Curriculum Vitae - Dr. Hui Hu

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Education

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

Professional Experience

2009 – Present	Associate Professor with Tenure Department of Aerospace Engineering, Iowa State University, U.S.A.
2004 – 2009	Assistant Professor Department of Aerospace Engineering, Iowa State University, U.S.A.
2000 – 2004	Research Associate and Course Instructor Department of Mechanical Engineering, Michigan State University, U.S.A.
1997 – 2000	JSPS Research Fellow Institute of Industrial Science, the University of Tokyo, Japan

Honors and Awards:

- *Best Paper Award,* AIAA Applied Aerodynamics Technical Committee, 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.
- *Best Paper Award*, Visualization Society of Japan, Japan, 2001.
- *Kodak Excellent Flow Visualization Award,* Visualization Society of Japan, 2000.
- *Award Winner of Sixth Computer Visualization Festal,* Nikkei Science, Japan, 2000.
- *Research Fellowship,* Japan Society for Promotion of Science (JSPS), Japan, 1997-2000.
- *Best Paper Award*, Chinese Society of Aeronautics and Astronautics, China, 1995.
- *Achievement Award on Aerospace Science and Technology*,Chinese Aerospace Ministry, 1995.

Research Interests and Expertise:

1). Fundamental studies on challenging thermal-fluids problems:

- Microfluidics, micro-flows and micro-scale heat transfer.
- Icing physics, aircraft icing, power line icing and wind turbine icing.
- Wind energy, wind turbine technology and wind turbine anti-icing/deicing.
- Film cooling, trailing edge cooling and thermal management of gas turbine blades.
- Low Reynolds number aerodynamics, boundary layer flow separation and control.
- Bio-inspired flows, bio-inspired designs for micro-air-vehicle (MAV) applications.
- Vortex flow dynamics, wind tunnel testing and correction for vortex flows.
- Tornados, storms and flow-structure interactions of built structures in strong 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) imaging thermometry

SELECTED PUBLICATIONS IN RECENT 3-YEARS

- **H. Hu, Z. Jin, "**An Icing Physics Study by using Lifetime-based Molecular Tagging Thermometry Technique**",** *International Journal of Multiphase Flow,* 2009.
- **H. Hu, Z. Jin, M. Koochesfahani, C. Lum and D. Nocera** "Molecular Tagging Techniques for Micro-Scale Flow and Heat Transfer Studies", *Microfluidics and Nanofluidics,* 2009.
- **T. Murphy** and **H. Hu,** "An Experimental Study of Corrugated Airfoils at Low Reynolds Numbers for MAV Applications", *Experiments in Fluids,* 2009 (in press).
- **Z. Jin and H. Hu** "Quantification of Unsteady Heat Transfer and Phase Changing Process inside Small Icing Water Droplets", *Review of Scientific Instruments,* Vol. 80, No.6, 2009.
- **H. Hu, and D. Huang,** "Simultaneous Measurements of Droplet Size and Transient Temperature within Surface Water Droplets", *AIAA Journal,*Vol. 47, N0.4, pp813-820, 2009.
- **T. Murphy** and **H. Hu,** "An Experimental Investigation on a Bio-inspired Corrugated Airfoil", AIAA 2009-1087. (**2009 AIAA Best Paper Award Winner**).
- **M. Tamai and H. Hu,** "A Bio-inspired Corrugated Airfoil at Low Reynolds Numbers", *AIAA Journal of Aircraft,* Vol. 47, No. 6, pp2068-2077, 2008.
- **H. Hu, M. Tamai and J. T. Murphy,** "Flexible Membrane Airfoils at Low Reynolds Numbers", *AIAA Journal of Aircraft,* 2008, Vol. 47, No. 5, pp1767-1778, 2008.
- **H. Hu, and T. Kobayashi,** "Vortex Structures Downstream a Lobed Nozzle/Mixer", *Journal of Aerospace Power,* Vol. 23, No.7, pp1266-1278, 2008.
- **H. Hu and Z. Yang**, "An Experimental Study of the Laminar Flow Separation on a Low Reynolds Number Airfoil", *ASME Journal of Fluid Engineering,*Vol.130, No.5,051101, 2008.
- **H. Hu Z. Jin, A. Dawoud, and R. Jankowiak,** "Fluid Mixing Control Inside a Y-shaped Microchannel by Using Electrokinetic Instability", *Journal of Fluid Science and Engineering,* Vol.3, No.2, pp260-273, 2008.
- **Z. Yang and H. Hu,** "Laminar Flow Separation and Transition on a Low-Reynolds-Number Airfoil", *AIAA Journal of Aircraft,* Vol. 45, No. 3, pp1067-1070, 2008.
- **Z. Jin, S. Someya, K. Okamoto and H. Hu,** "Mixing Enhancement in a Microfluidic Device", *Journal of Visualization,* Vol.11, No. 1, pp35-36, 2008.
- **D. Huang and H. Hu**, "Molecular Tagging Thermometry for the Transient Temperature Mapping within a Water Droplet", *Optics Letters,* Vol.32. No.24, pp3534-3536, 2007.
- **H. Hu, Z. Yang and H. Igarashi,** "Aerodynamic Hysteresis of a Low-Reynolds-Number Airfoil", *AIAA Journal of Aircraft,* Vol. 44, No. 6, pp2083-2086, 2007.
- **H. Hu, and M. Koochesfahani,** "A Novel Molecular Tagging Technique for Simultaneous Measurements of Flow Velocity and Temperature Fields", *Journal of Visualization,* Vol.9, No.4, pp357, 2006.
- **H. Hu and M. Koochesfahani,** "Molecular Tagging Velocimetry and Thermometry (MTV&T) Technique and Its Application to the Wake of a Heated Circular Cylinder", *Measurement Science and Technology,* Vol. 17, No. 6, pp1269-1281, 2006. (***2007 Best Paper Award Winner***).
- **H. Hu, C. Lum and M. Koochesfahani,** "Molecular Tagging Thermometry with Adjustable Temperature Sensitivity", *Experiments in Fluids,* Vol.40, No. 5, pp753-763, 2006.