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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

- 07/2004 – Present Assistant Professor
Department of Aerospace Engineering, Iowa State University, U.S.A.
- 07/2000 – 07/2004 Research Associate and Course Instructor
Department of Mechanical Engineering, Michigan State University, U.S.A.
- 01/1997 – 07/2000 JSPS Research Fellow
Institute of Industrial Science, the University of Tokyo, Japan

Honors and Awards

- *Air Force Summer Faculty Fellowship Award*, 2008
- *Outstanding 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 Festival*, Nikkei Science, Japan, 2000.
- *Research Fellowship of Japan Society for Promotion of Science*, Japan, 1997-2000.
- *Best Paper Award*, Chinese Society of Aeronautics and Astronautics, China, 1995.
- *Achievement Award on Aerospace Science & Technology*, Chinese Aerospace Ministry, 1995.

Professional Service

- Associate editor, *International Journal of Aerospace Engineering*, Hindawi Publishing Corporation, 2007 – present.
- Voting Member, AIAA Aerodynamic Measurement Technologies Technical Committee, 2005 – present.

Research Interests

- 1). Fundamental studies on challenging thermal-fluids problems:
 - Laminar flow separation and transition on low-Reynolds-number airfoils
 - Bio-inspired aerodynamic designs for micro-air-vehicle (MAV) applications
 - Icing physics, aircraft icing, wind turbine icing and power cable icing.
 - Micro-flows and micro-scale heat transfer in microfluidics.
 - Vortex flow and flow-structure interaction in tornado-liked winds
 - Film cooling and trailing edge cooling of turbine blades.
- 2). Advanced flow diagnostics and instrumentations:
 - Particle Image Velocimetry (PIV) and Stereoscopic PIV (SPIV) techniques
 - 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 Dot imaging and Molecule-based microscopic flow diagnostic techniques

Selected Publications

1. **H. Hu, M. Tamai and J. T. Murphy**, "Flexible Membrane Airfoils at Low Reynolds Numbers", *Journal of Aircraft*, 2008, (accepted, in press).
2. **H. Hu, and M. Tamai**, "A Bio-inspired Corrugated Airfoil at Low Reynolds Numbers", *Journal of Aircraft*, 2008, (accepted, in press).
3. **H. Hu and Z. Yang**, "An Experimental Study of the Laminar Flow Separation on a Low-Reynolds-Number Airfoil", *Journal of Fluid Engineering*, Vol. 130, No. 5, 051101, 2008.
4. **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*, Vo.3, No. 2, pp260-273, 2008.
5. **Z. Yang and H. Hu**, "Laminar Flow Separation and Transition on a Low-Reynolds-Number Airfoil", *Journal of Aircraft*, 2008, Vol. 45, No.3, pp1067-1070, 2008.
6. **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.
7. **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
8. **H. Hu, Z. Yang and H. Igarashi**, "Aerodynamic Hysteresis of a Low-Reynolds-Number Airfoil", *Journal of Aircraft*, Vol. 44, No. 6, pp2083-2086, 2007.
9. **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.
10. **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.
11. **H. Hu, C. Lum and M. Koochesfahani**, "Molecular Tagging Thermometry with Adjustable Temperature Sensitivity", *Experiments in Fluids*, Vol.40, No. 5, pp753-763, 2006.
12. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Analysis of a Turbulent Jet Mixing Flow by Using a PIV-PLIF Combined System", *Journal of Visualization*, Vol.7, No.1. pp.33-42, 2004.
13. **H. Hu and M. Koochesfahani**, "A Novel Technique for Temperature Mapping in Liquid by Measuring the Lifetime of Laser Induced Phosphorescence", *Journal of Visualization*, Vol.6, No.2, pp143-153, 2003.
14. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Mixing Process in a Lobed Jet Flow", *AIAA Journal*, Vol. 40, No. 7, pp1339-1345, 2002.
15. **H. Hu and M. Koochesfahani**, "A Novel Method for Instantaneous, Quantitative Measurement of Molecular Mixing in Gaseous Flows" *Experiments in Fluids*, Vol. 33, No. 1, pp202-209, 2002.
16. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Simultaneous Measurements of All Three Components of Velocity and Vorticity Vectors in a Lobed Jet Flow by Means of Dual-plane Stereoscopic Particle Image Velocimetry". *Physics of Fluids*, Vol. 14, No. 7, pp2128-2138, 2002.
17. **H. Li, H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Application of Wavelet Vector Multi-resolution Technique to Stereoscopic PIV Measurements in a Lobed Jet", *AIAA Journal*, Vol. 40, No.6, pp1037-1046, 2002.
18. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Stereoscopic PIV Measurement of a Lobed Jet Mixing Flow", included in Book "*Developments in Laser Techniques and Applications to Fluid Mechanics*", R. J. Adrian et al. (Eds.), Springer-Verlag, 2002.
19. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi** "Simultaneous Velocity and Concentration Measurements of Turbulent Jet Mixing Flows" in Book "*Visualization and Image in Transport Phenomena*", S. Sidman and A. Landesberg. (Eds.) ISBN 1-57331-371-8, also, *Annals of the New York Academy of Sciences*, Vol. 972, 2002.
20. **H. Li, H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Visualization of Multi-scale Turbulent Structure in a Lobed Mixing Jet Using Wavelets", *Journal of Visualization*, Vol. 4, No. 3. 2001.
21. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "A Study on a Lobed Jet Mixing Flow by Using Stereoscopic PIV Technique". *Physics of Fluids*, Vol.13, No. 11, pp3425-3441, 2001.
22. **H. Hu, T. Saga, T. Kobayashi, N. Taniguchi and M. Yashuki**, "Dual-plane Stereoscopic Particle Image Velocimetry: System Setup and Its Application on a Lobed Jet Mixing Flow", *Experiments in Fluids*, Vol. 31, No. 3, pp277-293, 2001.
23. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Particle Image Velocimetry and Planar Laser Induced Fluorescence Measurements on Lobed Jet Mixing Flows", *Experiments in Fluids*, Vol.29, No.7, pps141-157, 2000.
24. **H. Hu, T. Saga, T. Kobayashi and N. Taniguchi**, "Research on the Vortical and Turbulent Structures in a Lobed Jet Flow by Using LIF and PIV", *Measurement Science and Technology*, Vol.11, No.6, pp698-711. 2000.