

OS1: Innovative Aerospace Theory and Technology

SUEHIRO

November 7, 2006

- OS1-1 **An Overview of CFD at Bombardier Aerospace**
14:20-15:20 Ian Fejtek (Bombardier Aerospace, Canada)
- OS1-2 **Numerical Prediction of Aircraft Noise**
15:20-15:40 - **Recent Research Work at JAXA** -
Kazuomi Yamamoto, Shunji Enomoto, Taro Imamura, Junichi Kazawa,
Osamu Nozaki (Japan Aerospace Exploration Agency, Japan)
- OS1-3 **Vortical Structures in Flap-tip Flowfield of Commercial Aircraft Model**
15:40-16:00 **Applying CFD and WTT**
Masafumi Kuroda (Tohoku University, Japan), Yuzuru Yokokawa,
Mitsuhiro Murayama (Japan Aerospace Exploration Agency, Japan)
and Kazuhiro Nakahashi (Tohoku University, Japan)
- 16:00-16:10 Breaks
- OS1-4 **Design Optimization of Elements' Setting for a High-Lift Airfoil Based**
16:10-16:30 **on Data Mining Technique**
Masahiro Kanazaki (Japan Aerospace Exploration Agency, Japan),
Shinkyu Jeong (Tohoku University, Japan), Mitsuhiro Murayama,
Yuzuru Yokokawa, and Kazuomi Yamamoto (Japan Aerospace
Exploration Agency, Japan)
- OS1-5 **Winglet Shape Optimization Based on Drag Decomposition Method**
16:30-16:50 Wataru Yamazaki, Kisa Matsushima, and Kazuhiro Nakahashi
(Tohoku University, Japan)
- OS1-6 **Numerical Evaluation and Design of Optical Setup for Compressible**
16:50-17:10 **Flow Visualization**
Mingyu Sun (Tohoku University, Japan)

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- OS1-7 **Low-boom Small-sized SST designed using Silent Supersonic Technology**
9:30-09:50 Takeshi Furukawa, Yoshikazu Makino and Shigeru Horinouchi
(Japan Aerospace Exploration Agency, Japan)
- OS1-8 **An Approach to Avoiding Choked Flow for Supersonic Biplane**
09:50-10:10 Hiroshi Yamashita, Masahito Yonezawa, Shigeru Obayashi (Tohoku University, Japan), Kazuhiro Kusunose (Japan Defense Agency, Japan)
- OS1-9 **Sweep Effect in Three-dimensional Busemann Biplane**
10:10-10:30 Masahito Yonezawa, Hiroshi Yamashita, Shigeru Obayashi (Tohoku University, Japan), Kazuhiro Kusunose (Japan Defense Agency, Japan)
- OS1-10 **Aerodynamic Assessment of a Biplane Airfoil as Future Supersonic Transport Based on Busemann Biplane**
10:30-10:50 Daigo Maruyama, Kisa Matsushima (Tohoku University, Japan), Kazuhiro Kusunose (Japan Defense Agency, Japan), Kazuhiro Nakahashi (Tohoku University, Japan)
- OS1-11 **Experimental Study on Aerodynamics of Supersonic Biplane for Sonic-Boom Reduction**
10:50-11:10 Naoshi Kuratani, Toshihiro Ogawa, Hiroshi Yamashita, Masahito Yonezawa, Shigeru Obayashi (Tohoku University, Japan)
- 11:10-13:00 Lunch
- OS1-12 **Innovative aerodynamic and acoustic design of a Supersonic Business Jet**
13:00-14:00 Gilbert Roge (Dassault Aviation, France)
- 14:00-14:10 Breaks

- OS1-13 **Active Control of Asymmetric Forebody Vortices Using Plasma
Actuators**
14:10-14:30 Takashi Matsuno, Hiromitsu Kawazoe (Tottori University, Japan),
Robert C. Nelson and Thomas C. Corke (University of Notre Dame,
USA)
- OS1-14 **Performance Evaluation of a Micro Thruster Utilizing Hydrogen
Peroxide Decomposition**
14:30-14:50 Jeongsub Lee, Sungyong An, Sejin Kwon (Korea Advanced Institute of
Science and Technology, Korea)
- OS1-15 **MHD Free convection and mass transfer flow in a porous media with
simultaneous rotating fluid (Part-II)**
14:50-15:10 Ferdows Mohammad and Koji Kaino
(Toyota Technological Institute, Japan)

OS2: Micro/Nanoscale Heat and Fluid Flow

TAIKAN

November 7, 2006

- 14:20-14:30 **OS-2 Opening Address**
Taku Ohara (Tohoku University, Japan)
- 14:30-15:50 **Invited Talk I (Chair: Takashi Tokumasu)**
- OS2-1 **The Interfacial Interaction on Flow and Heat Transfer at Nanoscale**
14:30-15:10 Xin-Gang Liang (Tsinghua University, China)
- OS2-2 **Determination of Reaction Coefficient of Nitrogen Atoms with Solid**
15:10-15:50 **Carbon by Implementing DSMC Simulations with Experiments**
Shigeru Yonemura, Kenichi Nanbu (Tohoku University, Japan), Chul Park (KAIST, Korea) and Hideto Takekida (Tohoku University, Japan)
- 15:50-16:00 Break
- 16:00-17:20 **Invited Talk II (Chair: Hirofumi Daiguji)**
- OS2-3 **Study on Liquid Flow Characteristics in Microtubes**
16:00-16:40 Feng He and Pengfei Hao (Tsinghua University, China)
- OS2-4 **Three-Dimensional Measurement in a Micro-Flow via Micro-Digital**
16:40-17:20 **Holographic Particle-Tracking Velocimetry**
Shin-ichi Satake (Tokyo University of Science, Japan), Tomoaki Kunugi (Kyoto University, Japan), Kazuho Sato (Toyota Industries, Japan), Tomoyoshi Ito (Chiba University, Japan) and Jun Taniguchi (Tokyo University of Science, Japan)

November 8, 2006

- 9:00-10:20 **Invited Talk III (Chair: Shigeru Yonemura)**
- OS2-5 **Quantum Molecular Dynamics Study on Energy Transfer to an**
9:00-9:40 **Electron in Surface Collision Process of an Ion**
Masahiko Shibahara (Osaka University, Japan), Shin-ichi Satake and Jun Taniguchi (Tokyo University of Science, Japan)

- OS2-6 **Transport Phenomena in Nanofluidic Channels -Nanofluidic Modeling**
9:40-10:20 Hirofumi Daiguji (The University of Tokyo, Japan)
- 10:20-10:30 Break
- 10:30-11:50 **Invited Talk IV** (Chair: Masahiko Shibahara)
- OS2-7 **Thermal Conductivity of a Finite Length Single-Walled Carbon**
10:30-11:10 **Nanotube**
Shigeo Maruyama and Junichiro Shiomi (The University of Tokyo, Japan)
- OS2-8 **Thermal Wave Front Propagation in Nanoribbon**
11:10-11:50 Tatiana Zolotoukhina (Toyama University, Japan)
- 11:50-13:20 Lunch
- 13:20-15:00 **Poster Session** (Chair: Taku Ohara)
- OS2-P1 **A Numerical Investigation on Surface Plasmon Resonance Biosensor with Bimetallic Silver-Gold Film Structure**
Hyuk Rok Gwon, Hyung Sub Shim, Kyung Chul Ro, Hong Sun Ryou and Seong Hyuk Lee (Chung-Ang University, Korea)
- OS2-P2 **Development of Pressure Sensitive Molecular Film for High Knudsen Number Conditions**
Hideo Mori, Yu Matsuda, Tomohide Niimi, Hiroyuki Uenishi and Yoshiki Sakazaki (Nagoya University, Japan)
- OS2-P3 **Ion Pump by the Thermally Anisotropic Brownian Ratchet Microchip**
Takeo Nakano, Taku Ohara and Daichi Torii (Tohoku University, Japan)
- OS2-P4 **Modeling of Ion-Atom Collisions Considering Resonant Charge Exchange**
Shigeru Yonemura, Soichiro Oishi and Kenichi Nanbu (Tohoku University, Japan)

- OS2-P5 **Micro-Scale Heat Transport Modeling Using Equation of Phonon Radiative Transfer**
Atsushi Sakurai, Shigenao Maruyama (Tohoku University, Japan), Koji Miyazaki (Kyushu Institute of Technology, Japan) and Atsuki Komiya (Tohoku University, Japan)
- OS2-P6 **Heat Conduction of Single-Walled Carbon Nanotube Isotope-Superlattice Structures**
Junichiro Shiomi and Shigeo Maruyama (The University of Tokyo, Japan)
- OS2-P7 **Computational Simulation on Acceleration of Micro/Nano Particle in Supersonic Jet by Electrostatic Force**
Hidemasa Takana, Kazuhiro Ogawa, Tetsui Shoji and Hideya Nishiyama (Tohoku University, Japan)
- OS2-P8 **Dissociation Phenomena of H₂ on Pt(111) Surface**
Takashi Tokumasu (Tohoku University, Japan)
- OS2-P9 **Effect of Channel Diameter on Micro Discharges in a Narrow Channel**
Lizhu Tong, Shigeru Yonemura, Hidemasa Takana and Hideya Nishiyama (Tohoku University, Japan)
- OS2-P10 **Molecular Scale Governing Factor on Characteristics of Thermal Energy Transfer at Solid-Liquid Interfaces**
Daichi Torii, Taku Ohara and Kenji Ishida (Tohoku University, Japan)
- OS2-P11 **A Molecular Dynamics Simulation on a Growth of Bubble Nuclei in a Decompressed Liquid**
Shin-ichi Tsuda, Shu Takagi and Yoichiro Matsumoto (The University of Tokyo, Japan)
- OS2-P12 **On Precursor Film Formed Ahead Advancing Contact Line of Traveling Droplet on Solid Substrate**
Ichiro Ueno, Takumi Konisho, Tomoya Kawase and Takuya Watanabe (Tokyo University of Science, Japan)

OS2-P13

**Thermal Conductivity and Interfacial Thermal Resistance in
Double-Layered Nanofilms by Nonequilibrium Molecular Dynamics
Simulations**

Shuai-Chuang Wang, Xin-Gang Liang (Tsinghua University, China)

OS3: Transdisciplinary Fluid Integration

Fuji A

November 8, 2006

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| 9:00-9:10 | OS-3 Opening Address
<u>Toshiyuki Hayase</u> (Tohoku University, Japan) |
| OS3-1
9:10-9:30 | Aeronautical Design and Aviation Safety in Integrated FluidInformatics
<u>Shigeru Obayashi</u> and Shinkyu Jeong (Tohoku University, Japan) |
| OS3-2
9:30-9:50 | Reality Coupled Computation of Complex Multiphase Flow
<u>Jun Ishimoto</u> (Tohoku University, Japan) |
| OS3-3
9:50-10:10 | Collaborative Visualization Design R&Ds in Integrated Visual Informatics
<u>Issei Fujishiro</u> and Yuriko Takeshima (Tohoku University, Japan) |
| 10:10-10:20 | Break |
| OS3-4
10:20-10:40 | Measurement of Boundary-Layer Transition by Towing Wind Tunnel
Shuya Yoshioka, <u>Yasuaki Kohama</u> , Takuma Kato, Fukuo Ohta, Masahiro Tokuyama and Satoshi Kikuchi (Tohoku University, Japan) |
| OS3-5
10:40-11:00 | Integration of Measurement and Simulation in Complex Blood Flow Researches in Super-Real-Time Medical Engineering Laboratory
<u>Toshiyuki Hayase</u> (Tohoku University, Japan) |
| OS3-6
11:00-11:20 | Ultimate Top-down Etching Processes for Future Nano-scale Devices
<u>Seiji Samukawa</u> (Tohoku University, Japan) |
| 11:20-13:30 | Lunch |

- OS3-7 **Multi-Disciplinary Optimisation, a New Challenge to CFD?**
13:30-14:30 Karkenahalli Srinivas (University of Sydney, Australia)
(Invited)
- OS3-8 **The Buckling Tendency of Jets and Wakes**
14:30-14:50 Ajit Godbole (University of Wollongong, Australia)
- OS3-9 **Boundary Element Method Simulations of Shockwave-Bubble**
14:50-15:10 **Interactions: Numerical and Experimental Comparisons**
Siew Wan Fong (Institute of High Performance Computing,
Singapore), Evert Klaseboer, Cary Turangan, Boo Cheong Khoo
(National University of Singapore, Singapore)
- OS3-10 **Flow phenomena of forced convective supercritical CO₂ in a circular**
15:10-15:30 **tube**
Hiroshi Yamaguchi and Xin-Rong Zhang

OS4: Engineering and Biomedical Applications of magnetic particles and fluid

GODAI

November 8, 2006

9:25 ~ 9:30 **OS4 - Opening Address**

Prof. Kazuyuki Tohji (Tohoku University Japan)

OS4-1 **Synthesis of high-performance magnetic fluids and their magnetic properties**

19:30 - 10:20 Dr. Isao Nakatani (National Institute for Material Science, Japan)

OS4-2 **Magnetic nanoparticle complexes for pathogen detection and toxin removal**

10:20 - 11:10 Prof. Bing Xu (The Hong Kong Univ. of Science and Technology , Hong Kong)

OS4-3 **Application of Magnetic and Luminescent Metal Oxide particles to Biosensors**

11:10 - 12:00 Prof. Ian Kennedy, UC Davis, USA

12:00 - 13:30 LUNCH

OS4-4 **Magnetic nanoparticle complexes for drug delivery, and implanted magnets for targeting**

13:30-14:20 Prof. M. Ricardo Ibarra Garcia, Instituto De Nanociencia De Aragon, Spain

OS4-5 **Rapid Characterization of Magnetic Particles in Biotechnology**

14:20 - 15:10 K. V. Rao (Royal Institute of Technology, Stockholm, Sweden)

OS4-6 **Societal Implication of Nanotechnology and Risk Assessment of Nanoparticles**

15:10 - 16:00 Dr. Eiichi Ozawa (National Institute for Materials Science: Nanotechnology Researchers Network Center of Japan, Japan)

16:00 - 16:05 **OS4 CLOSING REMARKS**

Prof. Balachandran Jeyadevan

OS5: The Second International Students/Young Birds Seminar on Multi-scale Flow Dynamics

Fuji B

November 8, 2006

9:05- 9:15

Opening Address

H. Kobayashi (Tohoku University, Japan)

Session 1

9:15-10:40

Short Oral Presentation

(4 min presentation + 1 min PC preparation for each paper)

10:50-12:00

Poster Presentation

(10:50-11:25 poster presentation for odd-numbered posters)

(11:25-12:00 poster presentation for even-numbered posters)

OS5-1

Formation of Lactic Acid from Carbohydrate Biomass by Alkaline Hydrotheremal Reaction

X. Yan, F. Jin, K. Tohji and H. Enomoto (Tohoku University, Japan)

OS5-2

The Performance of SrTiO₃ Schottky Solar Cell at High-temperatures and It's Relationship to Substrate Orientation

F. Horikiri, K. Sato, K. Yashiro, T. Kawada and J. Mizusaki.
(Tohoku University, Japan)

OS5-3

Solution of Bio-heat Transfer Equation during Thermal Therapies

J. Okajima, S. Maruyama and A. Komiya (Tohoku University, Japan)

OS5-4

Experimental Study of Forced Convection Heat Transfer Characteristics for Slush Nitrogen Pipe Flow

T. Kura, K. Ohira, K. Niyama, N. Koizumi and J. Ishimoto (Tohoku University, Japan)

OS5-5

Measurement of Supersonic Mixing Flowfield Using Acetone PLIF

H. Takahashi, M. Hirota, H. Oso and G. Masuya (Tohoku

University, Japan)

- OS5-6 **Comparison of Cell Growth and Ferrous Iron Oxidation in Two Kinds of Culture Media**
Z. Sarcheshmehpour, S. Suyama, K. Suto, C. Inoue, A. Safavinejad (Tohoku University, Japan) and A. Lakzian (Ferdowsi University of Mashhad, Iran)
- OS5-7 **Experimental Analysis of Nonequilibrium Plasma Flow at Atmospheric Pressure for Catheter Sterilization**
O. Furuya, T. Sato (Tohoku University, Japan) and T. Nakatani (Toyo Advanced Technologies, Japan)
- OS5-8 **Estimation of the Number of Cross-links of Multi-walled Carbon Nanotube Films Formed by a Dehydration Condensation Reaction**
S. Ogino, Y. Sato, G. Yamamoto, K. Sasamori, H. Kimura, T. Hashida, K. Motomiya, B. Jeyadevan and K. Tohji (Tohoku University, Japan)
- OS5-9 **Evaluation of Crack Evaluation Capability of Novel EMAT-ECT Multi Sensor**
K. Suzuki, T. Uchimoto, T. Takagi, T. Sato (Tohoku University, Japan), P. Guy and A. Casse (INSA-Lyon, France)
- OS5-10 **Implicit LES for Two-Dimensional Turbulent Flow Using Shock Capturing Monotone Scheme**
K. Ishiko, N. Ohnishi, K. Sawada (Tohoku University, Japan), N. Williamson and S. W. Armfield (The University of Sydney, Australia)
- OS5-11 **Electrical and Magnetic Sensitivity of Hydrogenated Amorphous Carbon Film Containing Transition Metal**
Y. Hoshi, T. Takeno, H. Miki and T. Takagi (Tohoku University, Japan)
- OS5-12 **Short-time Self-diffusion in Highly Charged Colloidal Suspension**

T. Furubayashi, M. Tokuyama and Y. Terada (Tohoku University, Japan)

OS5-13 **Experimental and Numerical Study on Combustion Characteristics of Heat Recirculating Micro Combustor**

S. Aizumi, T. Yokomori, S. Hasegawa, S. Kato, S. Maruyama and K. Maruta (Tohoku University, Japan)

OS5-14 **Visualization of Hypersonic Compression Corner Flows Using Temperature- and Pressure-Sensitive Paints**

Y. Ishiguro, S. Ohmi, H. Nagai and K. Asai (Tohoku University, Japan)

OS5-15 **Combustion Instability in Low Density Porous Media**

S. G. Kim, T. Yokomori, S. Maruyama and K. Maruta (Tohoku University, Japan)

OS5-16 **Liquid-Crystal Phase Transition in Monodisperse Hard-Sphere Fluid**

E. Kohira, M. Tokuyama and Y. Terada (Tohoku University, Japan)

OS5-17 **Investigation of Angled Injections into a Supersonic Flow**

K. Tanaka, S. Koike, M. Hirota, K. Takita and G. Masuya (Tohoku University, Japan)

Session 2

13:00-14:15 **Short Oral Presentation**

(4 min presentation + 1 min PC preparation for each paper)

14:25-15:35 **Poster Presentation**

(14:25-15:00 poster presentation for odd-numbered posters)

(15:00-15:35 poster presentation for even-numbered posters)

OS5-18 **The Production of Useful Substances from Carbohydrate Biomass by Acid Catalytic Hydrothermal Reaction**

Y. Takeuchi, F. Jin, H. Enomoto and K. Tohji (Tohoku University,

Japan)

- OS5-19 **The Periodic Motion of Lifted Inverse Diffusion Flames in Coflow Methane Jets**
J. I. Seo, J. H. Won, S. H. Bae and H. D. Shin (KAIST, Korea)
- OS5-20 **Aerodynamic Design Optimization Using Flow Feature Parameterization**
T. R. Barrett, N. W. Bressloff and A. J. Keane (The University of Southampton, United Kingdom)
- OS5-21 **The Oxygen Nonstoichiometry of Doped BaCeO₃ Perovskite-type Oxides**
M. Oishi, K. Sato, K. Yashiro, T. Kawada, J. Mizusaki (Tohoku University, Japan)
- OS5-22 **PSP Measurement of the Flow around a Simplified Car Model**
T. Yamashita, H. Sugiura, H. Nagai and K. Asai (Tohoku University, Japan)
- OS5-23 **Examination of Electrostatic Probe Coupled with Reference Electrode on the Detection of the Flame**
T. Yokomori, S. Maruyama and K. Maruta (Tohoku University, Japan)
- OS5-24 **An Experimental and Numerical Study on a Heat-regenerative Micro-combustor**
S. M. Cho, N. I. Kim, K. C. Ro, J. W. Choi and K. B. Yoon (Chung-Ang University, Korea)
- OS5-25 **Evaluation of 1-D Discrete Ordinates Radiation Element Method for Radiative Heat Transfer in Anisotropic Scattering Media**
H. Nakai, S. Maruyama, A. Sakurai and A. Komiya (Tohoku University, Japan)
- OS5-26 **Flow Field and Heat Transfer Analysis of Vertical Mantle Heat**

Exchangers for Solar Water Heaters

Y. C. Soo Too, G. L. Morrison (The University of New South Wales, Australia) and M. Behnia (The University of Sydney, Australia)

- OS5-27 **Development of a Flexible Flapping Wing for MAV application**
J. S. Lee, J. Y. Lee, D. K. Lee and J. H. Han (KAIST, Korea)
- OS5-28 **Combustion Characteristics of Hydrogen-Air Premixed Gas in a Sub-millimeter Scale Catalytic Combustor Using Platinum Catalyst with Porous Media Support**
W. Choi, S. Kwon and H. D. Shin (KAIST, Korea)
- OS5-29 **Quenching Characteristics of Premixed Flames in Heated Microchannel**
Y. Tsuboi, S. Hasegawa, S. Maruyama and K. Maruta (Tohoku University, Japan)
- OS5-30 **Experimental and Numerical Study of Polypropylene Combustion in High-temperature Air Diluted with Carbon Dioxide and Water Vapor**
K. Yoshinaga and H. Kobayashi (Tohoku University, Japan)
- OS5-31 **Sound Wave Transmission Reduction through a Plate Using a Piezoelectric Non Linear Technique**
T. Richard, D. Guyomar and C. Richard (INSA-Lyon, France)
- OS5-32 **3-D Numerical Analysis of Laminar Fluid Flow and Heat Transfer Characteristics of Slit Louvered Plate Fin and Tube Heat Exchangers**
K. Kheiri Dizaji, O. Abouali and K. Jafarpur (Shiraz University, Iran)

Fuji B

November 9, 2006

Session 3

- 9:55-11:10 **Short Oral Presentation**
(4 min presentation + 1 min PC preparation for each paper)
- 11:20-12:30 **Poster Presentation**
(11:20-11:55 poster presentation for odd-numbered posters)
(11:55-12:30 poster presentation for even-numbered posters)
- OS5-33 **Experimental Study of Pressure Reduction Characteristics for Slush Nitrogen in Horizontal Pipe Flows**
N. Koizumi, K. Ohira, K. Niiyama, T. Kura, J. Ishimoto (Tohoku University, Japan) and T. Kamiya (Mitsubishi Heavy Industries, Ltd., Japan)
- OS5-34 **Reactive Air Plasma Flow by Pulsed DC Discharge for Combustion Assist**
H. Shimizu, K. Tsuru, K. Katagiri, H. Takana, Y. Nakano and H. Nishiyama (Tohoku University, Japan)
- OS5-35 **Investigating the Impact of Realistic Details on the Personal Micro-Environment Using CFD**
C. Sideroff and T. Q. Dang (Syracuse University, Japan)
- OS5-36 **Hybrid Rocket with Paraffin-wax Grain as Solid Phase Fuel**
H. Park, E. Jeong, S. Kwon and T. Kim (KAIST, Korea)
- OS5-37 **Reducing the Computational Work of a CFD Code by Using a Global Optimization Algorithm**
Y. Tenne and S.W.Armfield (The University of Sydney, Australia)
- OS5-38 **Microgravity Experiments on the Effect of Air-flow Variation on Droplet Combustion at High Pressure**
M. Jangi, S. Sakurai, Y. Ogami and H. Kobayashi (Tohoku University, Japan)
- OS5-39 **Inverse Boundary Design of Radiant Enclosures Using Conjugate Gradient Method**
A. Safavinejad (Shahid Bahonar University, Iran), S. Maruyama

(Tohoku University, Japan), S. H. Mansouri (Shahid Bahonar University, Iran) and A. Sakurai (Tohoku University, Japan)

- OS5-40 **Dynamic Particle Accumulation Structure (PAS) in Non-cylindrical Half-zone Liquid Bridge**
Y. Abe, I. Ueno and H. Kawamura (Tokyo University of Science, Japan)
- OS5-41 **Computer Modeling of Phase Separation Dynamics due to Brownian Coagulation in Quenched Binary Mixtures**
Y. Kimura, M. Tokuyama and Y. Terada (Tohoku University, Japan)
- OS5-42 **Investigation of Fullerides A_2MC_{60} and AM_2C_{60} (A=K, Rb, M=Mg, Be) by Electron Spin Resonance Method**
A. V. Krechetov, V. G. Kytin, E. A. Konstantinova, V. A. Kulbachinskii, R. A. Lunin and B. M. Bulychev (Moscow State University, Russia)
- OS5-43 **Flow Features and Scaling analysis in Heated Cavity with Isoflux Boundaries**
S. Jiracheewanun, S. W. Armfield, G. D. McBrain and M. Behnia (The University of Sydney, Australia)
- OS5-44 **Effect of Interfacial Tensions on Transition of Two-phase Flow Pattern in Mini-channels**
C. Y. Lee and S. Y. Lee (KAIST, Korea)
- OS5-45 **Natural Convective Heat Transfer from Vertical Baffled Plate with Oscillation**
T. Sato, S. Maruyama and A. Komiya (Tohoku University, Japan)
- OS5-46 **Flow Properties of Axi-symmetric Bell Type Ejector-jets**
G. H. Park and S. Kwon (KAIST, Korea)
- OS5-47 **Inactivation of Brain Function Utilizing Rapid Cooling Probe**

Applied to Brain Mapping

H. Takeda, S. Maruyama, A. Komiya, T. Yambe (Tohoku University, Japan) and N. Nakasato (Konan Hospital, Japan)

OS6: Special Session: Research and educational activities and achievements through liaison offices

FUJINOMA

November 8, 2006

Total chairperson T. Takagi

- 16:30-16:40 Introduction
Director Toshiaki Ikohagi (Institute of Fluid Science, Tohoku University, Japan)
- 16:40-16:50 The current situation of Database
- 16:50-17:15 Special Lecture 1
Professor M. Behnia “Current Situation and System of the Joint Education in Sydney University Australia”
- 17:15-17:40 Special Lecture 2
Professor H.D.Shin “BK21 - Introduction of Korean COE”
- 17:40-18:05 Executive Vice President H. Ohnishi “The Present and Future of Joint Education Programs of Tohoku University”
- 18:05-18:30 Panel Session for the future plan of joint education
(Chairperson H. Higuchi)
Current situation and system of joint education: Syracuse (5), KTH (5), INSA-Lyon (5), Moscow (5)

OS 7 : Tohoku U. - KAIST Joint Workshop on Aerospace Engineering

TOKIWA

November 7, 2006

- OS7-1 **Pseudo-Shock Waves Produced by Heat and Mass Addition in Diverging Duct**
15:00-15:30 Goro Masuya, M. Goto, H. Mizushima and B. Choi
(Tohoku University, Japan)
- OS7-2 **Hydrogen Peroxide Thrusters for Small Satellites**
15:30-16:00 Sungyong An, Hayong Im and Sejin Kwon
(Korea Advanced Institute of Science and Technology, Korea)
- OS7-3 **The Numerical Study on Supersonic Combustion with Various Case of 2D Double Shear Layer**
16:00-16:20 Dong Min Kim and Seung Wook Baek
(Korea Advanced Institute of Science and Technology, Korea)
- OS7-4 **Nonequilibrium Blast Wave Simulation in a Gas-Driven Type Laser Propulsion**
16:20-16:40 Yousuke Ogino, Naofumi Ohnishi and Keisuke Sawada
(Tohoku University, Japan)
- 16:40-16:50 Breaks
- OS7-5 **Shape and Motion Optimization of Flapping Airfoil**
16:50-17:10 Shun Takahashi and Kazuhiro Nakahashi (Tohoku University, Japan)
- OS7-6 **Experimental Study on the Aerodynamic Characteristics of a Biomimetic Flapping Wing**
17:10-17:30 Dae-Kwan Kim, Hong-Il Kim and Jae-Hung Han
(Korea Advanced Institute of Science and Technology, Korea)

OS7-7 **Flutter Analysis of the Cylindrical Composite Shell Structures with
Shape Memory Alloys**
17:30-17:50 Sung-Kak Cho, Jin-Ho Roh and In Lee Baek
(Korea Advanced Institute of Science and Technology, Korea)

November 8, 2006

OS7-8 **Structural Vibration Control Using Piezoelectric Actuation**
09:30-10:00 Jae-Hung Han
(Korea Advanced Institute of Science and Technology, Korea)

OS7-9 **UAV research activities at KAIST**
10:00-10:20 Dong-Jin Lee, Hyo-Choong Bang and IL-Hyoung Lee
(Korea Advanced Institute of Science and Technology, Korea)

OS7-10 **Dynamic Modeling and Attitude Stabilization of the Quadrotor UAV**
10:20-10:40 Dae-Yeon Won and Min-Jea Tahk
(Korea Advanced Institute of Science and Technology, Korea)

10:40-10:50 Breaks

OS7-11 **Application of Pressure Sensitive Paint to Hypersonic and Unsteady
Flows**
10:50-11:20 Keisuke Asai and Hiroki Nagai
(Tohoku University, Japan)

OS7-12 **Measurement of Refractive Index in Liquid Mixture Using Fiber
Optic Sensors**
11:20-11:40 Seong-Hee Choi, Sang-Oh Park, Sang-Wuk Park, Chun-Gon Kim
(Korea Advanced Institute of Science and Technology, Korea)

OS7-13 **Computational analysis on vascular endothelial cell physiology by
modulated by blood flow**
11:50-12:00 HyungGoo Kang, KeunShik Chang & EunBo Shim
(Korea Advanced Institute of Science and Technology, Korea)

12:00-13:30 Lunch

OS7-14 **Shape Design Optimizat on Using CFD**

13:30-14:00 Jang-Hyuk Kwon

(Korea Advanced Institute of Science and Technology, Korea)

OS7-15 **Multidisciplinary Optimization of Wing Shape with Engine Nacelle**

14:00-14:20 Takayasu Kumano, Shinkyu Jeong, Shigeru Obayashi (Tohoku University, Japan), Yasushi Ito (University of Alabama at Birmingham, USA), Keita Hatanaka, Hiroyuki Morino (Mitsubishi Heavy Industries, Ltd. Japan)

OS7-16 **Application of Automatic Differentiation in Engineering Computations**

14:40-15:00 Jaehun Lee and Jang-Hyuk Kwon

(Korea Advanced Institute of Science and Technology, Korea)

OS7-17 **Multi-Objective Optimization for Robust Airfoil Des Considering Design Errors and Uncertainties**

15:00-15:20 Koji Shimoyama (Tohoku University, Japan), Akira Oyama, Kozo Fuji (Japan Aerospace Exploration Agency, Japan)

November 9, 2006

OS7-18 **Study of Autogiro using Free wake method and Wind tunnel tests**

10:10-10:30 Ji-Sung Jang, Jae-Hyuk Choi and Duck-Joo Lee

(Korea Advanced Institute of Science and Technology, Korea)

OS7-19 **A Comparative Study About the Finite-Volume and Discontinuous Galerkin Methods on Unstructured Meshes**

10:30-10:50 Hee Dong Lee and Oh Joon Kwon

(Korea Advanced Institute of Science and Technology, Korea)

OS7-20 **LES and DES of an open cavity flow within a fully developed turbulent channel**

10:50-11:10 Kyoungsik Chang, Seung-O Park and George Constantinescu

(Korea Advanced Institute of Science and Technology, Korea)

OS7-21

11:10-11:30

**Unsteady Flow Measurements of a Slender Delta Wing in Wing Rock
Motion**

Yuuichi Hirose, Hiroki Nagai, Daisuke Kurashina and Keisuke Asai
(Tohoku University, Japan)