



## Nobuyuki FUJISAWA, Dr. Eng.

Professor

Program: Advanced Material Science and Technology

Area: Advanced Mechanical Science and Engineering

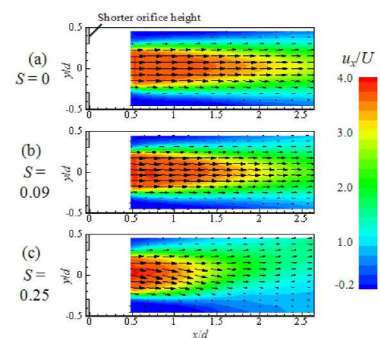
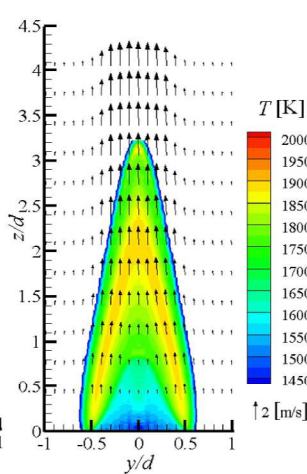
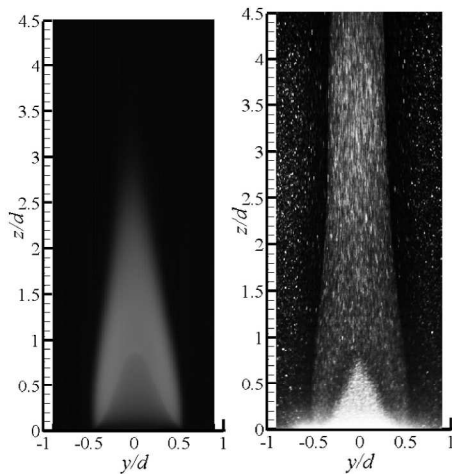
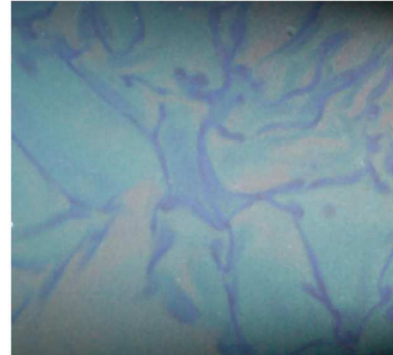
Undergraduate: Dept. of Mechanical Engineering

<http://tmfujisv.eng.niigata-u.ac.jp/>

### Professional Expertise

His professional expertise encompasses qualitative and quantitative flow visualization in the fields of mechanical engineering, science and arts. He and his group have been developing new experimental visualization techniques, such as particle image velocimetry, laser induced fluorescence technique and liquid crystal technique for thermal and fluid flow measurement and flame reaction and two color imaging technique for high temperature measurement for combusting flame. He has been interested in the optimum design of fluid machinery, flow induced sound and vibration, maintenance technology for nuclear power plant.

### Research Fields of Interest



## Education

1983: D.E in Mechanical Engineering, Graduate School of Engineering, Tohoku University, Japan

1979: M.E in Mechanical Engineering, Graduate School of Engineering, Tohoku University, Japan

## Professional Societies and Activities

1. Visualization Society Japan
2. Japan Society of Mechanical Engineering
3. Japan Society of Maintenology
4. Turbomachinery Society of Japan

## Awards

1. Technical Award, Flow Visualization Society, 1989
2. JOV Award, Visualization Society Japan, 2007
3. Technical Award, Visualization Society Japan, 2009

## Major Publications

### Papers

[1] N. Fujisawa, Y. Kawaji and K. Ikemoto, Feedback Control of Vortex Shedding from a Circular Cylinder by Rotational Oscillations, *J. Fluids and Structures*, Vol.15, pp.23-37, 2001

[2] N. Fujisawa, A. Hosokawa and S.Tomimatsu, Simultaneous Measurement of Droplet Size and Velocity Field by Interferometric Imaging Technique and PIV in Spray Combustion, *Measurement Science and Technology*, Vol.14, pp.1341-1349, 2003

[3] S. Funatani, N. Fujisawa and H. Ikeda, Simultaneous Measurement of Temperature and Velocity Using Two-color LIF Combined with PIV with a Color CCD Camera and Its Application to Turbulent Buoyant Plume, *Measurement Science and Technology*, Vol.15, pp.983-990, 2004

[4] N. Fujisawa, S. Tanahashi and K. Srinivas, Evaluation of Pressure Field and Fluid Forces on a Circular Cylinder with and without Rotational Oscillation Using Velocity Data from PIV Measurement, *Measurement Science and Technology*, Vol.16, pp.989-996, 2005

[5] T. Nakano, N. Fujisawa and S. Lee, Measurement of Tonal-Noise Characteristics and Periodic Flow Structure around NACA0018 Airfoil, *Exp. Fluids*, Vol.40, pp.482-490, 2006

[6] N. Fujisawa, M. Verhoeckx, D.Dabiri, M. Gharib and J. Hertzberg, Recent Progress in Flow Visualization Techniques toward the Generation of Fluid Art, *J. Visualization*, Vol.10, pp.163-170, 2007

[7] F. Matsuura and N. Fujisawa, A New Anaglyph Stereo Visualization Technique for Sculpture Art, *J. Visualization*, Vol.13, pp.257-261, 2010

[8] T. Syuto, N. Fujisawa, T. Takasugi and T. Yamagata, Three-Dimensional Flow Visualization and Velocity Measurement in Near Field of Strongly Buoyant Jet, *J. Visualization*, Vol.13, pp. 203-211, 2010

### Book Chapters

[1] N. Fujisawa, Calculations of Transitional Boundary-Layers with a Refined Low-Reynolds Number Version of a k- $\epsilon$  Model

of Turbulence, In: *Engineering Turbulence Modeling and Experiments*, ed. W. Rodi and E.N. Ganic, Elsevier, New York, 1990, pp.23-32, 1990

[2] R.D. Keane, N. Fujisawa and R.J. Adrian, Unsteady Non-penetrative Thermal Convection from Non-uniform Surfaces, In: *Geophysical and Astrophysical Convection*, ed. P.A. Fox and R.M. Kerr, Gordon & Breach, Amsterdam, pp.59-74, 2000

### Invited Conference Paper

[1] N. Fujisawa, Y. Watanabe and S. Funatani, Recent Development of Simultaneous Measurements and Visualization of Temperature and Velocity Fields and Their Application to Thermal Flow Phenomena, 9<sup>th</sup> FLUCOME, Tallahassee, Paper 245, 2007

[2] N. Fujisawa, T.Syutoh, T.Takasugi and T. Yamagata, Three-dimensional Flow Visualization of Turbulence Structure in Strongly Buoyant Jets, *Proceedings of 10<sup>th</sup> Asian Symposium on Visualization*, Chennai, India, Keynote Lecture, 2010