



Dr. Hui Hu

Martin C. Jischke Professor in Aerospace Engineering

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Education

Ph.D. Mechanical Engineering, *the University of Tokyo, Japan, 2001,*

M.S. Aerospace Engineering, *Beijing University of Aeronautics and Astronautics (BUAA), China, 1993.*

B. S. Aerospace Engineering, *Beijing University of Aeronautics and Astronautics (BUAA), China, 1990.*

Academic Appointments

Department of Aerospace Engineering, Iowa State University (2004 ~ Present).

- *Martin C. Jischke Professor in Aerospace Engineering, 2015 - present*
- *Associate Dept. Chair for Graduate Education, 2015 - present*
- *Full Professor (2013 ~ Present); Associate Professor (2009~2013); Assistant Professor (2004~2009)*

Awards and Honors

- *Ranked #301 of 1,200 names in the **Aerospace Engineering** discipline on [World's Top 2% Most Influential Scientists List \(updated in Oct. 2023\) by Elsevier/Stanford University.](#)*
- *Fellow, American Society of Mechanical Engineers (ASME).*
- *Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA).*
- *2023 D.R. Boylan Eminent Faculty in Research Award, Iowa State University.*
- *2022 AIAA Gas Turbine Engine Best Paper Award, AIAA 2022.*
- *2016 Outstanding Faculty Mentor Award, Iowa State University.*
- *2014 Renewable Energy Impact Award, Iowa Energy Center, State of Iowa, USA.*
- *2013 AIAA Best Paper in Ground Testing Technology Award, AIAA.*
- *2012 Mid-Career Achievement in Research Award, Iowa State University.*
- *2009 AIAA Best Paper in Applied Aerodynamics Award, AIAA*
- *2007 Best Paper Award, Measurement Science and Technology, IOP Publishing*
- *2006 Faculty Early Career Development (CAREER) Award, National Science Foundation*

Teaching Courses:

UNDERGRAD: *Engr160: Engineering Problems and Computer Programming; AerE243: Fundamentals of Aerodynamics; AerE344: Experimental Aerodynamics and Propulsion Laboratory; AerE445: Experimental Aerodynamics and Heat Transfer.*

GRADUATE: *AerE541: Incompressible Aerodynamics; AerE545: Advanced Experimental Aerodynamics.*

Research:

Research Interests: 1). **Fundamental studies on challenging thermal-fluids problems:** aircraft icing physics, aero-engine icing and anti-/de-icing; wind turbine aeromechanics and wind farm aerodynamics.; heat transfer of gas turbines and cooling technology; UAS aerodynamics and bio-inspired flow dynamics; fluid-structure interactions (FSI) of built structures in violent tornadic and storms winds. 2). **Advanced flow diagnostics and instrumentation:** Particle Image Velocimetry (PIV) and Stereoscopic Particle Image Velocimetry (SPIV); Pressure Sensitive Paint (PSP) and Temperature Sensitive Paint (TSP); Molecular Tagging Velocimetry (MTV) and Molecular Tagging Thermometry (MTT); Quantum Dots (QD) thermal imaging and Digital Image Projection (DIP) techniques.

Sponsored Research Grants: Received ~ \$20M total in funded research with over 60 research grants from federal agencies such as NSF, NASA, DoE, AFOSR, NAVY, USDA, and NOAA, and aerospace industrials such as GE, P&W, DuPont, General Atomics, and Collins Aerospace Systems.

Selected Publications: (1 monograph, 10 book chapters; ~ 175 journal papers; ~ 250 conference papers; ~140 invited lectures; Citations: 9255; H-index = 55; I10-index = 198; according to <https://scholar.google.com/> on 12/10/2023)

1. **JC Wang, HY Hu, P He, and H Hu**, "A Machine Learning Study to Predict Wind-Driven Water Runback Characteristics", *Physics of Fluids*, Vol. 35, 102104 (18 pages) 2023. <https://doi.org/10.1063/5.0167545>
2. **R. Veerakumar, HY Hu, LC Tian, NH Han, and H Hu**, "An Experimental Study of Rime Ice Accretion on Bundled Conductors", *Experimental Thermal Fluid Science*, Vol.147, 110962 (12 pages), 2023. <https://doi.org/10.1016/j.expthermflusci.2023.110962>.
3. **HY Hu, LC Tian, and H Hu**, "Experimental Investigation on Ice Accretion Process Upon Impacting of Ice Particles onto a Heated Surface", *AIAA Journal*, Vol. 61 No. 7, pp3019-3031. 2023. <https://arc.aiaa.org/doi/10.2514/1.J062425>
4. **HY Hu, F. Al-Masri, LC Tian, and H Hu**, "An Experimental Study of Dynamic Icing Process on a Pitot Probe Model", *AIAA Journal of Thermophysics and Heat Transfer*, Vol. 37, No. 3, pp. 632-643, 2023. <https://doi.org/10.2514/1.T6782>
5. **NH Han, MA Siddique, ZC Zhang, LC Tian, HY Hu, and H Hu**, "A Flight-Testing Campaign to Examine Inflight Icing Characteristics and Its Effects on the Flight Performance of An Unmanned-Aerial-Vehicle", *Cold Regions Science and Technology*, Vol. 207, 103775 (11 pages), 2023. <https://doi.org/10.1016/j.coldregions.2023.103775>
6. **R. Veerakumar, LC Tian, HY Hu, Y. Liu, and H Hu**, "An Experimental Study of Dynamic Icing Process on an Aluminum-Conductor-Steel-Reinforced Power Cable with Twisted Outer Strands", *Experimental Thermal Fluid Science*, Vol. 142,110823 (12 pages), 2023. <https://doi.org/10.1016/j.expthermflusci.2022.110823>.
7. **LC Tian, LK Li, HY Hu, and H Hu**, "An Experimental Study of Dynamic Ice Accretion Process over Rotating Aero-engine Fan Blades", *AIAA Journal of Thermophysics and Heat Transfer*, Vol. 37, No. 2, pp. 353-364, 2023, <https://doi.org/10.2514/1.T6667>.
8. **A. Islam, M. Sussman, H Hu and YS Lian**, "Simulation of drop impact on substrate with micro-wells", *Physics of Fluids*, 34, 062108 (15 pages). 2022. <https://doi.org/10.1063/5.0093826>.
9. **YH Peng, R. Veerakumar, ZC Zhang, HY Hu, Y. Liu, XH He, and H Hu**, "An Experimental Study on Mitigating Dynamic Ice Accretion Process on Bridge Cables with a Superhydrophobic Coating", *Experimental Thermal Fluid Science*, Vol. 132, 110573 (16 pages), 2022. <https://doi.org/10.1016/j.expthermflusci.2021.110573>.
10. **ZC Zhang, Y. Liu, H Hu**, "Effects of Chamber Pressure on the Kinematic Characteristics of Spray Flows Exhausted from an Airblast Atomizer", *Experimental Thermal Fluid Science*, Vol. 130, 110514 (10 pages) 2022. <https://doi.org/10.1016/j.expthermflusci.2021.110514>.

Graduate Students Supervision:

- **2 Postdoc & 8 Current Graduate Students (08/2023):** A Kumar (postdoc); A Samad (Postdoc); JC Wang (PhD); A. Dhulipalla (PhD); H Sista (PhD); K Digavalli (PhD), M Rahman (PhD); C. Valentine (PhD); Y. Zhao (PhD) K Bowers (MS); J. Frantz (MS).
- **24 Graduated PhD Students:** C. Eluchie (2023); H Li (2023); NH Han (2022); LC Tian (2021); HY Hu (2021); R. Veerakumar (2021); ZC Zhang (2021); C. Kolbarkir(2020); LY Gao (2019); LQ Ma(2019); LK Li(2018); Z Ning (2018); P Premaratne(2018); HX Li(2017); Y. Liu (2017); WW Zhou(2016); M. Khosravi(2016); K. Zhang (2015); Z. Wang (PhD, 2015); A. Ozbay (2014); Y. Zhang(2013); ML Yu (2012); ZF Yang (2009); ZY Jin (2008).
- **14 Graduated MS Students:** M. Ahmad Siddique (2021); F. Al-Masri (2020) P. Sagar(2017); M. Khosravi(2015); A. Ozbay(2012); D. Dvorak (2012);T. Grager (2011); A.Kumar (2011); H.Iagarashi (2010); L. Clemens(2009); J. Murphy (MS, 2008); K. Varma (2007); M. Tamai (2007).
- **Student Awards/Achievements:** 18 graduate students received the Teaching/Research Excellence Award. 16 of the former PhD students are tenure-track/tenured Professors at Universities in USA (9) and China (6), Turkey (1).

Professional and Outreach Activities:

Editorship:

- Editor, *Experimental Thermal and Fluid Science*, Elsevier, since 2018
- Associate Editor, *ASME Open Journal of Engineering*, since 2021.
- Associate Editor, *Nature - Scientific Reports*, since 2021.
- Associate Editor, *ASME Journal of Fluids Engineering*, since 2015.
- Associate Editor, *SCIENCE CHINA Physics, Mechanics & Astronomy*, Springer.
- Editorial Board, *International Journal of Micro-Air-Vehicle*, Sage Journals.
- Editorial Board, *Journal of Bionic Engineering*, Elsevier.

Organization/Scientific Committees for International Conferences:

- 9th International Colloquium on Bluff Body Aerodynamics & Applications Birmingham, UK, 2024. <https://uobevents.eventsair.com/bbaa-ix/>
- The 9th International Conference on Snow Engineering (ICSE 2024), June 3 - 5, 2024, Shanghai, China. <https://snoweng2020.org.cn/Home/Default>
- 20th International Workshop on Atmospheric Icing of Structures (IWAI2024), June 18- 21, 2024, Narvik, Norway. <http://www.uit.no/iwais2024>