

Hiroataka Sakaue, PhD
Associate Professor
Department of Aerospace and Mechanical Engineering
University of Notre Dame
106 Hessert Aerospace Laboratory,
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Citizenship: Japanese, US Permanent Resident
Gender: Male

Education

- Jan. 2000 – Dec. 2003 **Doctor of Philosophy, Aeronautics and Astronautics**
School of Aeronautics and Astronautics, Purdue University
West Lafayette, IN
Advisor: Prof. John P. Sullivan
- Aug. 1996 – Dec. 1999 **Master of Science, Engineering**
School of Aeronautics and Astronautics, Purdue University
West Lafayette, IN
Advisor: Prof. John P. Sullivan
- Apr. 1992 – Mar. 1996 **Bachelor of Science**
School of Bioscience and Biotechnology, Tokyo Institute of Technology
Tokyo, Japan

Research Interests based on Interdisciplinary Studies on Fluid Dynamics and Chemistry

- Thermo-Fluid System
- Unsteady Aerodynamics
- Flight and Flow Control (Chemical Flow Control)
- Environmental and Energy Engineering
- Advanced Flow Diagnostics by Molecular Sensors and Optics
- Wind Tunnel Testing (Low-Speed, Transonic-Speed, High-Speed, and High Reynolds-Number Flows)
- Two Phase Flows
- Compressible and Incompressible Flows
- Heat Transfer in Hypersonic Flow
- Shock Physics
- Fluid-Thermal-Structure Interactions
- Medical and Biological Applications

Professional Experience

Jan. 2015 – **Associate Professor, Department of Aerospace and Mechanical Engineering,**
University of Notre Dame
Indiana, USA

Affiliations:

- Institute for Flow Physics and Control (FlowPAC)
 - Notre Dame's Center for Nano Science and Technology (NDnano)
 - Advanced Diagnostics and Therapeutics (ADT)
 - Center for Sustainable Energy at Notre Dame (ND Energy)
- Research and development on luminescent imaging methods using pressure- and temperature-sensitive paints for unsteady flow fields

Professional Experience (*continued*)

- Research and development on chemical flow control using functional molecules
 - Research and development on chemical coatings for anti-icing and de-icing applications
- Sep. 2003 – Dec. 2014 **Researcher, Institute of Aeronautical Technology, Japan Aerospace Exploration Agency (JAXA)**
Tokyo, Japan
- Research and development on luminescent imaging methods using pressure- and temperature-sensitive paints for unsteady flow fields
 - Research and development on chemical flow control using functional molecules
 - Research and development on chemical coatings for anti-icing and de-icing applications
 - Organizing the molecular-imaging related interdisciplinary symposium
- Sep. 2007 **Visiting Scholar, School of Mechanical, Aerospace, and Civil Engineering**
The University of Manchester
Manchester, UK
- Research on unsteady lifetime imaging system
- Jul. 2000 – Oct. 2000 **Visiting Researcher, Institute of Aerodynamics and Flow Technology**
German Aerospace Center (DLR)
Göttingen, Germany
- Development of fast responding PSP
- Jan. 2000 – Aug. 2003 **Ph.D. Graduate Research Assistant, School of Aeronautics and Astronautics**
Purdue University
West Lafayette, IN
- Development and application of fast responding PSP in unsteady aerodynamic fields
 - Development of luminescence based hydrogen sensor
- Mar. 1997 **Visiting Researcher, Fluid Science Research Center**
National Aerospace Laboratory (NAL) – JAXA at present
Tokyo, Japan
- Development and application of anodized aluminum PSP in cryogenic wind tunnel measurements
- Jan. 1997 – Dec. 1999 **MS Graduate Research Assistant, School of Aeronautics and Astronautics**
Purdue University
West Lafayette, IN
- Development and application of porous PSP in cryogenic wind tunnel measurements

Teaching Experience

Teaching Courses

Introduction to Aeronautics (AME20211)

- University of Notre Dame
Fall Semester 2016

Advanced Aerodynamics (AME60639)

- University of Notre Dame
Spring Semester 2017
Spring Semester 2016
Spring Semester 2015

Teaching Experience (*continued*)

Supervisor at University of Notre Dame

PhD candidate: 4 major supervisions and 7 co-supervisions

- Mr. Wesley Patterson
Jun. 2016 – present
- Mr. Tatsunori Hayashi
Jan. 2016 – present
- Mr. Steven Claucherty
Jul. 2015 – present
- Mr. Mitsugu Hasegawa
Jan. 2015 – present
- Mr. Jacob Morrida
Co-supervising student, Oct. 2016 – present
Advisor: Prof. Stanislav Gordeyev, University of Notre Dame
- Mr. Brian Hilbert
Co-supervising student, Feb. 2015 – present
Advisor: Prof. Scott Morris, University of Notre Dame
- Mr. Carson L. Running
Co-supervising student, Jun. 2015 – present
Advisor: Prof. Thomas Juliano, University of Notre Dame
- Dr. Jesse Coffman
Co-supervising student, Jun. 2016
Advisor: Prof. Scott Morris, University of Notre Dame
- Dr. Michael Johnson
Co-supervising student, Mar. 2016 – Apr. 2016
Advisor: Prof. David Go, University of Notre Dame
- Dr. Christopher Kleven
Co-supervising student, Jan. 2015 – Apr. 2016
Advisor: Prof. Thomas Corke, University of Notre Dame
- Dr. John Dantonio
Co-supervising student, Jul. 2015
Advisor: Prof. Scott Morris, University of Notre Dame

Visiting Scholar and Student: 2 graduate students and 2 visiting scholars

- Mr. Mio Tanaka
Tokyo University of Science, Oct. 2015 – Dec. 2015
- Miss. Miki Shimura
Tokyo University of Science, Oct. 2015 – Dec. 2015
- Mr. Tatsunori Hayashi
Feb. 2015 – Dec. 2015
- Mr. Kazunobu Kobayashi
Osaka Gas, Jan. 2015 – Nov. 2015

Undergraduate Student: 8 students

- Mr. Joseph Gonzales under **research credit**
Jan 2017 – present
- Mr. Ryan Dixon under **research credit**
Jan 2017 – present
- Mr. Kevin Warten under **undergraduate part-time research assistant**
Aug 2016 – present
- Mr. Hengfei Wang under **iSURE (International Summer Undergraduate Research Experience) program, Notre Dame**
Tsinghua University, Jul. 2016 – Aug. 2016

Teaching Experience (*continued*)

- Miss. Kamolthita Ruengthong under **iSURE (International Summer Undergraduate Research Experience) program, Notre Dame**
Chulalongkorn University, Jun. 2016 – Jul. 2016
- Mr. Arnau Rodríguez under **NURF Fellowship, NDnano Notre Dame**
Universitat Rovira i Virgili, Jun. 2016 – Aug. 2016
- Mr. Senay A. Tilahun under **undergraduate part-time research assistant**
Feb 2016 – present
- Mr. Daiki Kurihara under **NURF Fellowship, NDnano Notre Dame**
Tokyo University of Science, May 2015 – Jul. 2015

Undergraduate Mentor at University of Notre Dame

- Ms. Diana Linares Mendes under **Building Bridges Program**
Aug 2016 – present (class of 2020)
- Mr. Matthew Hennessy
Apr 2016 – present (class of 2019)
- Mr. Abraham Roman Hernandez
Apr 2016 – present (class of 2019)
- Mr. Calvin Huffer
Apr 2016 – present (class of 2019)
- Miss. Yuko Inoue
Apr 2016 – present (class of 2019)
- Mr. George Porter
Nov 2015 – present (class of 2018)
- Mr. Senay A. Tilahun
May 2015 – present (class of 2018)
- Miss. Megan Villandre
May 2015 – present (class of 2018)
- Mr. Dylan Volanth
May 2015 – present (class of 2018)
- Mr. Kevin Warten
May 2015 – present (class of 2018)
- Mr. Davis Whitson
May 2015 – present (class of 2018)
- Miss. Liliquoy Wick
May 2015 – present (class of 2018)
- Mr. Andres Zamora
May 2015 – present (class of 2018)
- Mr. Alberto Patino
Nov 2015 – Nov 2016 (class of 2017)
- Miss. Vanessa Villafana
Nov 2015 – Nov 2016 (class of 2017)
- Mr. Jonathan Duarte
Nov 2015 – Apr 2016 (class of 2017)

Supervisor for Degree-Seeking Student ^{*1} at JAXA

During his career in JAXA, Hirotaka accepted and supervised fifty-four students as degree-seeking or internship students with a broad spectrum in country, gender, and academic field. He supervised three PhD students, nineteen master students, and twenty-four bachelor students to complete their degrees. The academic field includes Mechanical Engineering, Aerospace Engineering, Environmental Engineering, Advanced Energy, Ocean Engineering, Applied Chemistry, Biology, Electrical Engineering, Systems Engineering, Physics, Chemistry, Astronomy, Information Technology, Civil Engineering, Manufacturing, Law, and Asia Pacific Studies.

***1** Degree-seeking student comes JAXA year basis to complete his/her bachelor degree, master degree, or PhD degree. They have their supervisors at school to finish their degrees.

Teaching Experience (*continued*)

PhD Student: completed 2 dissertations

- Dr. Katsuaki Morita
Department of Human and Engineered Environmental Studies, The University of Tokyo
Apr. 2010 – Mar. 2013
Advisor: Prof. Koji Okamoto, The University of Tokyo
PhD Dissertation: Study of Static- and Dynamic-Icing Phenomenon of Supercooled-Water Droplet on Anti-Icing Coating using Functional Molecules
- Dr. Tsuyoshi Hyakutake
Department of Applied Chemistry, Waseda University
Apr. 2005 – Mar. 2008
Advisor: Prof. Hiroyuki Nishide, Waseda University
PhD Dissertation: Luminescent sensory polymers and their application to the coatings for oxygen- and temperature- Visualization
- Mr. Masato Ishii
Second Department of Forensic Science, National Research Institute of Police Science
Apr. 2013 – present
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications

Master (MS) Student: completed 19 MS theses

- Mr. Yuki Yamada
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2013 – Mar. 2015
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
MS Thesis: Development of Differential Pressure-Sensitive Paint Measurement System for Aerodynamic Applications
- Mr. Mio Tanaka
Department of Mechanical Engineering, Kanagawa Institute of Technology
Apr. 2013 – Mar. 2015
Advisor: Prof. Shigeo Kimura, Kanagawa Institute of Technology
MS Thesis: Development of Dual-Luminescent Imaging Technique for Supercooled Water Icing
- Miss. Haruka Endo
Department of Mechanical Engineering, Kanagawa Institute of Technology
Apr. 2013 – Mar. 2015
Advisor: Prof. Shigeo Kimura, Kanagawa Institute of Technology
MS Thesis: Study of Supercooled Water Droplet Removal from Super-Hydrophobic Surface
- Mr. Mitsugu Hasegawa
Department of Mechanical Engineering, Kanagawa Institute of Technology
Apr. 2013 – Dec. 2014
Advisor: Prof. Shigeo Kimura, Kanagawa Institute of Technology
MS Thesis: Study of Water-Droplet Behavior on Super-Hydrophobic Surface under Wind Tunnel Conditions
- Mr. Hiroyuki Kodama
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2012 – Mar. 2014
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
MS Thesis: Development of Super-Hydrophobic Spray-able Pressure-Sensitive Paint for Unsteady Aerodynamic Applications

Teaching Experience (*continued*)

- Mr. Taku Tani
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2012 – Mar. 2014
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
MS Thesis: Step- and Frequency-Response Characterizations of Pressure-Sensitive Paint
- Mr. Akihisa Aikawa*²
Department of Marine Systems Engineering, Kyushu University
Apr. 2011 – Mar. 2013
Advisor: Prof. Jun Ando, Kyushu University
MS Thesis: Development of Luminescence Imaging for Surface Measurement of the Pressure Distribution caused by Cavitation
- Mr. Taika Okabe*²
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2011 – Mar. 2013
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
MS Thesis: Development of Temperature-Cancelled Motion-Capturing PSP Method Flow Measurement Application
- Mr. Hiroki Nakamoto
Department of Advanced Energy, The University of Tokyo
Apr. 2011 – Mar. 2013
Advisor: Prof. Kojiro Suzuki, The University of Tokyo
MS Thesis: Experimental Investigation of Heat Transfer of a Hypersonic Transport with a Circular Cavity using Temperature-Sensitive Paint
- Mr. Tatsunori Hayashi
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2011 – Mar. 2013
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
MS Thesis: Frequency Response Characterization of Pressure-Sensitive Paint Using Hartmann Oscillator
- Mr. Keita Shiine
Department of Advanced Energy, The University of Tokyo
Apr. 2010 – Mar. 2012
Advisor: Prof. Kojiro Suzuki, The University of Tokyo
MS Thesis: Aero-Thermo Dynamic Studies of Re-Entry Capsule
- Mr. Kensuke Miyamoto*²
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2009 – Mar. 2011
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
MS Thesis: Development of Motion-Capturing Pressure-Sensitive Paint System and its Application to Unsteady Flow
- Mr. Tatsuya Ozaki
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2009 – Mar. 2011
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
MS Thesis: Response Time Characterization of Fast Responding Pressure-Sensitive Paint

*² Degree-seeking student graduated with honors from his/her department. There are three honored students since Hirotaka received degree-seeking students.

Teaching Experience (*continued*)

- Mr. Takuma Kuriki
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2007 – Mar. 2009
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
MS Thesis: Development of Temperature-Cancelled Fast-Responding Pressure-Sensitive Coating for Unsteady Aerodynamic Applications
- Mr. Junji Kato
Department of Applied Chemistry, Waseda University
Apr. 2007 – Mar. 2009
Advisor: Prof. Hiroyuki Nishide, Waseda University
MS Thesis: Platinum- porpholactone and -porphyrin polymer coating for simultaneous sensing of oxygen distribution
- Mr. Hiroyuki Taguchi
Department of Applied Chemistry, Waseda University
Apr. 2006 – Mar. 2008
Advisor: Prof. Hiroyuki Nishide, Waseda University
MS Thesis: Luminescent polymer coating for dual sensing of oxygen and temperature
- Mr. Takaho Kawakami
Department of Mechanical Systems Engineering, Tokyo University of Agriculture and Technology
Apr. 2005 – Mar. 2007
Advisor: Prof. Masaharu Kameda, Tokyo University of Agriculture and Technology
MS Thesis: Pressure and Shear-Stress Measurements by the Optical Sensor film
- Mr. Tsuyoshi Hyakutake
Department of Applied Chemistry, Waseda University
Sep. 2003 – Mar. 2005
Advisor: Prof. Hiroyuki Nishide, Waseda University
MS Thesis: Porphyrin polymer coatings for oxygen sensor
- Mr. Takatoshi Tabei
Department of Mechanical Systems Engineering, Tokyo University of Agriculture and Technology
Sep. 2003 – Mar. 2005
Advisor: Prof. Masaharu Kameda, Tokyo University of Agriculture and Technology
MS Thesis: Development of hydrophobic anodized aluminum pressure-sensitive paint and its application to unsteady flow measurement

Undergraduate Student: completed 24 BS theses

- Mr. Daiki Kurihara
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2014 – Mar. 2015
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: Application of Motion-Capturing Pressure-Sensitive Paint Method to Rotating Machinery
- Mr. Naoki Kikuchi
Department of Mechanical Engineering, Kanagawa Institute of Technology
Apr. 2014 – Mar. 2015
Advisor: Prof. Shigeo Kimura, Kanagawa Institute of Technology
BS Thesis: Study of Luminescent Outputs in Dual-Luminescent Imaging
- Mr. Makoto Iino
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2013 – Mar. 2014
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: Development of Bakelite based Sensor for Global Heat Transfer Measurement

Teaching Experience (*continued*)

- Mr. Hideki Goya
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2013 – Mar. 2014
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
BS Thesis: Dual-Luminescence Imaging for Characterizing Gas-Liquid Phase Flow
- Miss. Hiroko Saeki
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2012 – Mar. 2013
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: System Development of the Quantum Efficiency of the Pressure-Sensitive Paint using an Integrating Sphere
- Mr. Yuki Yamada
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2012 – Mar. 2013
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
BS Thesis: Pressure and Temperature Measurements using Motion-Capturing PSP Method
- Mr. Mio Tanaka
Department of Mechanical Engineering, Kanagawa Institute of Technology
Apr. 2012 – Mar. 2013
Advisor: Prof. Shigeo Kimura, Kanagawa Institute of Technology
BS Thesis: Development of Dual-Luminescent Imaging Technique
- Mr. Hiroyuki Kodama
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2011 – Mar. 2012
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: Development of Super-hydrophobic, Sprayable Pressure-Sensitive Paint
- Mr. Taku Tani
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2011 – Mar. 2012
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: Global Pressure Measurement within the Order of Hundred Microseconds using Fast Responding Pressure-Sensitive Paint
- Mr. Tatsuya Kizuka
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2011 – Mar. 2012
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
BS Thesis: Simultaneous Image-Acquisition System for Motion-Capturing PSP Method
- Mr. Akihisa Aikawa
Department of Mechanical Engineering, Sophia University
Apr. 2010 – Mar. 2011
Advisor: Prof. Hiroshi Suemasu, Sophia University
BS Thesis: Development of quantum dot based anodized-aluminum temperature-sensitive paint and its application to the hypersonic flow

Teaching Experience (*continued*)

- Mr. Taika Okabe
Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
Apr. 2010 – Mar. 2011
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
BS Thesis: Temperature-Cancelled Motion-Capturing PSP Method and its Application to Hypersonic Flow
- Mr. Tatsunori Hayashi
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2010 – Mar. 2011
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: Development of Sprayable Pressure-Sensitive Paint for Aerodynamic Applications
- Miss. Risako Dan
The Collage of Liberal Arts, International Christian University
Apr. 2010 – Mar. 2011
Advisor: Prof. Haruko Kazama, International Christian University
BS Thesis: Study of the Relationship Between Anthocyanin and *in vivo* pH Using pH-sensitive Fluorescent Indicator
- Mr. Akihito Aoki
Department of Mechanical Engineering, Kogakuin University
Apr. 2010 – Mar. 2011
Advisor: Prof. Akihisa Konno, Kogakuin University
BS Thesis: Development of Chemical Coating for Ice-Protection
- Mr. Takuma Kakisako
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2009 – Mar. 2010
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: Development of Sprayable Pressure-Sensitive Coating and its Application to Unsteady Flow Field
- Miss. Yuka Kimura
Department of Systems Engineering, The University of Electro-Communications
Apr. 2009 – Mar. 2010
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
BS Thesis: Development of Non-Intrusive Optical Temperature Sensor
- Miss. Megumi Shimizu
The Collage of Liberal Arts, International Christian University
Apr. 2009 – Mar. 2010
Advisor: Prof. Haruko Kazama, International Christian University
BS Thesis: Revealing the *in vivo* Antioxidant Function of Anthocyanin in the Plant Epidermis using a Ratio Imaging Method with a pH-sensitive Fluorescent Indicator
- Mr. Kensuke Miyamoto^{*2}
Department of Communication Engineering and Informatics, The University of Electro-Communications
Apr. 2008 – Mar. 2009
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
BS Thesis: Development of Simultaneous Image Acquisition System using Two-Color based Pressure-Sensitive Paint and its Application to Unsteady Flow

Teaching Experience (*continued*)

- Mr. Natsuki Mukoshimizu
Department of Communication Engineering and Informatics, The University of Electro-Communications
Apr. 2008 – Mar. 2009
Advisor: Prof. Takeshi Miyazaki, The University of Electro-Communications
BS Thesis: Characterizations of Velocity Profiles around Hydrophobic- and Hydrophilic Surfaces
- Mr. Tatsuya Ozaki
Department of Mechanical Engineering, Tokyo University of Science
Apr. 2008 – Mar. 2009
Advisor: Prof. Hitoshi Ishikawa, Tokyo University of Science
BS Thesis: Global Visualization and Oxygen Sensing in Water using Anodized Aluminum Pressure Sensitive Paint
- Mr. Junji Kato
Department of Applied Chemistry Waseda University
Apr. 2006 – Mar. 2007
Advisor: Prof. Hiroyuki Nishide, Waseda University
BS Thesis: Platinum -porphyrin and -phthalocyanine polymer coating for the visualization of oxygen concentration
- Mr. Tetsuya Takezawa
Department of Mechanical Systems Engineering, Tokyo University of Agriculture and Technology
Apr. 2005 – Mar. 2006
Advisor: Prof. Masaharu Kameda, Tokyo University of Agriculture and Technology
BS Thesis: Accuracy Improvement of Anodized Aluminum – Pressure Sensitive Paint
- Mr. Hiroyuki Taguchi
Department of Applied Chemistry, Waseda University
Apr. 2005 – Mar. 2006
Advisor: Prof. Hiroyuki Nishide, Waseda University
BS Thesis: Sensor coating composed of poly(pyridylpropyne-co-trimethylsilyl propyne) and porphyrin complexes and their oxygen quenching performance

Supervisor for Internship Student ^{*3} at JAXA

Graduate Student: 1 PhD and 18 master (MS) students

- Mr. Kinya Miyagi (Aug. 11 – Sep. 26, 2014), Department of Mechanical and Control Engineering, Kyushu Institute of Technology
- Mr. Takaya Ukai (Aug. 4 – Sep. 30, 2014), Faculty of Pharmaceutical Sciences, The University of Tokyo
- Mr. Yuki Hirata (Aug. 4 – Sep. 30, 2014), Department of Mechanical Engineering, The University of Tokyo
- Mr. Hiromu Sasaki (Aug. 4 – Sep. 26, 2014), Department of Applied Chemistry, Tokyo University of Agriculture and Technology
- Mr. Toma Kawabuchi (Sep. 2 – Sep. 13, 2013), Department of Mechanical Engineering and Science, Kyoto University
- Miss. Chihiro Kadochiku (Aug. 19 – Sep. 6, 2013), Department of Chemistry, Hiroshima University
- Mr. Atsushi Suzuki (Aug. 8 – Sep. 13, 2013), Department of Applied Physics, Tokyo University of Agriculture and Technology
- Miss. Kimie Sakamoto (Aug. 5 – Sep. 13, 2013), Department of Chemistry for Materials, Mie University

^{*3} Internship student comes to JAXA between class works at his/her school from week to year basis. Students from a broad spectrum joined Hiroataka's internship activities: nationality, gender, and academic fields.

Teaching Experience (continued)

- Mr. Hiroshi Kudo (Aug. 6 – Nov. 2, 2012), Department of Electronics and Electrical Engineering, Keio University
- Mr. Takayuki Hagiwara (Aug. 6 – Aug. 31, 2012), Department of Mechanical Systems Engineering, Gunma University
- Mr. Kenji Kobayashi (Aug. 3 – Aug. 31, 2012), Department of Chemical Engineering, Tokyo Institute of Technology
- Miss. Alessondra Springmann (Jul. 29 – Sep. 13, 2011), Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology
- Mr. Yusaku Fujii (Aug. 2 – Aug. 27, 2010), Department of Applied Chemistry, The University of Tokyo
- Mr. Kei Ato (Aug. 10 – Aug. 28, 2009), Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
- Miss. Momoko Hatakeyama (Sep. 26 – Mar. 31, 2008), Department of Modern Mechanical Engineering, Waseda University
- Miss. Yoshimi Sato (Aug. 6 – Mar. 31, 2007), Department of Human Communication, The University of Electro-Communications
- Mr. Masato Ito (Aug. 6 – Mar. 31, 2007), Graduate School of Information Systems, The University of Electro-Communications
- Mr. Takao Kobayashi (Aug. 27 – Sep. 7, 2007), Department of Applied Mechanics and Aerospace Engineering, Waseda University
- Mr. Yusuke Muramatsu (Aug. 20 – Sep. 7, 2007), Computer Science and Engineering, Waseda University

Undergraduate Student: 27 students

- Miss. Yoshino Tatemoto (Aug. 25 – Sep. 18, 2014), Department of Mechanical and Energy Systems Engineering, Oita University
- Miss. Shiori Uda (Aug. 12 – Sep. 19, 2014), School of Fundamental Science and Engineering, Waseda University
- Miss. Shizuka Kodama (Aug. 6 – Aug. 19, 2014), Department of Environmental and Energy Chemistry, Kogakuin University
- Mr. Koki Ochiai (Aug. 4 – Sep. 29, 2014), Department of Physics, Chuo University
- Miss. Kyoko Ishino (Aug. 4 – Sep. 17, 2014), Faculty of Environment and Information Studies, Keio University
- Mr. Shunichiro Ide (Sep. 2 – Sep. 13, 2013), Department of Physics, Osaka University
- Mr. Yasuo Mitsuyoshi (Aug. 12 – Aug. 23, 2013), Undergraduate School of Global Engineering, Kyoto University
- Mr. Riku Takano (Aug. 5 – Sep. 13, 2013), Department of Physics, The University of Tokyo
- Mr. Shun Ito (Jul. 30 – Sep. 13, 2013), Department of Biosciences and Informatics, Keio University
- Miss. Erika Takahashi (Aug. 13 – Nov. 2, 2012), Department of Chemical Engineering, Tokyo University of Agriculture and Technology
- Miss. Junka Iwamoto (Aug. 17 – Aug. 27, 2011), Collage of Literature, Aoyama Gakuin University
- Mrs. Ayumi Hirai (Apr. 26 – May 17, 2011), Department of Mechanical Engineering, Tokyo University of Science
- Mr. Yasunaga Chiba (Aug. 2 – Sep. 30, 2010), Department of Information and Communication Engineering, The University of Electro-Communications
- Mr. Singo Yoshida (Aug. 2 – Sep. 30, 2010), Department of Information and Communication Engineering, The University of Electro-Communications
- Mr. Narihito Iio (Aug. 2 – Sep. 21, 2010), Department of Applied Chemistry, Keio University
- Miss. Nanako Hebikuchi (Aug. 2 – Aug. 31, 2010), Department of Chemistry, Tokai University
- Mr. Akihito Aoki (Aug. 4 – Mar. 31, 2009), Department of Mechanical Engineering, Kogakuin University
- Mr. Akihisa Aikawa (Aug. 3 – Mar. 31, 2009), Department of Mechanical Engineering, Sophia University

Teaching Experience (*continued*)

- Miss. Yuka Kimura (Aug. 25 – Mar. 31, 2008), Department of Systems Engineering, The University of Electro-Communications
- Miss. Keiko Ishii (Aug. 4 – Mar. 31, 2008), Department of Civil Engineering, Tokyo University of Science
- Mr. Akihisa Aikawa (Jul. 17 – Mar. 31, 2008), Department of Law, Sophia University
- Miss. Yurie Yamaguchi (Sep. 16 – Sep. 26, 2008), Department of Mechanical Engineering, Sophia University
- Mr. Taiki Ishiwari (Sep. 8 – Sep. 19, 2008), Department of Mechanical Engineering, Sophia University
- Miss. Yoriko Matsubayashi (Aug. 25 – Sep. 5, 2008), Collage of Asia Pacific Studies, Ritsumeikan Asia Pacific University
- Mr. Yuji Chiba (Oct. 11 – Mar. 31, 2007), Department of Mechanical Engineering, Waseda University
- Mr. Mineo Goto (Oct. 8 – Mar. 31, 2007), Department of Electrical Engineering and Bioscience, Waseda University
- Mr. Kensuke Miyamoto (Aug. 7 – Mar. 31, 2007), Department of Communication Engineering and Informatics, The University of Electro-Communications
- Mr. Natsuki Mukoshimizu (Aug. 6 – Mar. 31, 2007), Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications
- Mr. Yuto Yuasa (Aug. 13 – Aug. 31, 2007), Department of Mechanical and Aerospace Engineering, Nagoya University
- Mr. Nakaba Funaki (Aug. 1 – Aug. 9, 2007), Department of Electro-Mechanical Systems Engineering, Kagawa National Collage of Technology
- Mr. Kotaro Matsumoto (Jun. 12 – Aug. 4, 2006), Department of Manufacturing, Institute of Technologists
- Mr. Toru Yoshikawa (Jun. 12 – Aug. 4, 2006), Department of Manufacturing, Institute of Technologists
- Mr. Ryujiro Sakakibara (Jul. 4 – Sep 16, 2005), Department of Manufacturing, Institute of Technologists

Part-Time Lecturer

- Course Title: Interdisciplinary Study for Engineering Student
- | | |
|-----------|--|
| May 2014 | Course taught for undergraduate students (senior level)
Department of Mechanical Systems Engineering, Toyama Prefectural University
Toyama, Japan |
| Apr. 2012 | Course taught for undergraduate students (junior level)
Department of Mechanical Engineering, Kanagawa Institute of Technology
Kanagawa, Japan |
| Dec. 2011 | Course taught for graduate students
Department of Energy and Environmental Engineering, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University
Fukuoka, Japan |
| Apr. 2011 | Course taught for undergraduate students (senior level)
Department of Mechanical Systems Engineering, Toyama Prefectural University
Toyama, Japan |
| May 2010 | Course taught for undergraduate students (senior level)
Department of Mechanical Systems Engineering, Toyama Prefectural University
Toyama, Japan |
| Apr. 2009 | Course taught for undergraduate students (senior level)
Department of Mechanical Systems Engineering, Toyama Prefectural University
Toyama, Japan |

Teaching Experience (*continued*)

Oct. 2007 – Mar. 2010 **Part-Time Lecturer for Supervising Waseda Students in Fluid Dynamic Research
Faculty of Science and Engineering, Waseda University**
Tokyo, Japan

Instructor

- Course Title: The 2nd Pressure-Sensitive Paint Course

Jun. 2009 **German Aerospace Center (DLR)**
Göttingen, Germany

Skills

Chemistry-Laboratory Skills

- Molecular Sensor Development
- Anodization
- Optical Characterization using UV-Vis and IR Spectrometers, SEM and optical Microscopy
- Handling and Wasting Chemicals

Experimental Fluid-Dynamic Skills

- Pressure- and Temperature-Sensitive Paint
- Subsonic Wind Tunnel, Hypersonic Wind Tunnel, Shock Tube, and Water Tunnel Operations
- Flow Visualizations
- Schlieren
- Hot-wire
- Pitot Tube
- Particle Image Velocimetry

Computer Skills

- Matlab
- Labview

Languages

- English
- Japanese
- German (familiar, lived 3 and a half months in Germany)

Grants Received ^{*4}

1. Principal Investigator, Mitsubishi Heavy Industries, Inc., “Development of Two Color Pressure Sensitive Paint,” January 2017 to August 2017, (\$147,457).
2. Principal Investigator, Osaka Gas, “Drag Reduction Technology using Hairy Chemical Coating for Wind Turbines,” October 2016 to March 2017, (\$5,000).
3. Principal Investigator, Japan Aerospace Exploration Agency (JAXA), “ICE-WIPS – hybrid icephobic coating and electrothermal heating wing ice protection system,” September 2016 to March 2017, (\$110,293).
4. Principal Investigator, National Aeronautics and Space Administration (NASA), “NASA AS & STAR Fellowship,” September 2016 to August 2017, (\$55,000).
5. Principal Investigator, Ohio Aerospace Institute, “Engineered Surface, Materials and Coatings (ESMC) for Drag Reduction,” December 2016, (\$1,947).
6. Principal Investigator, Ohio Aerospace Institute, “Engineered Surface, Materials and Coatings (ESMC) for Drag Reduction,” April 2016 to December 2016, (\$106,454).

^{*4} Japanese research organizations do not cover students’ tuitions, stipends, and overhead costs if these organizations support research institutions in Japan. Hirotaka Sakaue received these type of grants during his career in JAXA (up to 2014). Grants awarded during this time is indicated as [Japan]. Japanese grants received were awarded without spending these; these were spent to the experimental equipment and consumptions, travelling and conferences.

Grants Received (continued)

7. Principal Investigator, Ohio Aerospace Institute, "ESMC by Hairy Chemical Coating for Drag Reduction of USAF Legacy Aircrafts," October 2015 to December 2016, (\$10,000).
8. Principal Investigator, Osaka Gas, "Development of Luminescent Imaging Technique and its Application for Gas-Element Diagnostics," June 2015 to March 2016, (\$17,000).
9. Principal Investigator [Japan], JAXA Grants for Symposium, "The 10th Interdisciplinary Forum on Molecular Imaging," Japan, April 2014 to March 2015, (\$7,350).
10. Principal Investigator [Japan], JAXA Grants for Symposium, "The 9th Interdisciplinary Forum on Molecular Imaging," Japan, June 2013 to March 2014, (\$7,350).
11. Principal Investigator [Japan], JAXA Grants in Exploratory Research, "Surface Pressure and Temperature Measurement for Ballistic Range using Luminescent Imaging," June 2013 to March 2015, (\$47,300).
12. Principal Investigator [Japan], Grant-in-Aid for Scientific Research C, "Differential Pressure-Measurement Method of Fast Responding Pressure-Sensitive Paint System," Research Project Number: 25420140, April 2013 to March 2016, (\$52,000).
13. Co-Investigator [Japan], Grant-in-Aid for Scientific Research C, "Development of a compact and versatile activity monitoring device for Mauna Kea summit workers," April 2013 to March 2016, (\$49,400).
14. Co-Investigator [Japan], Aeronautics and Air Transport Research 7th Framework Programme 2007 – 2013 (FP7-AAT-2012-RTD-JAPAN), "Japanese-European De-Icing Aircraft Collaborative Exploration (JEDI-ACE)" European Commission, November 2012 to April 2016, (\$400,000 (\$4,500,000 all the participants)).
15. Principal Investigator [Japan], JAXA Grants for Symposium, "The 8th Interdisciplinary Forum on Molecular Imaging," June 2012 to March 2013, (\$7,750).
16. Principal Investigator [Japan], JAXA Grants for Symposium, "The 7th Interdisciplinary Forum on Molecular Imaging," June 2011 to March 2012, (\$7,750).
17. Principal Investigator [Japan], JAXA Grants in Exploratory Research, "Development of Global Temperature Measurement System for Characterizing Super-Cool Water Droplets in Icing Conditions," June 2011 to March 2013, (\$50,100).
18. Principal Investigator [Japan], Grants-In-Aid for Young Scientists B, "Development of Temperature-Cancelled Pressure-Sensitive Paint System for Capturing Unsteady Motions," Research Project Number: 23760776, April 2011 to March 2013, (\$45,500).
19. Principal Investigator [Japan], JAXA Grants for Symposium, "The 6th Interdisciplinary Forum on Molecular Imaging," August 2010 to March 2011, (\$7,750).
20. Principal Investigator [Japan], JAXA Grants for Symposium, "The 5th Interdisciplinary Forum on Molecular Imaging," August 2009 to March 2010, (\$7,600).
21. Principal Investigator [Japan], Grants-In-Aid for Young Scientists B, "Development of Simultaneous Reference- and Signal-Image Acquisition System using Two-Color Unsteady Pressure-Sensitive Paint," Research Project Number: 21760660, April 2009 to March 2011, (\$45,500).
22. Principal Investigator [Japan], JAXA Grants in Exploratory Research, "Development of Unsteady Measurement System using Two-Color Luminescence," August 2008 to March 2010, (\$44,000).
23. Principal Investigator [Japan], JAXA Grants for Symposium, "The 4th Interdisciplinary Forum on Molecular Imaging," August 2008 to March 2009, (\$8,600).
24. Principal Investigator [Japan], JAXA Grants in Promotion of JAXA Patent, "Development of Differential Measurement System combined with Two-Color Pressure-Sensitive Paint," October 2007 to March 2008, (\$20,000).
25. Principal Investigator [Japan], Grants-In-Aid for Young Scientists B, "Development of Fast Responding Pressure-Sensitive Coating using Combination of Functional Molecules for Temperature Cancellation," Research Project Number: 19760574, April 2007 to March 2009, (\$35,900).
26. Principal Investigator [Japan], JAXA Grants for Symposium, "The 3rd Interdisciplinary Forum on Molecular Imaging," April 2007 to March 2008, (\$8,000).
27. Principal Investigator [Japan], JAXA Grants in Exploratory Research, "Research on Drag Reduction Method using Functional Molecules," April 2006 to March 2008, (\$140,000).
28. Co-Investigator [Japan], JAXA Grants in Promotion of JAXA Patent, "Development of Oxygen Leakage Sensor using Oxygen-Sensitive Coating," October 2006 to March 2007, (\$40,000).
29. Principal Investigator [Japan], JAXA Grants for Symposium, "The 2nd Interdisciplinary Forum on Molecular Imaging," April 2006 to March 2007, (\$6,000).

Grants Received (continued)

30. Co-Investigator [Japan], Grants-In-Aid for Scientific Research C, “Imaging Technology of Surface Pressure Distribution using Luminescent Coatings,” Research Project Number: 70262243, April 2005 to March 2007, (\$36,000).
31. Principal Investigator [Japan], Grants-In-Aid for Young Scientists B, “Cancellation of Temperature Dependency of Surface Pressure Coating using Combination of Functional Molecules,” Research Project Number: 17760641, April 2005 to March 2007, (\$34,000).
32. Principal Investigator [Japan], JAXA Grants for Symposium, “The 1st Interdisciplinary Forum on Molecular Imaging,” April 2005 to March 2006, (\$5,000).
33. Principal Investigator [Japan], JAXA Grants in Exploratory Research, “Development of Pressure-Sensitive Paint System for Unsteady- and Cryogenic-Applications,” April 2004 to March 2006, (\$147,000).

Fellowship and Award

1. Best Paper Award, *Annual Meeting of Visualization Society of Japan*, “Visualization of Water Droplet Temperature by using Dual-Luminescent Imaging,” Aizu, Japan, September 2013.
2. JAXA Executive Director Award, “Optical Instrumentation for Unsteady Flow Field Measurements”, December 2012.
3. The Daiwa Anglo-Japanese Foundation, “Grassroots Exchanges on the Lifetime-based Unsteady Imaging System as the Next Generation Pressure Measurement Tool,” September 2007, (\$2,000).
4. Paper Award, AIAA GTTC 2000, 1st place “Feasibility of Detecting Streamwise Vortices from Roughness Element using Temperature-Sensitive Paint in Mach 4 Ludwig Tube,” 2000.

Publications

Legends

Double underline: Hirotaka Sakaue

Single underline: supervised student

Dotted underline: university supervisor of degree-seeking student at JAXA

Journal Papers

1. Claucherty, S.L., Sakaue, H., “An optical-chemical sensor using rhodamine B on anodized-aluminum for surface temperature measurement from 150 to 500K,” *Sensors and Actuators B: Chemical*, Elsevier, DOI: 10.1016/j.snb.2016.09.053, 2016.
2. Sakaue, H., Morita, K., Kimura, S., “Dual-luminescence imaging for capturing time-resolved temperature distributions of two-phase flow,” DOI:10.1016/j.ijmultiphaseflow.2016.06.002, 2016.
3. Morita, K., Sakaue, H., “Characterization Method of Hydrophobic Anti-Icing Coatings,” *Review of Scientific Instruments*, American Institute of Physics, Vol. 86, No. 11, 115108, 2015.
4. Sakaue, H., “Motion-Capturing Pressure-Sensitive Paint Method and its Applications to Unsteady Fluid-Dynamic Measurements,” *Journal of the Visualization Society of Japan*, Visualization Society of Japan, Vol. 34 No. 132, pp. 22 – 27, 2014.
5. Gregory, J. W., Sakaue, H., Liu, T., Sullivan, J. P., “Fast Pressure-Sensitive Paints for Flow and Acoustic Diagnostics,” *Annual Reviews of Fluid Mechanics*, Annual Reviews, DOI: 10.1146/annurev-fluid-010313-141304, 2014.
6. Sakaue, H., Morita, K., Iijima, Y., Sakamura, Y., “Response Time Scales of Anodized-Aluminum Pressure-Sensitive Paints,” *Sensors and Actuators A: Physical*, Elsevier, Vol. 199, No. 1, pp. 74 – 79, 2013.
7. Sakaue, H., Hayashi, T., Ishikawa, H., “Luminophore Application Study of Polymer-Ceramic Pressure-Sensitive Paint,” *Sensors*, Molecular Diversity Preservation International, Vol. 13, No. 6, pp. 7053 – 7064, 2013.
8. Sakaue, H., Aikawa, A., “Thermal Stability Characterization for Practical Use of Quantum-Dot based Global Optical Sensor on Anodized-Aluminum,” *Sensors and Actuators B: Chemical*, Vol. 185, pp. 174 – 178, 2013.
9. Sakaue, H., Kodama, H., Morita, K., Ishikawa, H., “Super-Hydrophobic Porous Pressure-Sensitive Paint for Global Unsteady Flow Measurements,” *Sensors and Actuators B: Chemical*, Elsevier, Vol. 185, pp. 154 – 158, 2013.
10. Sakaue, H., Miyamoto, K., Miyazaki, T., “A motion-capturing method of pressure-sensitive paint system,” *Journal of Applied Physics*, American Institute of Physics, Vol. 113, No. 8, pp. 084901-084901-8, 2013.
11. Sakaue, H., Dan, R., Shimizu, M., Kazama, H., “*In vivo* pH Imaging System using Luminescent Indicator and Color Camera,” *Review of Scientific Instruments*, American Institute of Physics, Vol. 83, 076106, 2012.
12. Iijima, Y., Sakaue, H., “Platinum Porphyrin and Luminescent Polymer for Pressure- and Temperature-Sensing Probes,” *Sensors and Actuators A: Physical*, Elsevier, Vol. 184, pp. 128 – 133, 2012.

Publications (*continued*)

13. Sakaue, H., Kuriki, T., Miyazaki, T., “A temperature-cancellation method of pressure-sensitive paint on porous anodic aluminum,” *Journal of Luminescence*, Elsevier, Vol. 132, No. 2, pp. 256 – 260, 2012.
14. Sakaue, H., Kakisako, T., Ishikawa, H., “Characterization and Optimization of Polymer-Ceramic Pressure-Sensitive Paint by controlling Polymer Content,” *Sensors*, Molecular Diversity Preservation International, Vol. 11, No. 7, pp. 6967 – 6977, 2011.
15. Sakaue, H., Huang, C. Y., Sullivan, J. P. “Optical Hydrogen Sensing Method using Temperature-Sensitive Luminophores on Porous Palladium,” *Sensors and Actuators B: Chemical*, Elsevier, Vol. 155, No. 1, pp. 372 – 374, 2011.
16. Iijima, Y., Sakaue, H., “Development of Electro-Luminescence based Pressure-Sensitive Paint System,” *Review of Scientific Instruments*, American Institute of Physics, Vol. 82, No. 1, 015107 – 015107-5, 2011.
17. Sakaue, H., Ishii, K., “Dipping Duration Study for Optimization of Anodized-Aluminum Pressure-Sensitive Paint,” *Sensors*, Molecular Diversity Preservation International, Vol. 10, No. 11, pp. 9799 – 9807, 2010.
18. Sakaue, H., Aikawa, A., Iijima, Y., “Anodized Aluminum as Quantum-Dot Support for Global Temperature Sensing from 100 to 500 Kelvin,” *Sensors and Actuators B: Chemical*, Elsevier, Vol. 150, No. 2, pp. 569 – 573, 2010.
19. Hyakutake, T., Navrotsky, A., Morita, K., Kato, J., Sakaue, H., Novakov, I., Nishide, H., “Poly(*N*-isopropylacrylamide)-Grafting on Al to Actively Switch its Surface Drag in Water,” *Polymer International*, Vol. 59, No. 10, pp. 1436 – 1440, 2010.
20. Sakaue, H., Ishii, K., “Optimization of Anodized-Aluminum Pressure-Sensitive Paint by Controlling Luminophore Concentration,” *Sensors*, Molecular Diversity Preservation International, Vol. 10, No. 7, pp. 6836 – 6847, 2010.
21. Sakaue, H., Ozaki, T., Ishikawa, H., “Global Oxygen Detection in Water Using Luminescent Probe on Anodized Aluminum,” *Sensors*, Molecular Diversity Preservation International, Vol. 9, No. 6, pp. 4151 – 4163, 2009.
22. Hyakutake, T., Taguchi, H., Sakaue, H., Nishide, H., “Polypyridylpropyne-Pd and -Pt Porphyrin Coating for Visualization of Oxygen Pressure,” *Polymers for Advanced Technologies*, Wiley, Vol. 19, No. 9, pp. 1262 – 1269, 2008.
23. Sakaue, H., Tabei, T., Kameda, M., “Hydrophobic Monolayer Coating on Anodized Aluminum Pressure-Sensitive Paint,” *Sensors and Actuators B: Chemical*, Elsevier, Vol. 119, No. 2, pp. 504 – 511, 2006.
24. Mochizuki, S., Mitsuo, K., Takiura, K., Sakaue, H., Abe, Y., Imachi, K., “Image of Flow Velocity on Impeller Surface of Centrifugal Blood Pump with Pressure Sensitive Paint (PSP),” *ASAIO Journal Vol. 52, No. 2, 44A*, American Society for Artificial Internal Organs, 2006.
25. Kameda, M., Tabei, T., Nakakita, K., Sakaue, H., Asai, K., “Image Measurement of Unsteady Pressure Fluctuation by a Pressure-Sensitive Coating on Porous Anodized Aluminum,” *Measurement Science and Technology*, Institute of Physics, Vol. 16, pp. 2517 – 2524, 2005.
26. Sakaue, H., “Luminophore Application Method of Anodized Aluminum Pressure Sensitive Paint as a Fast Responding Global Pressure Sensor,” *Review of Scientific Instruments*, American Institute of Physics, Vol. 76, No. 8, 084101 – 084101-6, 2005.
27. Kameda, M., Tabei, T., Hangai, T., Kawakami, T., Nakakita, K., Sakaue, H., Asai, K., “Image Measurement of Surface Pressure Distribution on a Model in a Unsteady Flow using an Anodized Aluminum Pressure-Sensitive Coating,” *Transactions of the Japan Society of Mechanical Engineers*, The Japan Society of Mechanical Engineers, Vol. 71, No. 710, pp. 2486 – 2493, 2005.
28. Sakaue, H., Mitsuo, K., Nakakita, K., “Recent Topics of Pressure-Sensitive Paint Technology,” *Journal of the Visualization Society of Japan*, Visualization Society of Japan, Vol. 24 No. 95, pp. 218 – 223, 2004.
29. Sakaue, H., Gregory, J. W., Sullivan, J. P., “Porous Pressure Sensitive Paint for Characterizing Unsteady Flow Fields,” *AIAA Journal*, American Institute for Aeronautics and Astronautics, Vol. 40, No. 6, pp. 1094 – 1098, 2002.
30. Sakaue, H., Sullivan, J. P., “Time Response of Anodized Aluminum Pressure Sensitive Paint,” *AIAA Journal*, American Institute for Aeronautics and Astronautics, Vol. 39, No. 10, pp. 1944 – 1949, 2001.

Publications (*continued*)

Book Chapters, Featured Articles, and Proceedings Editor

1. Yamada, Y., Miyazaki, T., Nakagawa, M., Tsuda, S., Sakaue, H., “Part VII: Global Pressure- and Temperature-Measurements in 1.27-m JAXA Hypersonic Wind Tunnel,” *29th International Symposium on Shock Waves 1, Vol 1*, Editor: Bonazza, R., and Ranjan, D., Springer International Publishing, ISBN 978-3-319-16834-0, pp. 545 – 550, 2015.
2. Sakaue, H., “Chapter 10, Dipping Deposition Study of Anodized-Aluminum Pressure-Sensitive Paint for Unsteady Aerodynamic Applications,” *Optical Sensors – New Developments and Practical Applications*, Editor: Yasin, M., InTech, ISBN 978-953-51-1233-4, 2014.
3. Sakaue, H., Aikawa, A., Iijima, Y., Kuriki, T., Miyazaki, T. “Chapter 7, Quantum Dots as Global Temperature Measurements,” *Quantum Dots – A Variety of New Applications*, Editor: Al-Ahmadi, A., InTech, ISBN 978-953-51-0483-4, 2012.
4. Hayashi, T., Ishikawa, H., Sakaue, H., “Part VIII: Flow Visualization, Development of Polymer-Ceramic Pressure-Sensitive Paint and Its Application to Supersonic Flow Field,” *28th International Symposium on Shock Waves, Vol 1*, Editor: Kontis, K., Springer Berlin Heidelberg, ISBN 978-3-642-25687-5, pp. 607 – 613, 2012.
5. Okabe, T., Miyazaki, T., Sakaue, H., “Part VIII: Flow Visualization, A Temperature-Cancellation Method for Motion-Capturing PSP System and Its Application to a Hypersonic Wind Tunnel,” *28th International Symposium on Shock Waves, Vol 1*, Editor: Kontis, K., Springer Berlin Heidelberg, ISBN 978-3-642-25687-5, pp. 599 – 606, 2012.
6. Iijima, Y., Sakaue, H., “Chapter 8, Electro-Luminescence Based Pressure-Sensitive Paint System and Its Application to Flow Field Measurement,” *Applied Measurement Systems*, Editor: Haq, M. Z., InTech, ISBN 978-953-51-0103-1, 2011.
7. Yamada, Y., Miyazaki, T., Ishii, M. Sakaue, H., “Pressure and Temperature Measurement of a Moving Bullet,” *Featured Article, Selected Researches in Nagare*, The Japan Society of Fluid Mechanics, Vol. 32, pp. 427 – 432, 2013.
8. Editor: Sakaue, H., Proceedings of the 8th Interdisciplinary Forum on Molecular Imaging, *JAXA Special Publication, JAXA-SP-13-002*, Japan Aerospace Exploration Agency, 2013.
9. Editor: Sakaue, H., Proceedings of the 7th Interdisciplinary Forum on Molecular Imaging, *JAXA Special Publication, JAXA-SP-12-001*, Japan Aerospace Exploration Agency, 2012.
10. Editor: Sakaue, H., Proceedings of the 6th Interdisciplinary Forum on Molecular Imaging, *JAXA Special Publication, JAXA-SP-11-001*, Japan Aerospace Exploration Agency, 2011.
11. Editor: Sakaue, H., Proceedings of the 5th Interdisciplinary Forum on Molecular Imaging, *JAXA Special Publication, JAXA-SP-10-001*, Japan Aerospace Exploration Agency, 2010.
12. Editor: Sakaue, H., Proceedings of the 4th Interdisciplinary Forum on Molecular Imaging, *JAXA Special Publication, JAXA-SP-08-012*, Japan Aerospace Exploration Agency, 2008.
13. Editor: Sakaue, H., Proceedings of the 3rd Interdisciplinary Forum on Molecular Imaging, *JAXA Special Publication, JAXA-SP-07-024*, Japan Aerospace Exploration Agency, 2007.
14. Editor: Sakaue, H., Proceedings of the 2nd Interdisciplinary Forum on Molecular Imaging, *JAXA Special Publication, JAXA-SP-06-017*, Japan Aerospace Exploration Agency, 2006.

Refereed Conference Proceedings

1. Yamada, Y., Miyazaki, T., Nakagawa, M., Tsuda, S., Sakaue, H., “Global Pressure- and Temperature-Measurements in 1.27-m JAXA Hypersonic Wind Tunnel,” *Proceedings of the 29th International Symposium on Shock Waves*, ISSW29 Paper# 0246-000055, Madison, USA, July 14 – 19, 2013.
2. Tanaka, M., Morita, K., Kimura, S., Sakaue, H., “Icing Process of Supercooled-Water Droplet Moving on a Surface by Using Luminescent Temperature-Imaging Technique,” *SAE 2013 AeroTech Congress & Exhibition*, SAE International, 2013-01-2210, Montreal, Canada, 2013.
3. Hayashi, T., Ishikawa, H., Sakaue, H., “Development of Polymer-Ceramic Pressure-Sensitive Paint and its Application to Supersonic Flow Field,” *Proceedings of the 28th International Symposium on Shock Waves*, ISSW28 Paper ID 2615, Manchester, UK, July 17 – 22, 2011.
4. Okabe, T., Miyazaki, T., Sakaue, H., “A Temperature-Cancellation Method for Motion-Capturing PSP System and its Application to a Hypersonic Wind Tunnel,” *Proceedings of the 28th International Symposium on Shock Waves*, ISSW28 Paper ID 2614, Manchester, UK, July 17 – 22, 2011.

Publications (continued)

5. Morita, K., Okamoto, K., Kimura, S., Sakaue, H., “Hydrophobic Coating Study for Anti-icing Aircraft,” *SAE 2011 International Conference on Aircraft and Engine Icing and Ground Deicing*, SAE International, 2011-38-0010, Chicago, IL, June 13 – 17, 2011.

Abstract-Refereed Conference Proceedings

1. Hasegawa, M., Sakaue, H., “Drag Reduction using Hairy Chemical Coating on NACA 0012 Airfoil in Turbulent Airflow,” the 55th *AIAA Aerospace Sciences Meeting, AIAA Science and Technology Forum and Exposition, AIAA paper 2017-0283*, American Institute for Aeronautics and Astronautics, 2017.
2. Claucherty, S., Sakaue, H., “Development of Bakelite-Based Temperature Sensitive Paint for High Speed Wind Tunnel Applications,” the 55th *AIAA Aerospace Sciences Meeting, AIAA Science and Technology Forum and Exposition, AIAA paper 2017-0441*, American Institute for Aeronautics and Astronautics, 2017.
3. Hayashi, T., Sakaue, H., “Pressure-Sensitive Paint Measurement under Transient Plasma in M=2 Airflow,” the 55th *AIAA Aerospace Sciences Meeting, AIAA Science and Technology Forum and Exposition, AIAA paper 2017-0704*, American Institute for Aeronautics and Astronautics, 2017.
4. Ishii, M., Sakaue, H., “Surface State Measurement of a Free-Flight Object by Motion-Capturing Method,” the 55th *AIAA Aerospace Sciences Meeting, AIAA Science and Technology Forum and Exposition, AIAA paper 2017-0943*, American Institute for Aeronautics and Astronautics, 2017.
5. Hasegawa, M., Sakaue, H., “Hairy Chemical Coating for Drag Reduction,” *the 8th AIAA Flow Control Conference, AIAA Aviation and Aeronautics Forum and Exposition, AIAA paper 2016-3473*, American Institute for Aeronautics and Astronautics, 2016.
6. Ishii, M., Goya, H., Miyazaki, T., Sakaue, H., “Pressure/Temperature Distribution on the Surface of a Free-Flight Object Measured by PSP/TSP,” *AIAA Science and Technology Forum and Exposition: 54th Aerospace Sciences Meeting, AIAA paper 2016-2020*, American Institute for Aeronautics and Astronautics, 2016.
7. Ishii, M., Yamada, Y., Goya, H., Miyazaki, T., Sakaue, H., “Surface Pressure/Temperature Measurement of a Free-Flight Object by Motion-Capturing PSP/TSP,” *30th ISTS, 34th IEPC, & NSAT Conference, paper 2015-e-59*, International Symposium on Space Technology and Science, 2015.
8. Yamada, Y., Okabe, T., Miyazaki, T., Sakaue, H., “Temperature Cancellation Method of Motion Capturing PSP System,” *30th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, AIAA paper 2014-2942*, American Institute for Aeronautics and Astronautics, 2014.
9. Saeki, H., Ishikawa, H., Sakaue, H., “Characterization of Signal Output of Pressure-Sensitive Paint by Quantum Efficiency using Integration Sphere,” *30th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, AIAA paper 2014-2941*, American Institute for Aeronautics and Astronautics, 2014.
10. Goya, H., Miyazaki, T., Sakaue, H., “Global Temperature Measurement of Boiling Water using Dual-Luminescent Imaging,” *11th AIAA/ASME Joint Thermophysics and Heat Transfer Conference, AIAA paper 2014-2821*, American Institute for Aeronautics and Astronautics, 2014.
11. Ishii, M., Yamada, Y., Miyazaki, T., Sakaue, H., “Pressure/Temperature Measurement of a Free-Flight Object by PSP/TSP,” *AIAA Atmospheric Flight Mechanics Conference, AIAA paper 2014-2542*, American Institute for Aeronautics and Astronautics, 2014.
12. Tanaka, M., Morita, K., Kimura, S., Sakaue, H., “Time-Resolved Temperature Distribution of Icing Process of Supercooled Water in Microscopic Scale,” *6th AIAA Atmospheric and Space Environments Conference, AIAA paper 2014-2329*, American Institute for Aeronautics and Astronautics, 2014.
13. Hasegawa, M., Hyugaji, T., Yamagishi, Y., Kimura, S., Morita, K., Sakaue, H., “Experimental Investigation of a Single Droplet on a Superhydrophobic Coating in Icing Wind Tunnel for the Development of Ice-Protection System,” *6th AIAA Atmospheric and Space Environments Conference, AIAA paper 2014-2065*, American Institute for Aeronautics and Astronautics, 2014.
14. Endo, H., Kimura, S., Morita, K., Sakaue, H., “Behavior of a Small Water Droplet on Superhydrophobic Coating and Heating Surface in Cold Environment,” *6th AIAA Atmospheric and Space Environments Conference, AIAA paper 2014-2064*, American Institute for Aeronautics and Astronautics, 2014.
15. Sakaue, H., Iijima, Y., Yamada, Y., Miyazaki, T., Ishii, M., “Global Pressure and Temperature Measurements of Ballistic-Range Testing by PSP and TSP Techniques,” *AIAA Science and Technology Forum and Exposition: 52nd Aerospace Sciences Meeting, AIAA paper 2014-1407*, American Institute for Aeronautics and Astronautics, 2014.

Publications (continued)

16. Sakaue, H., Morita, K., Tanaka, M., Kimura, S., “Study of Icing Process using Dual-Luminescence Imaging for Aircraft-Icing Prevention,” *AIAA Science and Technology Forum and Exposition: 52nd Aerospace Sciences Meeting, AIAA paper 2014-0929*, American Institute for Aeronautics and Astronautics, 2014.
17. Saeki, H., Ishikawa, H., Sakaue, H., “Quantum Efficiency Characterization of Pressure-Sensitive Paint related to the Pressure”, *Annual Meeting of Visualization Society of Japan*, Journal of the Visualization Society of Japan, P1-30288, Aizu, Japan, September 27 – 28, 2013.
18. Iijima, Y., Morita, K., Sakaue, H., Tanaka, M., Hasegawa, M., Kimura, S., “Visualization of Water Droplet Temperature by using Dual-Luminescent Imaging,” *Annual Meeting of Visualization Society of Japan*, Journal of the Visualization Society of Japan, P1-30282, Aizu, Japan, September 27 – 28, 2013.
19. Yamada, Y., Miyazaki, T., Ishii, M., Sakaue, H., “Pressure and Temperature Measurement of a Moving Bullet,” *Proceedings of the Annual Meeting of JSFM*, The Japan Society of Fluid Mechanics, 2013.
20. Katsuta, K., Handa, T., Tanaka, K., Sakaue, H., “Measurements of AA-PSP Response to Periodic Change in Pressure using Cavity Flows”, *Proceedings of the 41st Symposium on Visualization*, Journal of the Visualization Society of Japan, F203, Shinjuku, Japan, July 16 – 17, 2013.
21. Saeki, H., Ishikawa, H., Sakaue, H., “System Development of the Quantum Efficiency of the Pressure-Sensitive Paint using an Integrating Sphere”, *Proceedings of the 41st Symposium on Visualization*, Journal of the Visualization Society of Japan, F202, Shinjuku, Japan, July 16 – 17, 2013.
22. Tanaka, M., Morita, K., Kimura, S., Sakaue, H., “Temperature -Distribution Measurement of Sprayed Supercooled-Water Droplets”, *Proceedings of the 41st Symposium on Visualization*, Journal of the Visualization Society of Japan, F201, Shinjuku, Japan, July 16 – 17, 2013.
23. Tani, T., Ishikawa, H., Sakaue, H., “Response Time Characterization of Polymer-Ceramic Pressure-Sensitive Paint for Short Duration Testing and Unsteady Aerodynamic Measurements,” *the 43rd AIAA Fluid Dynamics and Co-Located Conferences, AIAA paper 2013-3126*, American Institute for Aeronautics and Astronautics, 2013.
24. Kodama, H., Ishikawa, H., Sakaue, H., “Development of Spray-able Superhydrophobic Pressure-Sensitive Paint for Unsteady Aerodynamic Applications,” *the 43rd AIAA Fluid Dynamics and Co-Located Conferences, AIAA paper 2013-3125*, American Institute for Aeronautics and Astronautics, 2013.
25. Okabe, T., Miyazaki, T., Saitoh, K., Sakaue, H., “Unsteady Pressure Distribution on a Fluttering Airfoil using Motion-Capturing PSP System,” *the 43rd AIAA Fluid Dynamics and Co-Located Conferences, AIAA paper 2013-3014*, American Institute for Aeronautics and Astronautics, 2013.
26. Yamada, Y., Ishii, M., Miyazaki, T., Sakaue, H., “Global Pressure Measurement of a Moving Bullet,” *the 43rd AIAA Fluid Dynamics and Co-Located Conferences, AIAA paper 2013-2899*, American Institute for Aeronautics and Astronautics, 2013.
27. Morita, K., Tanaka, M., Kimura, S., Sakaue, H., “Stationary- and Dynamic-Icing Processes of Supercooled-Water Droplet on Icephobic Coating,” *the 43rd AIAA Fluid Dynamics and Co-Located Conferences, AIAA paper 2013-2549*, American Institute for Aeronautics and Astronautics, 2013.
28. Tanaka, M., Morita, K., Kimura, S., Sakaue, H., “Development and Application of Dual-Luminescence Imaging for Capturing Supercooled-Water Droplet under Icing Conditions,” *the 43rd AIAA Fluid Dynamics and Co-Located Conferences, AIAA paper 2013-2548*, American Institute for Aeronautics and Astronautics, 2013.
29. Tani, T., Ishikawa, H., Sakaue, H., “Global Pressure Measurement within the Order of Hundred Microseconds using Fast Responding Pressure-Sensitive Paint,” *the 19th JSME Annual Meeting in Kanto Division, OS5-6 20716*, The Japan Society of Mechanical Engineers, Osawa, March 15 – 16, 2013.
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53. Ozaki, T., Ishikawa, H., Sakaue, H., “Response time characterization of fast responding pressure-sensitive paint,” *Bulletin of the American Physical Society, 63rd Annual Meeting of the APS Division of Fluid Dynamics*, The American Physical Society, Vol. 55 No. 16 p. 388, 2010.
54. Aikawa, A., Sakaue, H., “Temperature characterization of CdSe/ZnS quantum-dots applied on anodized-aluminum coating,” *Bulletin of the American Physical Society, 63rd Annual Meeting of the APS Division of Fluid Dynamics*, The American Physical Society, Vol. 55 No. 16 p. 387, 2010.
55. Dan, R., Kazama, H., Sakaue, H., “Time course of pH change in plant epidermis using microscopic pH imaging system,” *Bulletin of the American Physical Society, 63rd Annual Meeting of the APS Division of Fluid Dynamics*, The American Physical Society, Vol. 55 No. 16 p. 368, 2010.
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65. Kuriki, T., Miyazaki, T., Sakaue, H., “Unsteady Flow Measurement of a Rotating Disk using Temperature-Cancelled Anodized-Aluminum Pressure-Sensitive Paint,” *Proceedings of the 5th Interdisciplinary Forum on Molecular Imaging*, Japan Aerospace Exploration Agency, JAXA-SP-10-001, P15, 2010.

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75. Morita, K., Sakaue, H., “Reynolds Number Study of Chemical Flow Control using Hydrophobic and Hydrophilic Coatings,” *Bulletin of the American Physical Society, 61st Annual Meeting of the Division of Fluid Dynamics*, The American Physical Society, Vol. 53 No. 15 p. 273, 2008.
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78. Sakaue, H., Morita, K., Goto, M., Shimizu, M., Hyakutake, T., Nishide, H., “Development of Hydrodynamic Flow Control using Combined Hydrophobic and Hydrophilic Coatings and Micelle Polymer,” *Bulletin of the American Physical Society, 60th Annual Meeting of the Division of Fluid Dynamics*, The American Physical Society, Vol. 52 No. 17 p. 247, 2007.
79. Kuriki, T., Sakaue, H., “Dipping Process Study for Temperature Cancellation,” *Proceedings of the 3rd Interdisciplinary Forum on Molecular Imaging*, Japan Aerospace Exploration Agency, JAXA-SP-07-024, Waseda, November, 2007.
80. Ito, M., Iijima, Y., Sakaue, H., “Two-Color Pressure-Sensitive Paint using Luminescent Polymer and Pressure-Sensitive Probe,” *Proceedings of the 3rd Interdisciplinary Forum on Molecular Imaging*, Japan Aerospace Exploration Agency, JAXA-SP-07-024, Waseda, November, 2007.
81. Sato, Y., Sakaue, H., Iijima, Y., Mochizuki, S., “AA-PSP Calibration in Water for Medical Application,” *Proceedings of the 3rd Interdisciplinary Forum on Molecular Imaging*, Japan Aerospace Exploration Agency, JAXA-SP-07-024, Waseda, November, 2007.
82. Taguchi, H., Hyakutake, H., Nishide, H., Sakaue, H., “Synthesis of Polymerized Porphyrin Complex and its Oxygen Quenching Characteristics,” *Proceedings of the 2nd Interdisciplinary Forum on Molecular Imaging*, Japan Aerospace Exploration Agency, JAXA-SP-06-017, Waseda, November, 2006.

Publications (continued)

83. Takezawa, T., Sakaue, H., “Development of Two-Color based Unsteady Pressure-Sensitive Paint for Temperature Cancellation,” *Proceedings of the 2nd Interdisciplinary Forum on Molecular Imaging*, Japan Aerospace Exploration Agency, JAXA-SP-06-017, Waseda, November, 2006.
84. Iijima, Y., Sakaue, H., “Characterization of PTMST based Pressure-Sensitive Paint,” *Proceedings of the 2nd Interdisciplinary Forum on Molecular Imaging*, Japan Aerospace Exploration Agency, JAXA-SP-06-017, Waseda, November, 2006.
85. Sakaue, H., Sakakibara, R., Morita, K., “Drag Reduction Method using Combination of Hydrophobic and Hydrophilic Coatings,” *Bulletin of the American Physical Society, 58th Annual Meeting of the Division of Fluid Dynamics*, The American Physical Society, Vol. 50 No. 9 p. 227, 2005.

Invited Lectures

1. “Chemical Coating for Flow Measurement and Control,” February 9, 2017 presented at Department of Mechanical and Aerospace Engineering, Western Michigan University.
2. “Flow Measurement and Control using Functional Molecules,” August 19, 2016 presented at Department of Mechanical and Aerospace Engineering, North Carolina State University.
3. “Flow Measurement and Control by Chemistry,” August 3, 2016 presented at Japan Society for The Promotion of Science, Washington D. C.
4. “Introduction of Interdisciplinary Engineering for Aerospace,” July 25, 2016 presented at International Engineering Program at University of Notre Dame.
5. “Fast Pressure- and Temperature-Sensitive Paints and Luminescent Imaging for Fluid Mechanics Application,” June 6, 2016 presented at NASA Ames Research Center.
6. “Luminescent Imaging and Chemical Flow Control for Fluid Mechanics Application,” March 23, 2016 presented at Advanced Diagnostics & Therapeutics, University of Notre Dame.
7. “Application of Functional Molecules for Icing Research” March 3, 2016 presented at NASA Glenn Research Center.
8. “Application of Functional Molecules for Flow Mechanics and Control” June 29, 2015 presented at Department of Physical and Inorganic Chemistry, Universitat Rovira Virgili, Spain.
9. “Optical Diagnostic Technology (TSP/PSP) and Chemical Flow Control” June 19, 2015 presented at The Air Force Research Laboratory, Wright-Patterson Air Force Base.
10. “Interdisciplinary Study on Experimental Fluid Dynamics and Chemistry, Part I: Pressure-/Temperature-Sensitive Paint and Luminescent Imaging, Part II: Chemical Flow Control” March 12, 2015 presented at NASA Langley Research Center.
11. “Interdisciplinary Study on Chemistry and Fluid Dynamics,” January 21, 2015 presented at Center for Nano Science and Technology (NDnano), University of Notre Dame.
12. “PSP/TSP and Icing Protection Studies by Interdisciplinary Study on Fluid Mechanics and Chemistry,” June 2, 2014, presented at School of Engineering, University of Glasgow, UK.
13. “Interdisciplinary Study on Experimental Fluid Mechanics and Chemistry: Luminescent Imaging and Chemical Flow Control,” May 12, 2014, presented at Mechanical and Aerospace Engineering, University of Central Florida.
14. “Interdisciplinary Study on Experimental Fluid Dynamics and Chemistry: Luminescent Imaging and Chemical Flow Control for Fluid Dynamic Problems,” March 25, 2014, presented at Aerospace and Mechanical Engineering, University of Notre Dame.
15. “Dual-Luminescent Imaging for Capturing Time-Resolved Icing Process of a Supercooled Water Droplet,” November 18, 2013, presented at Institute of Aerodynamics and Flow Technology, German Aerospace Center (DLR), Germany.
16. “Flow Visualization and Control using Chemistry,” November 9, 2013, presented at JSME 2013 12th Dreams of Flow Contest, Kyushu University, Japan.
17. “Application of Functional Molecules for Turbulence Visualization,” October 1, 2013, presented at Mechanical & Aerospace Engineering, University of Texas at Arlington.
18. “An Interdisciplinary Study on Fluid Mechanics and Chemistry: Application of Functional Molecules for Global Pressure Measurement on a Fluttering Airfoil,” September 30, 2013, presented at Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin.

Publications (continued)

19. "An Interdisciplinary Study on Fluid Mechanics and Chemistry: Application Functional Molecules for Global Pressure/Temperature Measurement," November 16, 2012, presented at Department of Aerospace Engineering and Mechanics, University of Minnesota.
20. "Motion Capturing PSP Method," September 3, 2012, presented at Japanese-German Seminar, JAXA, Japan.
21. "Anodized Aluminum based Sensors," June 22, 2012, presented at Department of Mechanical and Aerospace Engineering, Ohio State University.
22. "Experimental Thermal Management using Functional Molecules," April 18, 2012, presented at Department of Aerospace Engineering, Iowa State University.
23. "Anodized-Aluminum Pressure-Sensitive Paint," February 23, 2012, presented at Japanese-German Seminar, Tohoku University, Japan.
24. "An Interdisciplinary Study on Fluid Dynamics and Chemistry: Application of Functional Molecules for Global Pressure/Temperature Measurement and Flow Control," November 21, 2011, presented at School of Engineering and Applied Science, George Washington University.
25. "An Interdisciplinary Study on Fluid Dynamics and Chemistry: Application of Functional Molecules for Flow Measurement and Control," November 19, 2010, presented at Department of Aeronautics and Astronautics, University of Washington.
26. "Anti- and De-Icing Research Activities for Aeronautics at Japan Aerospace Exploration Agency," September 27, 2010, presented at Annual Seppyo Meeting of The Japanese Society of Snow and Ice, Japan.
27. "Development of Fast Responding Pressure-Sensitive Coatings and their Applications to Unsteady Flow Fields," September 8, 2010, presented at Annual Meeting of The Japan Society of Mechanical Engineers, Japan.
28. "Unsteady Flow Field Measurement using Fast Responding Pressure-Sensitive Coating," October 31, 2009, presented at The School of Architecture and Wind Engineering, Graduate School of Engineering Global COE Program, Tokyo Polytechnic University, Japan.
29. "Functional Molecules for Flow Measurement and Control in Japan Aerospace Exploration Agency," December 1, 2008, presented at Department of Mechanical and Materials Engineering, Portland State University.
30. "Application of Functional Molecules for Flow Measurement and Control," July 14, 2008, presented at Institute of Aerodynamics and Flow Technology, German Aerospace Center (DLR), Germany.
31. "Application of Functional Molecules for Flow Measurement and Control," June 30, 2008, presented at Fundamental and Experimental Aerodynamics (DAFE), French Aerospace Laboratory (ONERA), France.
32. "Application of Functional Molecules for Flow Measurement and Control," June 26, 2008, presented at School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, UK.
33. "Supervision and Progresses of Internships at Fundamental Research Division, Japan Aerospace Exploration Agency," January 29, 2008, presented at Internship Progress Seminar, The University of Electro-Communications, Japan.
34. "Development of Pressure-Sensitive Paints for Unsteady and Cryogenic Applications," February 15, 2007, presented at School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, UK.
35. "Development of Pressure-Sensitive Paints for Unsteady and Cryogenic Applications," February 14, 2007, presented at School of Electrical Engineering, KTH, Sweden.
36. "Development and Application of Unsteady and Cryogenic Pressure-Sensitive Paints," September 20, 2006, presented at Institute of Analytical Chemistry, Chemo- and Biosensors, University of Regensburg, Germany.
37. "The Development and Application of Anodized-Aluminum Pressure-Sensitive Paint," August 24, 2004, presented at Department of Chemistry, University of Washington.

Media

1. "U. S. Air Force Tackles Fuel-Burn Reduction On Legacy Aircraft," *Aviation Week & Space Technology*, Jan. 26, 2017.
2. Sakaue, H., Iijima, Y., Morita, K., *The Hokkaido Shimibun Press Evening Paper*, Feb. 10, 2014.
3. Sakaue, H., Iijima, Y., Morita, K., Okada, T., Kanda, A., *Flight Path*, JAXA news release, No. 3, 2013.
4. Kamada, R., Morita, K., Okamoto, K., Akihito, A., Kimura, S., Sakaue, H., "Creating a Coating of Water-repellant Microscopic Particles to Keep Ice off Airplanes," *2012 Press Releases*, Division of Fluid Dynamics, The American Physical Society, San Diego, California, November 18 – 20, 2012.
5. Sakaue, H., Nishide, H., *Daily Aviation News*, Japan Aviation News, No. 13699, Nov. 22, 2007.

Patents/Inventions

1. Sakaue, H., “Simultaneous Measurement Method of Capturing Unsteady Pressure/Temperature Distribution and Velocity Field,” Japanese Patent No. 5896444.
2. Sakaue, H., “Simultaneous Measurement of Flow Field and Surface Flow using Pressure-Sensitive Paint/Coating and Particle Image Velocimetry,” Japanese Patent No. 5354676.
3. Sakaue, H., Huang, C. Y., “Hydrogen Sensor, Hydrogen Detection System and Method,” US Patent No. US8409869.
4. Sakaue, H., Huang, C. Y., “Hydrogen Sensing Probe, System and Method,” Taiwan Patent No. I403716.
5. Sakaue, H., Hyakutake, T., Nishide, H., “Flow Control by using Coatings,” Japanese Patent No. 5229774.
6. Sakaue, H., Hyakutake, T., Nishide, H., “Co-Polymerized Pressure-Sensitive Paint,” Japanese Patent No. 4098308.
7. Morita, K., Sakaue, H., “Super-Hydrophobic Luminescent-Global Sensor,” Japanese Unexamined Patent No. 2014-6166.

Professional Activities

International Paper Review

- Applied Physics Letters
- Sensors and Actuators B: Chemical
- Sensors and Actuators A: Physical
- International Journal of Heat and Mass Transfer
- International Journal of Heat and Fluid Flow
- Journal of Micromechanics and Microengineering
- Journal of Luminescence
- Sensors
- Optics Lasers Engineering
- Experiments in Fluids
- Measurement Science and Technology
- Experimental Thermal and Fluid Science
- AIAA Journal
- Journal of Aircraft
- Measurement
- Journal of Visualization
- The Japan Society for Aeronautical and Space Sciences

Scientific Review Committee

- Aerodynamic Measurement Technology Committee, American Institute for Aeronautics and Astronautics (AIAA) (since May 2017)
- 14th International Conference on Fluid Control, Measurements and Visualization (FLUCOME) (2017)
- The 16th International Symposium on Flow Visualization (ISFV16) (2014)
- The 59th ASME Turbo Expo, The ASME International Gas Turbine Institute (IGTI) (2014)
- The 28th International Symposium on Shock Waves (ISSW28) (2011)

Conference Contributions

- Session Chair, International Workshop on Surface Icing and Assessment of De-Icing / Anti-Icing Technologies (2017)
- Session Chair, Experimental Techniques – Scalar, Division of Fluid Dynamics, American Physical Society (APS) (2016)
- Organization Committee, Molecular Imaging for Interdisciplinary Research (2005 – 2014)
- Organization Committee, The 21st International Congress on Instrumentation in Aerospace Simulation Facilities (ICIASF) (2005)
- Organization Committee, International Workshop on Molecular Imaging for Interdisciplinary Research (2004)
- Organization Committee, Molecular Sensors for Aero-Thermodynamic Research (MOSAIC) International Workshop (2003)

Professional Activities (*continued*)

Academic Society Member

- Senior Member, American Institute for Aeronautics and Astronautics (AIAA)
- Member, American Physical Society (APS)

Others

- Member, The America-Japan Society