

## Curriculum Vitae - Dr. Hui Hu

Martin C. Jischke Professor in Aerospace Engineering  
Assoc. Dept. Chair and Direction of Graduate Education (DOGE)  
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### Education:

Ph. D., Mechanical Engineering, the University of Tokyo, Japan, 2001.  
Ph. D., Aerospace Engineering, Beijing Univ. of Aero. & Astro., China, 1996.  
M. S., Aerospace Engineering, Beijing Univ. of Aero. & Astro., China, 1993.  
B. S., Aerospace Engineering, Beijing Univ. of Aero. & Astro., China, 1990.

### Professional Experience:

2004 – Present     Martin C. Jischke Professor & Assoc. Dept. Chair for Graduate Education (15~)  
Full Professor (2013~ present; 2-year earlier promotion)  
Associate Professor (2009~2013, 1-year earlier promotion)  
Assistant Professor (2004~2009)  
Dept. of Aerospace Engineering, Iowa State University, Ames, Iowa, USA

2000 – 2004     Research Associate and Course Instructor  
Dept. of Mechanical Engineering, Michigan State University, USA.

1997 – 2000     JSPS Research Fellow  
Institute of Industrial Science, the University of Tokyo, Japan

### Honors and Awards:

- Fellow, American Society of Mechanical Engineers (ASME), since 2014.
- Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA), since 2012.
- *Outstanding Faculty Mentor Award*, Iowa State University, 2016.
- *Renewable Energy Impact Award*, Iowa Energy Center, USA, 2014.
- *AIAA Best Paper Award in Ground Testing Technology*, 2013.
- *ISU Award for Mid-Career Achievement in Research*, Iowa State University, 2012.
- *AIAA Best Paper Award in Applied Aerodynamics*, 2009.
- *Air Force Summer Faculty Fellowship Award*, 2008.
- *Best Paper Award*, Measurement Science and Technology, IOP Publishing, 2007.
- *Faculty Early Career Development (CAREER) Award*, National Science Foundation, 2006.

### Research Interests and Expertise:

- 1). **Fundamental studies on challenging thermal-fluids problems:**
  - Aircraft icing physics, aero-engine icing, wind turbine icing and anti-/de-icing technologies.
  - Film cooling, trailing edge cooling and heat transfer of gas turbines.
  - Wind turbine aeromechanics and wind farm aerodynamics.
  - Bio-inspired flow dynamics and aerodynamics
  - Aerodynamics and aeroacoustics of Unmanned-Air-Vehicles (UAVs).
  - 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)
  - Laser-Induced Fluorescence (LIF) and Laser-Induced Phosphorescence (LIP)
  - 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

## PUBLICATIONS AND INVITED LECTURES

- *6 book chapters; over 120 journal papers; ~ 200 conference papers; ~100 invited lectures*
- *H index = 32; I10-index = 103; according to <https://scholar.google.com/>*

### Selected Journal Papers in recent 2 years:

- J-1. WW Zhou, D. Peng, X. Wen, YZ Liu and H. Hu, "Unsteady analysis of adiabatic film cooling effectiveness behind circular, shaped, and sand-dune-inspired film cooling holes: Measurement using fast-response pressure-sensitive paint". *International Journal of Heat and Mass Transfer*, Vol. 125, p1003-1016, 2018. <https://doi.org/10.1016/j.ijheatmasstransfer.2018.04.126>
- J-2. H. Hu and BH Sun, "New Development in near-wall PIV measurements". *SCIENCE CHINA Physics, Mechanics & Astronomy*, Vol. 61 No. 9: 094731, 2018.; DOI: 10.1007/s11433-018-9248-x.
- J-3. WL Chen, DL Gao, H. Li and H. Hu, "Wake-flow-induced vibrations of vertical hangers behind the tower of a long-span suspension bridge", *Engineering Structures*, Vol. 169, pp188-2000, 2018. <https://www.sciencedirect.com/science/article/pii/S0141029618315566>.
- J-4. Y. Liu, L. Ma, W. Wang, A. Kota and H. Hu, "An Experimental Study on Soft PDMS Materials for Aircraft Icing Mitigation", *Applied Surface Science*, Vol. 447, pp599-609, 2018. <https://doi.org/10.1016/j.apsusc.2018.04.032>.
- J-5. JB Liu, AX. Guo, H. Li and H. Hu, "Methodology for wave force monitoring of bottom-mounted cylinder using the measurement of the wave surface elevation around the body surface", *Journal of Fluids and Structures*, Vol. 78, pp197-214, 2018. <https://doi.org/10.1016/j.jfluidstructs.2018.01.001>.
- J-6. Y. Liu and H. Hu, "An Experimental Investigation on the Unsteady Heat Transfer Process over an Ice Accreting Airfoil Surface", *International Journal of Heat and Mass Transfer*, Vol. 122, pp707-718, 2018. <https://doi.org/10.1016/j.ijheatmasstransfer.2018.02.023>.
- J-7. Y. Liu, LK Li, Z. Ning, W. Tian and H. Hu, "Experimental Investigation on the Dynamic Icing Process over a Rotating UAS Propeller", *AIAA Journal of Power and Propulsion*, Vol. 34, No. 4, pp933-946, 2018. <https://arc.aiaa.org/doi/pdf/10.2514/1.B36748>
- J-8. ZY Wang, W. Tian and H. Hu, "A Comparative Study on the Aeromechanic Performances of Upwind and Downwind Horizontal-Axis Wind Turbines", *Energy Conversion and Management*, Vol. 163, pp100-110, 2018. <https://doi.org/10.1016/j.enconman.2018.02.038>.
- J-9. Y. Liu, C. Kolbakir, HY Hu, and H. Hu, "A Comparison Study on the Thermal Effects in DBD Plasma Actuation and Electrical Heating for Aircraft Icing Mitigation", *International Journal of Heat and Mass Transfer*, Vol.124, pp319-330, 2018. <https://doi.org/10.1016/j.ijheatmasstransfer.2018.03.076>
- J-10. Y. Liu, LK Li, HX Li, and H. Hu, "An Experimental Study of Surface Wettability Effects on Dynamic Ice Accretion Process over an UAS Propeller Model". *Aerospace Science and Technology*, Vol. 73, No. 2, pp164-172, 2018. <https://www.sciencedirect.com/science/article/pii/S1270963817317625>
- J-11. WW Zhou, Y. Liu, HY Hu, XS Meng, and H. Hu, "Utilization of Thermal Effect Induced by Plasma Generation for Aircraft Icing Mitigation". *AIAA Journal*, Vol. 56, No. 3, pp. 1097-1104. 2018. [DOI:10.2514/1.J056358](https://doi.org/10.2514/1.J056358)

- J-12. JB. Liu, AX. Guo, QH. Fang; H. Li, PF Liu, H. Hu, "Investigation of linear wave action around a truncated cylinder with non-circular cross-section". *Journal of Marine Science and Technology*, 2018. <https://link.springer.com/article/10.1007/s00773-017-0516-0>
- J-13. W. Tian, A. Ozbay, and H. Hu, "An experimental investigation on the aeromechanics and wake interferences of wind turbines sited over complex terrain". *Journal of Wind Engineering & Industrial Aerodynamics*, Vol.172, pp379-394, 2018. <https://doi.org/10.1016/j.jweia.2017.11.018>
- J-14. ZY Wang, W. Tian, A. Ozbay and H. Hu, "An Experimental Study on the Aerodynamic Performances and Wake Characteristics of an Innovative Dual-Rotor Wind Turbine", *Energy*, Vol. 147, pp94-109, 2018. <https://doi.org/10.1016/j.energy.2018.01.020>
- J-15. W. Tian, A. Ozbay and H. Hu, "An Experimental Investigation on the Wake Interference Among Wind Turbines Sited in Aligned and Staggered Wind Farms". *Wind Energy*, Vol. 21, No. 2, pp100-114, 2018. <https://doi.org/10.1002/we.2147>
- J-16. DL Gao, WL Chen, H. Li, and H. Hu, "Flow around a slotted circular cylinder at various angles of attack". *Experiments in Fluids*, 58:132, 2017. [DOI 10.1007/s00348-017-2417-8](https://doi.org/10.1007/s00348-017-2417-8)
- J-17. W. Tian, A. Ozbay, XD Wang, and H. Hu, "Experimental investigation on the wake interference among wind turbines sited in atmospheric boundary layer winds". *Acta Mechanica Sinica*, Vol. 33, No.4, pp742–753, Springer, 2017. [DOI: 10.1007/s10409-017-0684-5](https://doi.org/10.1007/s10409-017-0684-5).
- J-18. WW Zhou and H. Hu, "A Novel Sand-Dune-Inspired Design for Improved Film Cooling Performance", *International Journal of Heat and Mass Transfer*, Vol. 110(7), pp908–920, 2017. <http://www.sciencedirect.com/science/article/pii/S0017931017303757>
- J-19. Y. Liu, L. Bond and H. Hu, "Ultrasonic-Attenuation-Based Technique for Ice Characterization Pertinent to Aircraft Icing Phenomena", *AIAA Journal*, Vol. 55, No. 5, pp. 1602-1609. 2017. <http://dx.doi.org/10.2514/1.J055500>
- J-20. WW Zhou and H. Hu, "Effects of Flow Compressibility and Density Ratio on Film Cooling Performance", *AIAA Journal of Power and Propulsion*, Vol. 33, No. 4, pp. 964-974, 2017. <http://arc.aiaa.org/doi/pdf/10.2514/1.B36275>
- J-21. F Chen, H. Liu, ZF Yang and H. Hu, "Tracking characteristics of tracer particles for PIV measurements in supersonic flows", *Chinese Journal of Aeronautics*, Vol.30, No.2, pp. 577-585, 2017. <http://dx.doi.org/10.1016/j.cja.2016.12.033>
- J-22. Y. Liu, WL Chen, L. Bond and H. Hu, "An Experimental Study on the Characteristics of Wind-driven Surface Water Film Flows by Using a Multi-Transducer Ultrasonic Pulse-Echo Technique", *Physics of Fluids*, 29, 012102 (13 pages), 2017. <http://dx.doi.org/10.1063/1.4973398>
- J-23. WL Chen, DL Gao, H. Li, H. Hu "Flow around a circular cylinder with slit", *Experimental Thermal and Fluid Science*, Vol. 82, No. 4, pp287-301, 2017. <http://dx.doi.org/10.1016/j.expthermflusci.2016.11.025>
- J-24. WL Chen, XJ Wang, F. Xu, H. Li, H. Hu, "A passive jet flow control method for suppressing unsteady vortex shedding from a circular cylinder", *ASCE's Journal of Aerospace Engineering*, Vol. 30, No. 1, 04016063 (19 pages), 2017. [DOI: 10.1061/\(ASCE\)AS.1943-5525.0000661](https://doi.org/10.1061/(ASCE)AS.1943-5525.0000661).