

Short Bio and Activities of Dr. Hibiki

(a) Professional Preparation

Graduate Institution: Osaka University, Japan, Major: Chemical Engineering

Degree & Year: B. S. with Highest Distinction (1985), M. S. (1987) and Ph. D. (1990)

(b) Appointments

2018-Present	Professor Emeritus, School of Nuclear Engineering, Purdue University
2015-2017	Associate Head, School of Nuclear Engineering, Purdue University
2015	Acting Head, School of Nuclear Engineering, Purdue University
2013-2015	Associate Head, School of Nuclear Engineering, Purdue University
2006-2018	Professor, School of Nuclear Engineering, Purdue University
1997-2006	Associate Professor, Research Reactor Institute, Kyoto University, Japan
1990-1997	Instructor (corresponding to Assistant Professor in the US), Research Reactor Institute, Kyoto University, Japan

(c) Impact of the research on society, industry and the disciplines of engineering

1. Develop international-standard methodology of high-frame-rate neutron radiography to measure two-phase flow.
2. Publish international-standard textbook in two-phase flow dynamics by Springer (No. of Citations: 1950 as of June 3, 2021).
3. Publish innovative papers in two-phase flow.
 - a. The citation ranking of his paper published in 1996 (IJMF, vol.22 (1996) pp. 703-712) is No.1 of International Journal of Multiphase Flow since first issue published in 1976.
 - b. The citation ranking of his paper published in 1993 (IJMF, vol.19 (1993) pp. 115-124) is No.77 of International Journal of Multiphase Flow since first issue published in 1976.
 - c. The citation ranking of his paper published in 2000 (NED, vol.202 (2000) pp. 39-76) is No.53 of Nuclear Engineering and Design since first issue published in 1966.
 - d. The citation ranking of his paper published in 1998 (NED, vol.184 (1998) pp. 287-304) is No.79 of Nuclear Engineering and Design since the first issue published in 1966.
 - e. The citation ranking of his paper published in 1994 (NIM, vol. A351 (1994) pp. 423-436) is No.58 of all papers with the title including "Neutron Radiography".
 - f. Several other papers authored by Dr. Hibiki are also highly cited papers and most downloaded papers in several journals.
4. Develop more than 100 important constitutive equations and two-phase flow formulation to close two-phase flow equation systems
5. Develop internationally-recognized interfacial area transport equation which has been implemented in ANSYS Fluent CFD code.
6. Develop extensive two-phase flow databases including microgravity data.

(d) National and international awards, including be elected as fellow

1. 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
2. 2021 Elected Fellow, The Japan Society of Mechanical Engineers
3. 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
4. 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
5. 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
6. 2018 Preeminent Monograph Award, Japanese Society for Multiphase Flow for fundamental research of gas-liquid two-phase flow in large diameter channels

7. 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, Atomic Energy Society of Japan (Highest Honor in Atomic Energy Society of Japan)
8. 2015 JSME Best Paper Award for study of unsteady gas-liquid two-phase flow induced force fluctuation
9. 2015 Elected Osaka University Global Alumni Fellow, Osaka University, Japan
10. 2011 Elected American Nuclear Society Fellow
11. 2011 Distinguished Service Award, Heat Transfer Society of Japan
12. 2010 Preeminent Monograph Award, Japanese Society for Multiphase Flow for measurement and modeling of two-phase flow at microgravity conditions
13. 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
14. 2005 Research & Development Award, Japanese Society for Multiphase Flow for development of advanced neutron radiography technique
15. 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
16. 2001 Preeminent Monograph Award, Japanese Society for Multiphase Flow for development of interfacial area transport equation in bubbly flow systems
17. 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
18. 1995 Promising Endeavor Award, Atomic Energy Society of Japan for visualization and measurement of thermal and fluid phenomena using neutrons as microscopic probes

(e) National and international recognition (e.g., invited talks, editorships, etc.)

84 invited seminars and colloquium, 24 invited publications in journals, 8 invited presentations, 4 editorial board members of journals, American Nuclear Society, Thermal-Hydraulic Division, Executive Committee member

(f) Interdisciplinary activities

Scientific papers published in various journals in the fields of Nuclear Engineering, Mechanical Engineering, Chemical Engineering, Aeronautics and Astronautics Engineering, Civil Engineering, Marine Engineering and Physics.

(g) Research output (e.g., publications, citation records, patents, published design work) and their quality and innovation

Journal publications: 274 (as of June 3, 2021)

Conference papers: 197 (as of June 3, 2021)

Patent: 1 (Wettability improvement using irradiation, Japan, P4320412).

Citations: 12,422 (From Google Scholar as of June 3, 2021) No.7 of citation ranking in the category of Nuclear Engineering

H-index: 48, i10-index: 187 (From Google Scholar as of June 8, 2021)

(h) Research input (e.g., level of success in generating resources, partnerships, collaborations)

Selected Partnerships

1. Associate Director of USNRC Institute of Thermal-Hydraulics established at School of Nuclear Engineering, Purdue University, 2012-2013
2. Associate Director of Mitsubishi Center of Thermal-Hydraulics established at College of Engineering, Purdue University, 2009-2016
3. Guest Professor of Osaka University in Japan since 2006
4. Adjunct Professor of RMIT University in Australia since 2008
5. Guest Professor of Xi'an Jiaotong University in China since 2017
6. Guest Professor of Kyoto University in Japan since 2019
7. Distinguished Professor of Chulalongkorn University in Thailand since 2019

8. Adjunct Professor of Pusan National University in South Korea since 2019

Selected International Collaborations

Delft University of Technology, The Netherlands; University of Jaume I, Spain; RMIT University, Australia; Queensland University of Technology, Australia; University of Saskatchewan, Canada; Chulalongkorn University, Thailand; National Tsing Hua University, Taiwan; Korea Atomic Energy Research Institute, South Korea; Seoul National University, South Korea; High Energy Accelerator Research Organization, Japan; Japan Atomic Energy Research Institute, Japan; Tokyo University of Marine Science and Technology, Japan; University of Tokyo, Japan; Kyoto University, Japan; Hokkaido University, Japan; Mitsubishi Heavy Industries, Ltd., Japan; Tokyo Electric Power Company, Japan.

Selected Funding Sources

US Nuclear Regulatory Commission, US Department of Energy, Bechtel Bettis, Chevron Energy Technology, Mitsubishi Heavy Industries, Tokyo Electric Power Company, Institute of Nuclear Safety Systems

(i) Selected Teaching and Student Advising Activities

1. Recipient of 2017 Outstanding Engineering Graduate Student Mentor Award, Nuclear Engineering Graduate Organization, School of Nuclear Engineering, Purdue University
2. Recipient of 2012 Best Teacher Award, School of Nuclear Engineering, Purdue University
3. Ten Ph. D. students completed since Dr. Hibiki joined Purdue in 2006; Five of them obtained faculty positions worldwide (University of Illinois at Urbana-Champaign, USA; Missouri University of Science and Technology, USA; Hokkaido University, Japan, National Tsing Hua University, Taiwan; Chulalongkorn University, Thailand).
4. Advisor of Nuclear Engineering Graduate Organization, 2011-2018

(j) Selected Service Activities

1. Acting Head of Nuclear Engineering at Purdue University, 2015
2. Associate Head of Nuclear Engineering at Purdue University, 2013-2017
3. Graduate Committee Chair of Nuclear Engineering at Purdue University, 2010-2017
4. Safety Committee Chair of Nuclear Engineering at Purdue University, 2007-2018
5. Award Committee Chair of Nuclear Engineering at Purdue University, 2011-2015
6. Faculty Search Committee Chair of Nuclear Engineering at Purdue University, 2015-2017
7. University Senate at Purdue University, 2006
8. Graduate Council Member at Purdue University, 2015-2018