

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)