).

35. K. Mishima, Y. Saito, and T. Hibiki, "Thermal-Hydraulic Design Concept of the N-Arena Solid-Target System," *Proceedings of The International Workshop on JHF Science* (1998).

36. T. Hibiki, and M. Ishii, "Interfacial Area Measurement and Interfacial Area Transport Equation in Bubbly Two-Phase Flow," *Proceedings of Japan-UK Mini-Seminar*, Kumatori, Osaka , Japan (1998).

37. K. Mishima, T. Hibiki, and Y. Saito, "Basic Studies on Fluid Phenomena under Severe Accident Conditions of Nuclear Reactor by Using Neutron Radiography," *Proceedings of Japan-UK Mini-Seminar*, Kumatori, Osaka , Japan (1998).

38. K. Mishima, T. Hibiki, Y. Saito, K. Moriyama, and J. Sugimoto, "Visualization Study on Hot Particle-Water Interaction by Using Neutron Radiography," *Proceedings of the Workshop on Severe Accident Research in Japan*, Nov.4-6, 1998, Tokyo, Japan (1998).

39. T. Hibiki, M. Ishii, and Z. Xiao, "Local Flow Measurements of Vertical Upward Air-Water Flow in a Round Tube," *Proceedings of the International Conference on Multiphase Flows '98 -Lyon* (1998).

40. K. Mishima, and T. Hibiki, "Flow Regime Transition Criteria for Vertical Upward Two-Phase Flow in Narrow Rectangular Ducts," *Proceedings of the International Conference on Multiphase Flows '98 -Lyon*, June 8-12, 1998, Lyon, France.

41. T. Hibiki, and M. Ishii, "Axial Development of Liquid Turbulence and Interfacial Area in Bubbly Two-Phase Flows," *Proceedings of the 5th Joint ASME/JSME Thermal Engineering Conference*, May 15-19, 1999, San Diego, USA.

42. T. Hibiki, K. Mishima, Y. Saito, Y. Tobita, K. Konishi, and M. Matsubayashi, "Study on Flow Characteristics in Gas-Molten Metal Mixture Pool Simulating Core Disruptive Accident of FBR," *Proceedings of the 5th Joint ASME/JSME Thermal Engineering Conference*, May 15-19, 1999, San Diego, USA.

43. H. Umekawa, M. Ozawa, R. Murakami, K. Mishima, T. Hibiki, and Y. Saito, "Mechanism of Periodical Dryout under Oscillatory Flow Condition," *Proceedings of the 5th Joint ASME/JSME Thermal Engineering Conference*, May 15-19, San Diego, 1999, USA.

44. Y. Saito, T. Hibiki, K.Mishima, K. Moriyama, and J. Sugimoto, "Visualization Study on Hot Particle-Water Interaction by Using Neutron Radiography," *Proceedings of 2nd International Symposium on Two-Phase Flow Modeling and Experimentation*, May 23-25, 1999, Pisa, Italy.

45. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto, "Visualization and Void Fraction Measurement of Subcooled Boiling Water Flow in a Narrow Rectangular Channel Using High-Frame-Rate Neutron Radiography," *Proceedings of 2nd International Symposium on Two-Phase Flow Modeling and Experimentation*, May 23-25, 1999, Pisa, Italy.

46. M. Matsubayashi, M. Kureta, H. Nakamura, N. Takenaka, T. Hibiki, and K. Mishima, "Application of Neutron Radiography Systems in JRR-3M to Nuclear Engineering," *Proceedings of 7th International Conference on Nuclear Engineering*, April 19-23, 1999, Tokyo, Japan.

47. Y. Saito, T. Hibiki, T. Takeda, F. Tanaka, and K. Mishima, "Heat Transfer Study for Thermal-Hydraulic Design of the N-Arena Solid-Target System in JHF Project," *Proceedings of 7th International Conference on Nuclear Engineering*, April 19-23, 1999, Tokyo, Japan.

48. T. Hibiki, and M. Ishii, "Effect of Flow-Induced Vibration on Local Flow Parameters of Bubbly Flows," *Proceedings of 9th International Topical Meeting on Nuclear Reactor Thermal Hydraulics*, October 3-8, 1999, San Francisco, CA, USA.

49. T. Hibiki, and M. Ishii, "Interfacial Area Transport of Adiabatic Air-Water Bubbly Flows in Vertical Round Tubes," *Proceedings of 1999 National Heat Transfer Conference*, August 15-17, 1999, Albuquerque, NM, USA.

50. M. Matsubayashi, T. Hibiki, and K. Mishima, "Current Status on the Development of a high-frame-rate Neutron Radiography System in JRR-3M," *Proceedings of WCNR 6* (1999).

51. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto, "Visualization and Void Fraction Measurement of Subcooled Boiling Water Flow in a Narrow Rectangular Channel Using High-Frame-Rate Neutron Radiography," *Proceedings of WCNR 6* (1999).

52. T. Hibiki, and M. Ishii, "Interfacial Area Transport in Bubbly Flow Systems," *Proceedings of 8th International Conference on Nuclear Engineering - ICONE-8*, April 2-6, 2000, Baltimore, MD, USA.

53. T. Hibiki, and M. Ishii, "Two-Group Interfacial Area Transport Equations at Bubbly-to-Slug Flow Transition in a Vertical Round Pipe," *Proceedings of 2000 National Heat Transfer Conference*, August 20-22, 2000, Pittsburgh, PA, USA.

54. Y. Saito, T. Hibiki, K. Mishima, Y. Tobita, T. Suzuki, and M. Matsubayashi, "Visualization and Measurements of Liquid Phase Velocity and Void Fraction of Gas-Liquid Metal Two-Phase Flow by Using Neutron Radiography," *Proceedings of 9th International Symposium on Flow Visualization 2000*.

55. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto, "Dynamic Neutron Radiography: New Method of Void Fraction Measurement in Subcooled Boiling," *Proceedings of International Workshop on Current Status and Future Directions in Boiling Heat Transfer and Two-phase Flow*, Osaka, Japan, October 5-6, 2000.

56. M. Ozawa, H. Umekawa, K. Mishima, T. Hibiki, and Y. Saito, "Dryout under Flow Oscillation in a Boiling Channel at Low Mass Flux and Pressure," *Proceedings of 2nd Japan-Korea Symposium on Nuclear Thermal Hydraulics and Safety*, Fukuoka, Japan, October 15-18, 2000.

57. T.Goto, T. Takamasa, and T. Hibiki, "Entrance Effect on Interfacial Area Transport of Bubbly Flow," *Transactions of American Nuclear Society*, November 13-17, Washington DC, 2000, USA, vol.83, pp.383 (2000).

58. T. Hibiki, and M. Ishii, "Two-Group Interfacial Area Transport Equations at Bubbly-to-Slug Flow Transition in a Vertical Round Pipe," *Proceedings of the UK-Japan Nuclear Safety Seminar*, Feb. 10-11, 2000, London, UK (2000).

59. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto, "Dynamic Neutron Radiography: New Method of Void fraction Measurement in Subcooled Boiling," *Proceedings of International Workshop on Current Status and Future Directions in Boiling Heat Transfer and Two-Phase Flow*, Osaka, Japan, October 5-6, 2000.

60. M. Matsubayashi, T. Hibiki, and K. Mishima, "Development of a high-frame-rate neutron radiography system in JRR-3M," *Neutron Radiography (6)*, (Eds. by S. Fujine, H. Kobayashi, K. Kanda),Gordon & Breach Science Publishers, Yverdon Switzerland, pp.261-268 (2000).

61. M. Kureta, T. Hibiki, K. Mishima, and H. Akimoto "Void Fraction Measurement of Subcooled Boiling of Water by Using the High-Frame-Rate Neutron Radiography," *Neutron Radiography (6)*, (Eds. by S. Fujine, H. Kobayashi, K. Kanda),Gordon & Breach Science Publishers, Yverdon Switzerland, pp.537-543 (2000).

62. M. Matsubayashi, T. Hibiki, K. Mishima, K. Yoshii, and K. Okamoto," Proceedings of the Forth International Topical Meeting on Neutron Radiography, June 3-6, 2001, State College, Pennsylvania, US (2001).

63. M. Matsubayashi, T. Hibiki, K. Mishima, K. Yoshii, and K. Okamoto," Proceedings of the Forth International Topical Meeting on Neutron Radiography, June 3-6, 2001, State College, Pennsylvania, US (2001).

64. J. T. Hsu, M. Ishii, and T. Hibiki, "Experimental Study on Two-Phase Natural Circulation in a Loop," *Transactions of American Nuclear Society*, November 13-17, 2000, Washington DC, USA, vol.83, pp.392-393 (2000).

65. T. Hibiki, and M. Ishii, "Interfacial Area Concentration in Steady Fully Developed Bubbly Flow," *Proceedings of 9th International Conference on Nuclear Engineering - ICONE-9*, April 8-12, 2001, Nice, France.

66. T. Hibiki, and M. Ishii, "Modeling of Interfacial Area Transport in Bubbly Flow Systems," *Proceedings of Fourth International Conference on Multiphase Flows*, May 27-June 1, 2001, New Orleans, USA.

67. T. Takamasa, T. Iguchi, T. Hazuku, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Bubbly Flow under Microgravity Environment," *Proceedings of Fourth International Conference on Multiphase Flows*, New Orleans, USA May 27-June 1, 2001, New Orleans, USA.

68. T. Hibiki, T. Goto, T. Takamasa, and M. Ishii, "Interfacial Area Transport of Bubbly Flow in a Small Diameter Pipe," *Proceedings of Fourth International Conference on Multiphase Flows*, New Orleans, USA, May 27-June 1, 2001, New Orleans, USA.

69. F. Tanaka, T. Hibiki, Y. Saito, T. Takeda, and K. Mishima, "Thermal-Hydraulic Design Concept of the Solid-Target System of Spallation Neutron Source," *Proceedings of 9th International Conference on Nuclear Engineering - ICONE-9*, April 8-12, 2001, Nice, France.

70. T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Experimental Study of Interfacial Area Transport of Bubbly Flow in Small-Diameter Pipe," *Proceedings of 3rd International Symposium on Measurement Techniques for Multiphase Flow – 2001*, August 1-3, 2001, Fukui, Japan, pp.244-258.

71. T. Hibiki, and M. Ishii, "Distribution Parameter and Drift Velocity of Drift-Flux Model in Bubbly Flow," *Proceedings of 10th International Conference on Nuclear Engineering - ICONE-10*, April 14-18, 2002, Arlington, USA.

72. T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Bubbly Flows in a Small Diameter Pipe Under Normal and Microgravity Environments," *Proceedings of 10th International Conference on Nuclear Engineering - ICONE-10*, April 14-18, 2002, Arlington, USA.

73. T. Hibiki, R. Situ, Y. Mi, and M. Ishii, and M. Mori, "Interfacial Area Transport of Vertical Upward Bubbly Flow in an Annulus," *Proceedings of International Congress on Advanced Nuclear Power Plants*, June 9-13, 2002, Hollywood, Florida, USA.

74. T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Interfacial Area Change in Bubbly Flow under Microgravity Environment," *Proceedings of Fifth JSME-KSME Fluid Engineering Conference*, 2002.

75. R. Situ, T. Hibiki, Y. Mi, M. Ishii, and M. Mori, "Structure of Air-water Bubbly Flow in a Vertical Annulus," *Proceedings of International Congress on Advanced Nuclear Power Plants*, June 9-13, 2002, Hollywood, Florida, USA.

76. T. Hibiki, H. Goda, S. Kim, M. Ishii, and J. Uhle, "Development of Drift-flux Model for Downward Two-phase Flow," *Proceedings of 11th International Conference on Nuclear Engineering*, April 20-23, 2003, Tokyo, Japan.

77. T. Hibiki, and M. Ishii, "Mechanistic Modeling of Active Nucleation Site Density in Boiling Systems," *Proceedings of 11st International Conference on Nuclear Engineering*, April 20-23, 2003, Tokyo, Japan.

78. T. Takamasa, T. Hazuku, N. Tamura, N. Fukamachi, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Bubbly Flow at Low Liquid Reynolds Number Under Microgravity Environment," *Proceedings of 11th International Conference on Nuclear Engineering*, April 20-23, 2003, Tokyo, Japan.

79. N. Fukamachi, T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Bubbly Flow under Microgravity Environment," *Proceedings of 4th ASME-JSME Joint Fluids Engineering Conference*, July 6-11, 2003, Honolulu, Hawaii, USA.

80. T. Takamasa, and T. Hibiki, "Recent Progress in the Studies of Gas-Liquid Two-Phase Flows at Microgravity Conditions," *Proceedings of 4th ASME-JSME Joint Fluids Engineering Conference*, July 6-11, 2003, Honolulu, Hawaii, USA.

81. T. Hibiki, R. Situ, Y. Mi, and M. Ishii, "Formulation of One-dimensional Interfacial Area Transport Equation in Subcooled Boiling Flow, " *Proceedings of 10th Topical Meeting on Nuclear Reactor Thermal Hydraulics*, October 5-9, 2003, Seoul, Korea.

82. T. Hibiki, and M. Ishii, "Interfacial Area Concentration in Bubble Column and Forced Convective Bubbly Flow," *Proceedings of 10th Topical Meeting on Nuclear Reactor Thermal Hydraulics*, October 5-9, 2003, Seoul, Korea.

83. N. Fukamachi, T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Measurement on Liquid Film in Microchannels Using Laser Focus Displacement Meter," *Proceedings of 1st International Conference on Microchannels and MInichannels*, April 24-25, 2003, Rochester, New York, USA.

84. T. Hibiki, T. Takamasa and M. Ishii, "One-dimensional Drift-Flux Model and Constitutive Equations for Relative Motion between Phases in Various Two-Phase Flow Regimes at Microgravity Conditions," *Proceedings of 12th International Conference on Nuclear Engineering*, April 25-29, 2004, Washington D. C., USA.

85. R. Situ, T. Hibiki, X. Sun, Y. Mi, and M. Ishii, "Flow Structure of Subcooled Boiling Flow in an Internally Heated Annulus," *Proceedings of Fifth International Conference on Multiphase Flows*, New Orleans, USA May 30-June 4, 2004, Yokohama, Japan.

86. T. Hibiki, T. Takamasa and M. Ishii, "One-Dimensional Drift-Flux Model and Constitutive Equations for Relative Motion between Phases," *Proceedings of Fifth International Conference on Multiphase Flows*, May 30-June 4, 2004, Yokohama, Japan.

87. T. Takamasa, T. Hazuku, N. Fukamachi, N. Tamura, T. Hibiki, and M. Ishii, "Experimental Study on Interfacial Area Transport of Bubbly Flow in Mini-channels," *Proceedings of Fifth International Conference on Multiphase Flows*, May 30-June 4, 2004, Yokohama, Japan.

88. T. Takamasa, T. Hazuku, N. Fukamachi, N. Tamura, T. Hibiki, and M. Ishii, "Experimental Study on Axial Development of Bubbly Flow under Normal- and Micro-gravity Environment," *Proceedings of Fifth International Conference on Multiphase Flows*, May 30-June 4, 2004, Yokohama, Japan.

89. T. Takamasa, T. Hazuku, N. Tamura, T. Hibiki, and M. Ishii, "Axial Development of Bubbly Flow under Microgravity Environment," *Proceedings of Third Symposium on Two-phase Flow Modeling and Experimentation*, September 22-25, Pisa, Italy.

90. T. Takamasa, T. Hazuku, N. Fukamachi, T. Hibiki, and M. Ishii, "Measurement of Gas-liquid Two-phase Flow in Mini-channels Using Laser Focus Displacement Meter, *Proceedings of 4th International Symposium on Measurement Techniques for Multiphase Flows*, 2004.

91. T. Hibiki, and M. Ishii, "Drift-Flux Model for Two-Phase Flow in a Large Diameter Pipe," *Proceedings of Sixth International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Operations and Safety*, October 4-8, 2004, Nara, Japan.

92. W. Zhang, T. Hibiki, and K. Mishima, "Flow Boiling Heat Transfer in Mini-channels," *Proceedings of Sixth International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Operations and Safety*, October 4-8, 2004, Nara, Japan.

93. T. Hibiki, and M. Ishii, "General One-dimensional Drift-flux Model for Various Flow conditions" *Proceedings of 11th Topical Meeting on Nuclear Reactor Thermal Hydraulics*, October 2-6, 2005, Avignon, France.

94. T. Hibiki, T. H. Lee, T. Takamasa, T. Hazuku and M. Ishii, "General Correlation for Interfacial Area Concentration in Bubbly Flows" *Proceedings of 11th Topical Meeting on Nuclear Reactor Thermal Hydraulics*, October 2-6, 2005, Avignon, France.

95. W. Zhang, T. Hibiki, and K. Mishima, "Flow Boiling Heat Transfer at Low Liquid Reynolds Number," *Proceedings of 11th Topical Meeting on Nuclear Reactor Thermal Hydraulics*, October 2-6, 2005, Avignon, France.

96. W. Zhang, T. Hibiki, and K. Mishima, "Correlations for Flow Boiling Heat Transfer and CHF in Mini-Channels," *Proceedings of 13th International Conference on Nuclear Engineering*, May 16-20, 2005, Beijing, China.

97. T. Lee, R. Situ, T. Hibiki, T. Takamasa, and M. Ishii, "Axial Development of Subcooled Boiling Flow in a Vertical Concentric Annulus," *Proceedings of 13th International Conference on Nuclear Engineering*, May 16-20, 2005, Beijing, China..

98. D. Nakamura, T. Hazuku, T. Takamasa, and T. Hibiki, "Effect of Surface Wettability on Flow Patterns in Vertical Gas-Liquid Two-phase Flow," *Proceedings of 13th International Conference on Nuclear Engineering*, May 16-20, 2005, Beijing, China.

99. T. Hazuku, N. Tamura, N. Fukamachi, T. Takamasa, T. Hibiki, and M. Ishii, "Axial Development of Vertical Upward Bubbly Flow in a Minipipe," *Proceedings of 2005 ASME Summer Heat Transfer Conference*, July 17-22, 2005, San Francisco, California, USA..

100. T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Interfacial Area Transport of Vertical Upward Annular Two-phase Flow," *Proceedings of 2005 ASME Summer Heat Transfer Conference*, July 17-22, 2005, San Francisco, California, USA.

101. K. Abe, Y. Hirose, T. Hazuku, T. Takamasa, and T. Hibiki, "Effect of Gravity on Axial Development of Vertical Bubbly Flow," *Proceedings of 14th International Conference on Nuclear Engineering*, July 17-20, 2006, Miami.

102. J. Uematsu, Y. Hirose, T. Hazuku, T. Takamasa, and T. Hibiki, "Axial Development of Gas-liquid Two-phase Flow in Mini-channels," *Proceedings of 14th International Conference on Nuclear Engineering*, July 17-20, 2006, Miami.

103. K. Abe, J. Uematsu, T. Hazuku, T. Takamasa, and T. Hibiki, "Measurement of Interfacial Area Transport of Bubbly Flow in Mini-channels Using Image-processing Method," *Proceedings of 5th International Symposium on Measurement Techniques for Multiphase Flows*, Vol.1, pp. 149-154 (2006).

104. Y. Hirose, K. Abe, T. Hazuku, T. Takamasa, and T. Hibiki, "Measurement of Bubbly Flow Using Stereo Image-processing Method under Microgravity Condition," *Proceedings of 5th International Symposium on Measurement Techniques for Multiphase Flows*, Vol.2, pp. 991-996 (2006).

105. T. Hazuku, K. Abe, T. Takamasa, and T. Hibiki, "Measurement of Interfacial Area Concentration of Developing Vertical Upward Annular Flow," *Proceedings of International Symposium on Advanced Fluid/Solid Science and Technology in Experimental Mechanics*, September 11-14, 2006, Sapporo, Japan.

106. R. Situ, J. Y. Tu, G. H. Yeoh, G. C. Park, T. Hibiki, and M. Ishii, Bubble departure in forced convective subcooled boiling flow, *Proceedings of 13th International Heat Transfer Conference*, Paper No. BOI-22, Sydney, Australia, August (2006).

107. R. Situ, T. Hibiki, M. Ishii, M. Mori, J. Y. Tu, G. H. Yeoh, and G. C. Park, Bubble lift-off in forced convective subcooled boiling flow, *Proceedings of 13th International Heat Transfer Conference*, Paper No. BOI-21, Sydney, Australia, August (2006).

108. R. Situ, J. Y. Tu, G. H. Yeoh, T. Hibiki, M. Ishii, and M. Mori, "Dimensionless Analysis of Bubble Departure Frequency in Forced Convective Subcooled Boiling low," *Proceedings of 15th International Conference on Nuclear Engineering*, April 22-26, 2007, Nagoya, Japan.

109. J. E. Julia, J. J. Jeong, A. Dixit, B. Ozar, T. Hibiki, and M. Ishii, "Flow Regime Identification and Analysis in Adiabatic Upward Two-phase Flow in an Annulus Geometry," *Proceedings of 15th International Conference on Nuclear Engineering*, April 22-26, 2007, Nagoya, Japan.

110. W. Zhang, T. Hibiki, and K. Mishima, "Critical Heat Flux for Flow Boiling of Water in Mini-channels," *Proceedings of 15th International Conference on Nuclear Engineering*, April 22-26, 2007, Nagoya, Japan.

111. F. Tanaka, T. Hibiki, and K. Mishima, "Critical Heat Flux Correlation for Thin Rectangular Channels," *Proceedings of 15th International Conference on Nuclear Engineering*, April 22-26, 2007, Nagoya, Japan.

112. J. Uematsu, T. Takamasa, T. Hazuku, K. Abe, and T. Hibiki, "Effect of Wall Wettability on Flow Characteristics of Gas-liquid Two-phase Flow," *Proceedings of 15th International Conference on Nuclear Engineering*, April 22-26, 2007, Nagoya, Japan.

113. T. Hazuku, T. Takamasa, T. Hibiki, and M. Ishii, "Experimental and Analytical Study on Interfacial Area Transport of Annular Two-phase Flow," *Proceedings of 6th International Conference on Multiphase Flow*, July 9-13, 2007, Leipzig, Germany.

114. J. Uematsu, T. Hazuku, T. Takamasa, and T. Hibiki, "Measurement of Flow Parameters of Developing Vertical Upward Bubbly Flow in Mini-channels," *Proceedings of 6th International Conference on Multiphase Flow*, July 9-13, 2007, Leipzig, Germany.

115. H. S. Park, T. H. Lee, T. Hibiki, W. P. Baek, and M. Ishii, "Modeling of the Condensation Sink Term in the Interfacial Area Transport Equation," *Proceedings of 6th International Conference on Multiphase Flow*, July 9-13, 2007, Leipzig, Germany.

116. W. Zhang, T. Hibiki, and M. Ishii, "Two Phase Frictional Pressure Drop in Mini-channel," *Proceedings of 6th International Conference on Multiphase Flow*, July 9-13, 2007, Leipzig, Germany.

117. J. Uematsu, K. Abe, T. Hazuku, T. Takamasa, and T. Hibiki, "Effect of Gravity on Axial Development of Gas-liquid Two-phase Flows," *Proceedings of 5th Joint ASME/JSME Fluids Engineering Conference*, July 30-August 2, 2007, San Diego, USA.

118. T. Kikuchi, T. Hazuku, Y. Fukuhara, T. Takamasa, and T. Hibiki, "Visualization Study on Gas-liquid Two-phase Flow in Hydrophobic Pipe," *Proceedings of 5th Joint ASME/JSME Fluids Engineering Conference*, July 30-August 2, 2007, San Diego, USA.

119. J. Y. Lee, T. Hibiki, and M. Ishii, "Normal Mode Analysis and Hyperbolicity Breaking of Two-fluid Model for Two-phase Flow Transport Equation, Proceedings of 18th International Symposium on Transport Phenomena, August 27-30, 2007, Daejeon, Korea.

120. J. Y. Lee, T. Hibiki, and M. Ishii, "Hyperbolicity Breaking and Interfacial Area Concentration of Bubbly Flow," *Proceeding of 12th International Meeting on Nuclear Reactor Thermal-hydraulics*, September 30-October 4, 2007, Pittsburgh, USA.

121. T. H. Lee, H. S. Park, S. O. Kim, T. Hibiki, M. Ishii, R. Situ, M. Mori, and J. Y. Lee, " Local Measurements of Interfacial Area and Void Concentration Profiles in Subcooled Boiling Flow of Water," *Proceeding of 12th International Meeting on Nuclear Reactor Thermal-hydraulics*, September 30-October 4, 2007, Pittsburgh, USA.

122. Y. Liu, T. Hibiki, M. Ishii, and X. Sun, "Study of Drag Coefficient in Bubbly Flows," *Proceeding of 12th International Meeting on Nuclear Reactor Thermal-hydraulics*, September 30-October 4, 2007, Pittsburgh, USA.

123. W. Zhang, T. Hibiki, and K. Mishima, "Application of Artificial Neural Network to Developing Void Fraction Correlation for Two-phase Flow in Mini-channel," *Proceeding of 12th International Meeting on Nuclear Reactor Thermal-hydraulics*, September 30-October 4, 2007, Pittsburgh, USA.

124. J. J. Jeong, B. Ozar, A. Dixit, T. Hibiki, M. Ishii, and J. E. Julia, "Experimental Investigation of Interfacial Area Transport of Vertical Upward Air-water Two-phase Flow,"

Proceeding of 12th International Meeting on Nuclear Reactor Thermal-hydraulics, September 30-October 4, 2007, Pittsburgh, USA.

125. H. S. Park, T. H. Lee, W. P. Beak, T. Hibiki, and M. Ishii, "Modeling and Evaluation of the Condensation Sink Term in an Interfacial Area Transport Equation," *Proceeding of 12th International Meeting on Nuclear Reactor Thermal-hydraulics*, September 30-October 4, 2007, Pittsburgh, USA.

126. T. Hazuku, T. Kikuchi, Y. Fukuhara, T. Takamasa, T. Hibiki, and M. Ishii, "Measurement and Prediction of Interfacial Area Transport of Vertical Upward Bubbly Flow in a Mini Pipe," *Proceeding of 12th International Meeting on Nuclear Reactor Thermal-hydraulics*, September 30-October 4, 2007, Pittsburgh, USA.

127. R. Situ, J. Y. Tu, G. H. Yeoh, T. Hibiki, and M. Ishii, and M. Mori, Assessment of Effect of Bubble Departure Frequency in Forced Convection Subcooled Boiling Flow, *Proceedings of 16th Australasian Fluid Mechanics Conference (16 AFMC)*, Gold Coast, Australia, December (2007).

128. B. Ozar, J. J. Jeong, A. Dixit, J. E. Julia, T. Hibiki , and M. Ishii, "Local and Area-Averaged Flow Structure of Air-Water Two-Phase Flow in a Vertical Annulus," *Proceedings of 16th International Conference on Nuclear Engineering*, May 11-15, 2008, Orland, USA.

129. T. H. Lee, B. J. Yun, G. C. Park, T. Hibiki, S. O. Kim, "Local Flow Structure of Subcooled Boiling Flow of Water in a Heated Annulus," *Proceedings of 16th International Conference on Nuclear Engineering*, May 11-15, 2008, Orland, USA.

130. P. Sawant, J. Schelegel, S. Paranjape, B. Ozar, T. Hibiki, and M. Ishii, "Flow Regime Identification in Large Diameter Pipe," *Proceedings of 16th International Conference on Nuclear Engineering*, May 11-15, 2008, Orland, USA.

131. S. Paranjape, D. Stefanczyk, Y. Liang, T. Hibiki, and M. Ishii, "Global Flow Regime Identification in a Rod Bundle Geometry," *Proceedings of 16th International Conference on Nuclear Engineering*, May 11-15, 2008, Orland, USA.

132. R. Situ, W. Yang, J. Y. Tu, G. H. Yeoh, T. Hibiki, and M. Ishii, G. C. Park, R. J. Brown, Flow visualization of bubble condensation in forced convective subcooled boiling flow,

Proceedings of 13th International Symposium on Flow Visualization, Nice, France, 1-4 July (2008).

133. M. Ishii and T. Hibiki, "Modeling and Measurement of Interfacial Area Concentration in Two-phase Flow, Proceedings of Experiments and CFD Code Applications to Nuclear Reactor Safety, September 10-12, 2008, Grenoble, France.

134. T. Nishioji, T. Kato, Y. Fukuhara, T. Hazuku, T. Takamasa, T. Hibiki, Effect of Gravity on Axial Development of Phase Distribution Patterns in Bubbly Two-phase Flow, 17th International Conference on Nuclear Engineering (ICONE17), CD-ROM #ICONE17-75232, 2009.
135. Y. Takata, D. Xing, Y. Fukuhara, T. Hazuku, T. Takamasa, T. Hibiki, Axial Developments of Local Flow Parameters in Bubbly Two-phase Flow at Normal and Microgravity Conditions, 17th International Conference on Nuclear Engineering (ICONE17), CD-ROM #ICONE17-75231, 2009.
136. T. Takamasa, T. Hazuku, T. Hibiki, Effect of Frictional Pressure Loss on Bubble Axial Velocity in Bubbly Flow -Verification of Tomiyama Theory, 5th European-Japanese Two-Phase Flow Group Meeting, 2009.
137. T. Kato, Y. Takata, T. Hazuku, T. Takamasa, T. Hibiki, Gas-Liquid Interfacial Configurations of Developing Bubbly Flow in a Mini Pipe, 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-13), CD-ROM #N13P1335, 2009.
138. J. P. Schlegel, T. Hibiki, M. Ishii, "Void Fraction Measurement and Drift-Flux Modeling of Vertical Upward Two-Phase Flow in a Large Diameter Pipe," 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, 2009.
139. D. J. Euh, B. Ozar, T. Hibiki, M. Ishii, "Measurement of Bubble Departure Frequency in Subcooled Boiling Flow Using an Image Processing Technique," 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, 2009.
140. B. Ozar, D. J. Euh, T. Hibiki, M. Ishii, "Interfacial Area Transport of Vertical Upward Air-Water Two-Phase Flow in an Annulus at Elevated Pressures, International Congress on Advances in Nuclear Power Plants, 2009.
141. S. Watanabe, Y. Fukuhara, T. Hazuku, T. Takamasa, T. Hibiki, Effect of Gravity on Phase Distribution Patterns of Bubbly Two-Phase Flow in a Vertical Mini Pipe, 18th International Conference on Nuclear Engineering (ICONE18), 2010.

142. T. Hazuku, T. Takamasa, T. Hibiki, Prediction of Interfacial-Area Transport of Bubbly Two-Phase Flow in Microgravity Condtion, 18th International Conference on Nuclear Engineering (ICONE18), 2010.
143. T. Kato, T. Hazuku, T. Takamasa, T. Hibiki, Axial Change of Interfacial-Area Concentration of Bubbly Flow in Mini Pipes, 7th International Conference on Multiphase Flow (ICMF 2010), 2010.
144. Y. Shimomura, Y. Fukuhara, T. Hazuku, T. Takamasa, T. Hibiki, Distribution Parameter and Drift Velocity of Vertical Upward Bubbly Two‐Phase Flow Under Normal- and Micro-Gravity Conditions, 7th International Conference on Multiphase Flow (ICMF 2010), 2010.
145. L. Hernandez, J. E. Julia, B. Ozar, T. Hibiki, M. Ishii, Flow Regime Identification in Boiling Two-Phase Flow in a Vertical Annulus, 7th International Conference on Multiphase Flow (ICMF 2010), 2010.
146. J. E. Julia, T. Hibiki, B. J. Yun, G. C. Park, M. Ishii, Local Flow Measurement and Drift-Flux Modeling of Subcooled Boiling Flow in Sub-Channel of Vertical 3 X 3 Rod Bundle, 7th International Conference on Multiphase Flow (ICMF 2010), 2010.
147. J. E. Julia, T. Hibiki, M. Ishii, Flow Regime Transition Criteria for Two-Phase Flow in a Vertical Annulus, 7th International Conference on Multiphase Flow (ICMF 2010), 2010.
148. S. W. Chen, T. Hibiki, M. Ishii, L. Hernandez, J. E. Julia, M. Mori, Experimental Investigation of Vibration Effects on Air-Water Two-Phase Flow in an Annulus, 7th International Conference on Multiphase Flow (ICMF 2010), 2010.
149. T. Hazuku, T. Takamasa, T. Hibiki, Experimental Study on Interfacial Area Transport of Bubbly Flow in Mini Pipes, 2010 ANS Winter Meeting, Nov. 7-11, 2010, Las Vegas, Nevada (2010) (Invited).
150. X. Shen, T. Hibiki, K. Mishima, Axial Development of Gas-Liquid Flow Parameters in a Narrow Rectangular Channel, 2010 ANS Winter Meeting, Nov. 7-11, 2010, Las Vegas, Nevada (2010) (Invited).
151. T. Hibiki, M. Ishii, C. Brooks, Overview of Interfacial Area Transport Data Development, 2010 ANS Winter Meeting, Nov. 7-11, 2010, Las Vegas, Nevada (2010) (Invited).
152. T. Hibiki, M. Ishii, Y. Liu, C. Brooks, Overview of Interfacial Area Transport Equation Development, 2010 ANS Winter Meeting, Nov. 7-11, 2010, Las Vegas, Nevada (2010) (Invited).
153. S. Rassame, J. Yang, D. Y. Lee, T. Hibiki, M. Ishii, Suppression Pool Void Distribution during Blowdown, 19th International Conference on Nuclear Engineering, May 16-19, 2011, Chiba, Japan (2011).

154. T. Hazuku, Y. Fukuhara, T. Takamasa, T. Hibiki, Applicability of Interfacial Area Transport Equation to Bubbly Two-Phase Flows under Microgravity, 19th International Conference on Nuclear Engineering, May 16-19, 2011, Chiba, Japan (2011).
155. S. Sharma, X. Yang, T. Hibiki, M. Ishii, Assessment of Interfacial Drag and Two-Phase Pressure Drop Models of TRACE Code, 14th International Topical Meeting on Nuclear Reactor Thermalhydraulics, Toronto, Sep. 25-30, 2011 (2011).
156. T. Roy, Y. Liu, S. W. Chen, T. Hibiki, M. Ishii, W. Duval, Experimental Study of Two-Phase Flows under Reduced Gravity Conditions, 14th International Topical Meeting on Nuclear Reactor Thermalhydraulics, Toronto, Sep. 25-30, 2011 (2011).
157. J. Schlegel, S. Miwa, S. W. Chen, T. Hibiki, M. Ishii, Interfacial Area Transport Equation Evaluation Methodology in Large Diameter Pipes, 14th International Topical Meeting on Nuclear Reactor Thermalhydraulics, Toronto, Sep. 25-30, 2011 (2011).
158. X. Yang, J. Schlegel, S. Paranjape, Y. Liu, S. W. Chen, T. Hibiki, M. Ishii, Interfacial Area Transport in Two-Phase Flows in a Scaled 8 x 8 Rod Bundle Geometry at Elevated Pressures, 14th International Topical Meeting on Nuclear Reactor Thermalhydraulics, Toronto, Sep. 25-30, 2011 (2011).
159. B. Ozar, C. Brooks, T. Hibiki, M. Ishii, Interfacial Area Transport of Steam-Water Two-Phase Flow in a Vertical Annulus at Elevated Pressures during Sub-Cooled Boiling, 14th International Topical Meeting on Nuclear Reactor Thermalhydraulics, Toronto, Sep. 25-30, 2011 (2011).
160. J. Yang, S. W. Choi, J. Lim, D. Y. Lee, S. Rassame, T. Hibiki, M. Ishii, Scaling, Experiment, and Code Validation on an Integral Testing Facility, 14th International Topical Meeting on Nuclear Reactor Thermalhydraulics, Toronto, Sep. 25-30, 2011 (2011).

161. S. Y. Lee, C. E. Park, T. Hibiki, M. Ishii, The Derivation of Two-Fluid, Three-Field Governing Equations in Porous Media Using Time-Volume Averaging Formulation and Its Application to Develop a Safety Analysis Code, International Congress of Advances in Nuclear Power Plants, Nice, France, May 2-5, 2011 (2011).

162. S. Y. Lee, C. E. Park, T. Hibiki, M. Ishii, V. H. Ransom, Study on the Well-Posedness, Convergence and the Stability of the Semi-Implicit Upwind Numerical Solver for the Multi-Fluid Model, International Congress of Advances in Nuclear Power Plants, Chicago, USA, June 24-28, 2012 (2012).

163. C. S. Brooks, B. Ozar, T. Hibiki, M. Ishii, Two-Group Relative Velocity in Boiling Two-Phase Flow, 20th International Conference on Nuclear Engineering, Anaheim, CA, USA, July 30-August 3, 2012 (2012).

164. S. W. Chen, C. S. Brooks, C. Macke, T. Hibiki, M. Ishii, M. Mori, Experiment of Adiabatic Two-Phase Flow in an Annulus under Low-Frequency Vibration, 20th International Conference on Nuclear Engineering, Anaheim, CA, USA, July 30-August 3, 2012 (2012).

165. C. S. Brooks, Y. Liu, T. Hibiki, M. Ishii, Void Fraction Covariance in Two-Phase Flows, 20th International Conference on Nuclear Engineering, Anaheim, CA, USA, July 30-August 3, 2012 (2012).

166. T. Hazuku, T. Takamasa, R. Situ, T. Hibiki, Effect of Gravity on Flow Characteristics in Bubbly Flow, Japan-U.S. Seminar on Two-Phase Flow Dynamics 2012, Tokyo, Japan, June 7-12, 2012 (2012).

167. M. Ishii, C. S. Brooks, B. Ozar, T. Hibiki, Interfacial Area Transport of Subcooled Boiling Flow in a Vertical Annuluse, Japan-U.S. Seminar on Two-Phase Flow Dynamics 2012, Tokyo, Japan, June 7-12, 2012 (2012).

168. L. Cheng, Y. Kondo, K. Tanimoto, H. Goda, S. W. Chen, S. Miwa, M. Griffiths, S. Shi, T. Hibiki, M. Ishii, CFD Analysis on Oscillation Behavior of Gas-Liquid Two-Phase Flow in a Natural Circulation Packed Bed Test Facility, 9th International Topical Meeting on Nuclear Thermal Hydraulics, Operation and Safety (NUTHOS-9), Kaohsiung, Taiwan, September 9-13, 2012 (2012).

169. S. W. Chen, S. Miwa, M. Griffiths, S. Shi, T. Hibiki, M. Ishii, L. Cheng, Y. Kondo, K. Tanimoto, H. Goda, Experimental Study of Gas-Liquid Two-Phase Flow through a Packed Bed under Natural Circulation Conditions, 9th International Topical Meeting on Nuclear Thermal Hydraulics, Operation and Safety (NUTHOS-9), Kaohsiung, Taiwan, September 9-13, 2012 (2012).

170. J. E. Julia, L. Hernandez. R. Martinez-Cuenca, T. Hibiki, R. Mondragon, C. Segarra, and J. C. Jarque, "Measurement and Modelling of Forced Convective Heat Transfer Coefficient and Pressure Drop of Al_2O_3- and SiO_2-Water Nanofluids," 6th European Thermal Science Conference (Eurotherm 2012).

171. C. S. Brooks, N. Silin, T. Hibiki, M. Ishii, Experimental Investigation of Bubble Departure Diameter and Bubble Departure Frequency in Subcooled Flow Boiling in a Vertical Annulus, ASME 2013 Summer Heat Transfer Conference, Minneapolis, MN, USA, July 14-19, 2013 (2013).

172. X. Shen, T. Hibiki, Interfacial Area Transport of Gas-Liquid Bubbly Flow in Mini Channel, 15th International Topical Meeting on Nuclear Reactor Thermal-Hydraulics (NURETH-15), Pisa, Italy, May 12-17, 2013 (NURETH15-439).

173. X. Shen, T. Hibiki, H. Sun, H. Nakamura, "Local Measurements of 3-D Bubble Velocity Vector, Bubble Diameter and Interfacial Area Concentration in a Vertical Large Diameter Square Duct," 9th Korea-Japan Symposium on Nuclear Thermal Hydraulics and Safety, Buyeo, Korea, November 16-19, 2014.

174. S. Miwa, Y. Liu, T. Hibiki, M. Ishii, Y. Kondo, H. Morita, and K. Tanimoto, "Two-phase Flow Induced Force Fluctuations on Pipe Bend," Proceedings of the 2014 22nd International Conference on Nuclear Engineering (ICONE-22) July 7-11, 2014, Prague, Czech Republic, CD-ROM, ICONE22-3057.

175. T. Hazuku, T. Hibiki, and T. Takamasa, "Interfacial Area Transport due to Shear Collision of Bubbly Flow in Small Diameter Pipes," Proceedings of Japan-US Seminar on Two-Phase Flow Dynamics, West Lafayette, IN, May 10-15, 2015.

176. C. S. Brooks, T. Hibiki, and M. Ishii, "The Interfacial Area Transport equation and Boundary Condition Sensitivity in Subcooled Boiling Flow," Proceedings of Japan-US Seminar on Two-Phase Flow Dynamics, West Lafayette, IN, May 10-15, 2015.

177. X. Yang, J. P., Schlegel, Y. Liu, S. Paranjape, T. Hibiki, and M. Ishii, "Prediction of Interfacial Area Transport in a Scaled 8×8 BWR Rod Bundle," Proceedings of Japan-US Seminar on Two-Phase Flow Dynamics, West Lafayette, IN, May 10-15, 2015.

178. J. P., Schlegel, T. Hibiki, and M. Ishii, "Characteristics of Two-Phase Flows in Large Diameter Channels," Proceedings of Japan-US Seminar on Two-Phase Flow Dynamics, West Lafayette, IN, May 10-15, 2015.

179. S. Miwa, T. Hibiki, M. Ishii, and M. Mori "Development of Internal Two-Phase Flow Induced Force Fluctuations Model," Proceedings of Japan-US Seminar on Two-Phase Flow Dynamics, West Lafayette, IN, May 10-15, 2015.

180. X. Shen, and T. Hibiki, "Two-Group Interfacial Area Concentration Correlations of Two-Phase Flows in Large Diameter Pipes," Proceedings of 23rd International Conference on Nuclear Engineering, May 17-21, 2015, Chiba, Japan.

181. S. Miwa, T. Hibiki, and M. Mori "Prediction of Two-Phase Flow Induced Vibration Using Artificial Void Signal," Proceedings of 23rd International Conference on Nuclear Engineering, May 17-21, 2015, Chiba, Japan.

182. S. L. Sharma, T. Hibiki, M. Ishii, J. P. Schlegel, J. R. Buchanan, Jr., and K. J. Hogan, P. W. Guilbert, "Assessment of an Interfacial Shear Term for Adiabatic Dispersed Air-Water Two-Phase Flow with the Two-Fluid Model," Proceedings of 16th International Topical Meeting on Nuclear Reactor Thermalhydraulics, August 30-September 4, Chicago, IL, USA.

183. S. L. Sharma, C. S. Brooks, J. P. Schlegel, Y. Liu, T. Hibiki, M. Ishii, and J. R. Buchanan, Jr., "Turbulence-Induced Bubble Collision Force Model Development and Assessment for Adiabatic Dispersed Air-Water Two-Phase Flow with the Two-Fluid Model," Proceedings of 16th International Topical Meeting on Nuclear Reactor Thermalhydraulics, August 30-September 4, Chicago, IL, USA.

184. I. Kinoshita, T. Torige, M. Yamada, and T. Hibiki, "A New Drift Flux Model in Rod Bundles for Low Flow and Low Pressure Conditions," Proceedings of 16th International Topical Meeting on Nuclear Reactor Thermalhydraulics, August 30-September 4, Chicago, IL, USA.

185. L. M. Pan, H. He, Y. Wu, P. Ju, T. Hibiki, and M. Ishii, "The Influences of Gas-Liquid Interfacial Properties on Interfacial Shear for Vertical Annular Flow," Proceedings of 16th International Topical Meeting on Nuclear Reactor Thermalhydraulics, August 30-September 4, Chicago, IL, USA.

186. J. P. Schlegel, T. Hibiki, X. Z. Shen, S. Appathurai, and H. Subramani, "Evaluation of Interfacial Area Transport Equation in Coupled Two-Fluid Model Computation,"

Proceedings of 16th International Topical Meeting on Nuclear Reactor Thermalhydraulics, August 30-September 4, Chicago, IL, USA.

187. S. Miwa, Y. Liu, T. Hibiki, M. Mori, "Investigation of Gas-Liquid Two-Phase Flow Induced Vibration Characteristics," 2016 International Conference on Multiphase Flow, Firenze, Italy, May 22-27, 2016.

188. X. Shen, J. P. Schlegel, T. Hibiki, H. Nakamura, "Multi-Dimensional Gas-Liquid Two-Phase Flow in Vertical Large-Diameter Channels," Proceedings of Japan-U.S. Seminar on Two-Phase Flow Dynamics 2017, Hokkaido, Sapporo, June 22-24, 2017.

189. H, Liu, Q. Ren, L. Pan, L., T. Hibiki, W Zhou, T. Ye, Experimental Study of Flow Regime Map in 5 × 5 Rod Bundle, Proc. 25th International Conference on Nuclear Engineering, ICONE25-67307 (2017).

190. H. Liu, L. Pan, Q. Ren, T. Hibiki, W. Zhou, S. Li, Some Characteristics of Interfacial Area Transport for Air-Water Two-Phase Flow in 5×5 Rod Bundles, Proc. 17th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Xi'an, Shaanxi, China, Sep. 3-8, 2017.

191. X. Shen, H. Sun, B. Deng, T. Hibiki, H. Nakamura, Axial Flow Characteristics of Bubbly Flow in a Vertical Large-Diameter Square Duct, Proc. 17th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Xi'an, Shaanxi, China, Sep. 3-8, 2017.

192. T. Ihara, S. Andayi, T. Hazuku, T. Takamasa, T. Hibiki, Experimental Study of Two-Phase Flow Structure and Drag Reduction in Horizontal Rectangular Channel, Proceedings of 11th International Symposium on Marine Engineering (ISME2017 Tokyo), B06-201.

193. Sakai, M., Komuro, Y., Kodama, A., Enya, A., Kondo, Y., Tanimoto, K., Hibiki, T., Development of Numerical Simulation Method for Two-Phase Flow in Heat Exchanger, Proceedings of 10th International Conference on Multiphase Flow, ICMF2019, Rio de Janeiro, Brazil, May 19-24, 2019.

194. Komuro, Y., Kodama, A., Cheng, L., Kondo, Y., Azuma, S., Morita, H., Tanimoto, K., Kawakami, R., Nariai, T., Nishikawa, Y., Hibiki, T., Development of Thermal Hydraulic Simulation Method for Two-Phase Flow in Steam Generators, Proceedings of 18th

International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Portland, OR, August 18-22, 2019.

195. Nariai, T., Shimamura, K., Kawakami, R., Komuro, Y., Uchimichi, N., Kondo, Y., Hibiki, T., "Development of Simulation Method for Boiling Two-Phase Flow in the Secondary Side of Steam Generators," 2020 International Congress on Advances in Nuclear Power Plants (ICAPP-2020), AbuDhabi – UAE, Khalifa University, March 15-19, 2020.

196. Komuro, Y., Kodama, A., Kondo, Y., Tanimoto, K., Hibiki, T., "Development of Simulation Method for Two-Phase Flow in Large Diameter Pipes with 90-Degree Elbows, Proceedings of the 2020 28th International Conference on Nuclear Engineering (ICONE-28) August 2-6, 2020, Anaheim, CA, USA.

197. Han, X., Shen, X., Yamamoto, T., Nakajima, K., Hibiki, T., Evaluation and Development of Void Fraction Prediction Correlation for Vertical Upward Two-Phase Flow in Rod Bundle, Proceedings of Twelfth Japan-Korea Symposium on Nuclear Thermal Hydraulics and Safety, Yokohama, Japan, March 29-31,2021, Paper Number N12P1067.