

Technical Program Schedule and Contents

5th ISEM (Final version-4 in Oct. 21)

November 4, 2010 (1st day)

17:00-19:00 Registration and Welcome Party (Hall)

November 5, 2010 (2nd day)

9:00-9:10 Opening Ceremony (Room 1)

Chairperson: K. MORI (Osaka Electro-Communication University)

Kazuo ARAKAWA (President of the Japan Society for Experimental Mechanics)

Takashi YOKOYAMA (Chairperson of Organizing Committee of 5th ISEM)

9:10-10:00 Special Lecture (Room 1)

Chairperson: Y. SHIOMI (Ryukoku University)

Digital Conservation for Cultural Assets of Wall Paintings and Maps

Yoshihiro OKADA (Ryukoku University, Japan)

10:10-11:10 Keynote Lecture 1 (Room 1)

Chairperson: G. MATSUI (Prof. Emeritus University of Tsukuba)

Single- and Two-Phase Flow Heat Transfer in Microchannels

Gian Piero CELATA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Italy)

----- Room 1 (Nov. 5, Friday) -----

11:25-12:45 Multiphase Flow I

Chairperson: M. HIROTA (Mie University), F. MIKAMI (Chiba University)

3 Stability Analyses in Natural Circulation Loop at Low Pressure Condition

Toru SAWAI, Masao FUJII, Mitsushi OHMASA, Tadashi SHIBUE, Masuo KAJI and Shoji YAMAUCHI

48 Gas-liquid Two-phase Flow through an Orifice in Millimeter-scale Rectangular Channel

Takashi OKE, Takehiko KUMAGAI, Olusegun J. ILEGBUSI and Manabu IGUCHI

117 Behavior of Transient Powder Laden Liquid Jet in a Pipe Flow

Mitsuhiro NOMURA, Ryoji TSUJINO, Yoshiaki UEDA and Manabu IGUCHI

145 Impedance Spectroscopic Measurement of Particle Concentration in Solid-liquid Two-phase Flow

Yuto ITOH and Masahiro TAKEI

13:30-14:50 Multiphase Flow II

Chairperson: K. MORI (Osaka Electro-Communication University), Y. SHIOMI (Ryukoku University)

28 Experimental Study on Gas-Liquid Flow Distributions in Upward Multi-pass Channels

Zuradzman Mohamad RAZLAN, Ryota ISOBE, Hiroaki GOSHIMA, Masafumi HIROTA, Yasuhiro MIZUNO, Naoki MARUYAMA and Akira NISHIMURA

29 Horizontal Entry of a Superhydrophobic Circular Cylinder into Water

Yoshiaki UEDA, Yusuke SAKAI and Manabu IGUCHI

41 Channel Wettability Effect on Pressure Drop of Gas-liquid Two-phase Flow in Rectangular
Millimeter- scale Channels

Takehiko KUMAGAI, Kazutaka FUJISAWA and Manabu IGUCHI

47 Mixing Time in a Cylindrical Bath Agitated by Gas Injection through a Multi-hole Nozzle

Hirofumi OYABU, Ryoji TSUJINO, Olusegun J. ILEGBUSI and Manabu IGUCHI

15:05-16:25 Fluid Instrumentation I

Chairperson: T. SHAKOUCHI (Mie University), K. H. CHWONG (NMIJ-AIST)

46 Surface Segregation in Yttria-Stabilized Zirconia (YSZ) at Elevated Temperatures

Muhammad Asri IDRIS, Janusz NOWOTNY, Armand J. ATANACIO, Sean LI, Kathryn E. PRINCE
and Leigh R. SHEPPARD

89 Ro/Vibrational Temperature Measurement of N₂ in Hypersonic Nonequilibrium Flow behind Shock
Wave by CARS Method

Shota NIINOMI, Kotaro SAKURAI, Hima Bindu VENIGALLA, Takashi OSADA, Masanori OTA
and Kazuo MAENO

121 Development of Ultrahigh Accuracy Constant-temperature Bath Part 1 Measurement of Velocity in
PIV and Precise Temperature in Constant-temperature Bath

Shoichiro BABA, Tatsuro WAKIMOTO, Kenji KATOH, Jun TAMBA and Kazuaki YAMAZAWA

142 Temperature Calibration Technique for Hot-wire Anemometry using Variable Resistance

Nobuyoshi FUJIMATSU, Ryo KIMURA and Isao MISU

16:40-17:40 Fluid Instrumentation II

Chairperson: C. W. KNISELY (Bucknell University, USA), Y. UEDA (Hokkaido University)

32 Near-field Acoustic Characteristics of Underexpanded Jets from Notched Nozzles

Yoichi NAKAZONO, Shunji AOKI and Sayam SAGUANRUM

73 Development of a Calibration Facility for Small Hydrocarbon Flow as a National Standard

Kar-Hooi CHEONG, Takashi SHIMADA, Ryouji DOIHARA, Yoshiya TERAOKA and Masaki
TAKAMOTO

109 Determining Temperature Distribution on a Polycarbonate Material during Phase Change using
Electrical Capacitance Tomography

Kristian Gunayan BASARIO, Je-Eun CHOI and Masahiro TAKEI

----- Room 2 (Nov. 5, Friday) -----

11:25-12:50 Fluid Machinery

Chairperson: T. WAKIMOTO (Osaka City University), K. TSUJIMOTO (Mie University)

108 Experiments on Vortex-driven Air-lift Pumps (**Invited Presentation**)

Charles W. KNISELY and Ben FINIO

(Financially supported by Osaka Electro-Communication University)

31 Mixing Time of a Cylindrical Bath Agitated by Gas Injection through an L-shaped Top Lance

Norifumi KOCHI and Manabu IGUCHI

40 Effect of Repeatedly Imposed Acceleration on the Transition to Turbulence in a Transient Circular
Pipe Flow

Kenta SENGI, Yoshiaki UEDA, Kazuyoshi NISHIHARA, C. W. KNISELY, Yasushi SASAKI and

Manabu IGUCHI

101 New Methods of Noise Reduction for Small Typed Turbo Fans

Kazuyoshi NISHIHARA, Charles KNISELY, Yasushi SASAKI and Manabu IGUCHI

13:30-14:50 Heat and Mass Transfer

Chairperson: H. IYOTA (Osaka City University), Y. NOGUCHI (Ryukoku University)

9 Velocity Profile Equations Downstream of a BWR Fuel Spacer in a Circular Channel

Takashi YANO and Masanori ARITOMI

13 Combustion of Agricultural Waste and Coke Blends during High Temperature Process: The Effect of Physical, Chemical and Surface Properties

Nur Farhana M. YUNOS, Khairul Rafezi AHMAD, Magdalena ZAHARIA and Veena SAHAJWALLA

25 Study on Development of New Roof Snow Melting System with a Self-Temperature-Controlled Heater by Partial Melting Method

Yuki SANDO, Hiroshi TAKAHASHI, Takashi UMENO and Kenji KOTANI

76 A Study of Physical Properties of High-density Solid Biomass, Bio-coke, with Various Unutilized Biomass

Satoru MIZUNO and Tamio IDA

15:05-16:05 Fluid Engineering in Bio-Systems I

Chairperson: Y. TANAKA (Kyoto Institute of Technology), T. AKINAGA (Kansai University)

94 Prediction of the Pollen Transportation by Saltation and Suspension

Ichiro NAKANE

125 A Study on the Locomotive Functions of *Excirrolana Chiltoni* Richardson

Kyohei HOSHIKA and Seiichi SUDO

130 Pressure Measurement in Elastic Tube Changing Cross Section Area

Masashi HATAKEYAMA, Masahiro TAKEI and Syuji YAKUBO

16:40-17:20 Fluid Engineering in Bio-Systems II

Chairperson: M. TAKEI (Nihon University)

138 Some Aspects of *Alsomitra Macrocarpa* Seed and Modeled Wings

Tetsuya YANO, Masayoshi SAKAI and Seiichi SUDO

141 Effect of Red Blood Cells on the Motion of Microbeads in a Shear Flow

Takeshi AKINAGA, Masako SUGIHARA-SEKI, Tomoaki ITANO and Junichiro YAMAMOTO

----- Room 3 (Nov. 5, Friday) -----

11:25-12:45 Non-Destructive Testing and Inspection I

Chairperson: Y. TANAKA (Kyoto Institute of Technology)

36 Determining Stress Components from Isopachic Contours using Airy Stress Function

Satoru YONEYAMA and Keigo OKUNO

45 Research on the Foot Arch Structure by Stress Freezing Method

Heizo KAJIWARA

58 Validation of Near Infrared Spectroscopy for Measurement of Water Content in Human Articular Cartilage using Gelatin Model

Hidehiro YAMAGISHI, Yuji TANABE, Tatsuya KIKUCHI, Makoto SAKAMOTO and Koichi

KOBAYASHI

- 81 Biaxial Stress Measurement Method using EBSD Analysis of Grown Grains in Copper Foil
Yuichi ONO, Cheng LI and Toru MARUHISA

13:30-14:50 Non-Destructive Testing and Inspection II

Chairperson: S. YONEYAMA (Aoyama Gakuin University)

- 33 Investigation on Lubrication Condition of Piston Pin in Real Engine Block with Ultrasonic Technique
Akitoshi TAKEUCHI
- 91 Measurement of Standing-up Motion from a Chair by using Tri-axis Accelerometer
Yohsuke TANAKA, Yasuhiro MARUYAMA and Shigeru MURATA
- 105 Defect Detection using Time-averaged Digital Holography with Noise Reduction by Windowed Hologram
Motoharu FUJIGAKI, Chikara FUKUDA, Kenichi NEGI and Yoshiharu MORIMOTO
- 118 Impact Force Measurement in a Dental Implant Model
Tomoyuki TERASAKA, Kazuo ARAKAWA and Toshio MADA

15:05-16:05 Structural Analysis

Chairperson: M. TUTTLE (University of Washington, USA)

- 24 DEM Simulation on Strength and Deformation Characteristics of Fiber-Cement-Stabilized Soils
Naoki KONDA, Hiroshi TAKAHASHI, Yuko SUTO and Tomoaki SATOMI
- 56 Energy Absorption Ability of Axially Crushing Honeycomb Structure
Tsutomu UMEDA, Koji MIMURA and Kei MAEKAWA
- 146 Nonlinear Analysis of Reinforced Concrete Structures by the VFIFE Method
Ren-Zuo WANG, Chung-Yue WANG and Ling-Yuan CHANG

16:40-17:40 Adhesive Bonding

Chairperson: S. PATTOFATTO (LMT-Cachan, France)

- 11 Adhesive Bonding Long Term Behavior Characterization with the Instrumented Wedge Test Method - Principle and Applications
Julien JUMEL, Michal K. BUDZIK, Sébastien CHAUFFAILLE and Martin E.R. SHANAHAN
- 12 Hysol EA9394 Strength under Multiaxial Proportional Loading: Statistical Analysis in Relation with Microstructural Analysis
Julien JUMEL, Gregory BRESSON, Arnould OLIVIER, Wael Bou MJAHEB, Naoufel Ben SALEM and Martin E.R. SHANAHAN
- 55 Determination of High Strain-Rate Compressive Stress-Strain Loops for Bulk Epoxy Resin Structural Adhesive
Takashi YOKOYAMA, Kenji NAKAI and Norfazrina Hayati MOHD YATIM

----- **Room 4 (Nov. 5, Friday)** -----

11:25-12:45 Impact Behavior

Chairperson: K. NAKAI (Okayama University of Science), T. UMEDA (Osaka Prefecture University)

- 18 Dynamic Response of Ligament Insertion Investigated with Tension Hopkinson Bars and High Speed Imaging
Stephane PATTOFATTO, Virginie FORTINEAU, Sandra BERGONNIER and Sebastien LAPORTE
- 75 Impact Tensile Properties of Structural Sintered Steels

- Kinya KAWASE, Yuji TANABE, Tomoyuki YAMAZAWA and Hiroaki SUZAWA
126 Experimental and Analytical Studies on Polymeric Split Hopkinson Pressure Bar Technique
Takayuki TAMAOGI and Yuji SOGABE
151 Dynamic Behaviour of Magnesium Alloy AZ91D under Compression and Comparison with
Aluminum Alloy Al6061-T6
Iram Raza AHMAD and D. Wei SHU

13:30-14:30 Film and Coating

Chairperson: I. SHIMIZU (Okayama University)

- 63 Influence of Vacuum Pressure on Friction Coefficient of Sputtered SiC Film
Masahiko KATO, Kohei KUROSE, Hiroyuki AKEBONO and Atsushi SUGETA
64 Fabrication of Oxide Coating on Ni-Al Microchannel Wall for Catalyst Supporting
Yutaro NAGASE, Tatsuya OHMI, Akira YAMAUCHI and Manabu IGUCHI
79 Grain Growth Behaviour in Electrodeposited Copper Foil under Out-of-phase Cyclic Loading
Yuichi ONO, Cheng LI and Daisuke HINO

15:05-16:05 Strength and Stress Analysis I

Chairperson: C. HWU (National Cheng Kung University, Taiwan)

- 15 Residual Stress Analysis of Al/Mg Compounds by using the Hole Drilling Method
Thomas LEHMANN and Martin STOCKMANN
21 Tensile Performance of Friction Stir Welded AA6061-T6 Joints: Effect of Welding Speed
Takashi YOKOYAMA, Kenji NAKAI, Eiichi SUKEDAI and Ryo HINOUE
102 Influence of Initial Texture on Plastic Behavior of Pure Titanium in Biaxial Compression
Ichiro SHIMIZU, Junya IDEI and Naoya TADA

16:40-17:20 Strength and Stress Analysis II

Chairperson: M. STOCKMANN (Chemnitz University of Technology, Germany)

- 82 Strength Measurement of Carbon Fibers Reclaimed from CF/Epoxy using Sub- and Supercritical
Fluids
Toshiro UEDA, Yoshinobu SHIMAMURA, Keiichiro TOHGO, Tomoyuki FUJII, Idzumi OKAJIMA
and Takeshi SAKO
133 Evaluation of Compressive Properties of Porous PLA
Toshitaka YAMAMURA and Masaki OMIYA

November 6, 2010 (3rd day)

8:50-9:50 Keynote Lecture 2 (Room 1)

Chairperson: S. YONEYAMA (Aoyama Gakuin University)

Recent Experiments with Discontinuous Fiber Composite Materials

Mark E. TUTTLE (University of Washington, USA)

----- **Room 1 (Nov. 6, Saturday)** -----

10:05-11:45 Flame

Chairperson: Yei-Chin CHAO (National Cheng Kung University, Taiwan), T. MURAKAMI (AIST)

5 Combustion Characteristics of Subsonic Hydrogen Jet Diffusion Flame and Suppression of Flame Lift-off

Shuichi TORII

35 Microscopic Diffusion Flame Stabilities based on Micro-jet Diffusion Flames

Tamio IDA, Manabu FUCHIHATA and Satoru MIZUNO

53 Shape and Extinction of Jet Diffusion Microflames: Experimental Observations and a Simple Theory

Kazunori KUWANA, Satoru MIZUNO, Tamio IDA and Manabu FUCHIHATA

70 Observation of Micro Premixed Flames Surrounded by High Temperature Burned Gas Flow

Manabu FUCHIHATA, Tamio IDA, Kazunori KUWANA and Satoru MIZUNO

77 Turbulent Characteristics in a Taylor-Couette Flow

Yoshiki NOGUCHI, Kenichi TSUDA and Yoichi SHIOMI

----- **Room 2 (Nov. 6, Saturday)** -----

10:05-11:25 Flow around Bluff Bodies

Chairperson: F. B. HSIAO (National Cheng Kung University, Taiwan), T. MAKUTA (Yamagata University)

86 Quantitative Measurement of $M = 2.0$ Supersonic Flow Field around a Delta Wing Model using Background Oriented Schlieren (BOS) Technique

Kenta HAMADA, Hiroko KATO, Ryusuke NODA, Masanori OTA and Kazuo MAENO

106 Applications of MEMS Thermal Film Sensors in Studying Unsteady, Three-dimensional Characteristics of Vortex Shedding

Jiun-Jih MIAU and J. K. TU

132 Experimental Studies on Flow Structures and Aerodynamic Characteristics of Low Aspect Ratio Rectangular Wings at Low Reynolds Numbers

Yi-Chung LIU, Yi TENG and Fei-Bin HSIAO

150 Universal Function of Velocity Profile in the Turbulent Boundary Layer

Nobuyoshi FUJIMATSU, Yu OTA and Kazuhiko YOKOTA

----- **Room 3 (Nov. 6, Saturday)** -----

10:05-11:05 Biomechanics I

Chairperson: S. SUDO (Akita Prefectural University), M. CHIBA (Tohoku University)

38 Design and Analysis of a New Prosthetic Foot

Muhsin J. JWEED and Kadhim K. AL-KINANI

54 Gait Analysis on Stairs and Other Uneven Terrains by using a Portable Gait Analyzing System

Ichiro KITAYAMA

74 Development of New Measuring Method for Water Content in Human Articular Cartilage Using Near Infrared Spectroscopy: Application of Transmission Method to Quantitative Measurement of Water Content

Tatsuya KIKUCHI, Yuji TANABE, Makoto SAKAMOTO, Naoto ENDO, Koichi KOBAYASHI and Yoshio KOGA

----- **Room 4 (Nov. 6, Saturday)** -----

10:05-11:10 Fatigue, Crack and Fracture

Chairperson: J. JUMEL (University of Bordeaux, France)

23 Prediction of Sharp Notch Fracture by Critical Principal Stress Intensity Factor **(Invited Presentation)**

Chyanbin HWU and H. HUANG

8 Effects of Surface Roughness and Non-martensite Surface Layer on Fatigue Life

Gang DENG and Tsutomu NAKANISHI

52 Effect of Loading Conditions on the Fracture Behavior of Epoxy Resin

Kazuo ARAKAWA

12:30-18:30 Excursion

19:00-21:30 Banquet at RIHGA Royal Hotel Kyoto

November 7, 2010 (4th day)

----- **Room 1 (Nov. 7, Sunday)** -----

8:50-9:50 Fluid Instrumentation III

Chairperson: K. KATO (Osaka City University)

- 90 Small Model Experiment on the Pressure Wave Formation by Entering the Tunnel of Conventional Limited Express with Diaphragmless Driver Acceleration Apparatus
Hirokazu ENDO, Kyuta TAKEUCHI, Muhammad Falak ZEB, Masanori OTA and Kazuo MAENO
- 143 Simultaneous Measurement of Pressure and Skin Friction Distribution using Molecular Sensor
Nobuyoshi FUJIMATSU, Yu SASAKI and Kazuhiko YOKOTA
- 149 Characteristics of Taylor Vortex on Counter Flow
Hideharu TAKAHASHI, Hiroshige KIKURA, Kenji TAKESHITA and Masanori ARITOMI

10:05-10:45 Flow Visualization and Image Processing I

Chairperson: T. KUMAGAI (Hokkaido University)

- 60 Lagrangian Diagnostics of Evaporating Spray System by Means of High-speed Camera and Nd: YLF Laser
Tatsuya KAWAGUCHI, Isao SATOH and Takushi SAITO
- 92 Recognition between a Fluid Motion and a Structure by Digital In-line Holography
Yohsuke TANAKA and Shigeru MURATA

11:20-12:40 Flow Visualization and Image Processing II

Chairperson: T. KAWAGUCHI (Tokyo Institute of Technology), N. FUJIMATSU (Aoyama Gakuin University)

- 100 The LIF Measurement of Interaction of Gas Jet Flow with Plane Wall under Low Pressure Conditions
Shunsuke YAMAZAKI, Ai YANAGI, Yusaku TANAKA, Masanori OTA and Kazuo MAENO
- 111 Quantitative Measurement of Density Field of Heat Flow in Natural Heat Convection using Color-stripe Background Oriented Schlieren (CSBOS) Method
Muhammad Falak ZEB, Masanori OTA and Kazuo MAENO
- 113 Disintegration Process of a Fan Liquid Sheet Formed with Surfactant Solution
Tatsuro WAKIMOTO and Kenji KATOH
- 137 Velocity and Vorticity Measurement in Flow Field using Laser Tagging Method by Photochromic Dye
Nurrina BINTI ROSLI, Youichi TOYOOKA and Kenji AMAGAI

----- **Room 2 (Nov. 7, Sunday)** -----

8:50-9:50 Micro Channel

Chairperson: J.J.MIAU (National Cheng Kung University, Taiwan)

- 103 Microchannel Formation in Metallic Wire Bundles by a Sacrificial-core Method
Tatsuya OHMI, Masayuki SAKURAI and Manabu IGUCHI
- 124 Fluid Mixing in a Y-shaped Microchannel with an Ultrasound-vibrated Bubble
Fumihiko MIKAMI, Akimasa NAGAHIRO and Nobuhide NISHIKAWA
- 147 Multi-fuel Reaction in a Catalyst Segmentation and Cavity Microreactor
Yueh-Heng LI, Guan-Bang CHEN, Tsarng-Sheng CHENG and Yei-Chin CHAO

10:05-11:05 Micro Bubble

Chairperson: G. P.CELATA (ENEA, Italy)

59 An Experimental Study on Disinfection System using Ozone Microbubbles Generated by Hollow Ultrasonic Horn

Nonoko SYUKUYA and Toshinori MAKUTA

99 A Study on Recycling of Sand in Waste Concrete and Fixation of Carbon Dioxide by Micro Bubble Jet Flow

Toshihiko SHAKOUCI, Junichi TAKAMURA, Koichi TSUJIMOTO and Toshitake ANDO

122 Experimental Study on Behavior of Microbubbles with different ζ -potentials and Its Application to Seawater Desalination

Hiroaki HASEGAWA and Satomi OTSU

11:20-12:20 Surface Tension and Wetting

Chairperson: R. TSUJINO (Setsunan University), T. SAWAI (Kinki University)

34 Behavior of a Droplet Impacting on a Horizontal Plate

Yusuke SAKAI, Yoshiaki UEDA, Toshio ISHII and Manabu IGUCHI

51 Air Leakage from Thin-walled Space between Circular Pipe End and Poorly Wetted Flat Plate

Sho YOKOYAMA and Manabu IGUCHI

114 Characteristics of Liquid Film Flowing around Side Wall of a Horizontal Circular Cylinder (Separation of Liquid Film)

Kenji KATOH and Tatsuro WAKIMOTO

----- Room 3 (Nov. 7, Sunday) -----

8:50-9:50 Optical Methods and Image Processing I

Chairperson: M. FUJIGAKI (Wakayama University)

14 Detection of the Pierced Position using a Pre-signal in Bubble Measurement by a Single-tip Optical Fiber Probe

Yuki MIZUSHIMA and Takayuki SAITO

39 Observation of Micro-slips between Rubber and Glass Plates using Laser Microscope with Wide Field of View

Isami NITTA, Rintarou EBUCHI and Tsuyoshi TSUKADA

84 Study on Quantitative Evaluation of Slurry Flow Mechanism at Lapping Processing using Digital Image Correlation Method: Correlation of Slurry Flow and Lapping Characteristics in Oscillation Controlled Lapping

Michio UNEDA, Shintaro MURATA and Ken-ichi ISHIKAWA

10:05-11:05 Optical Methods and Image Processing II

Chairperson: I. NITTA (Niigata University)

80 An Attempt for Diagnostics of Ultra-lean Flames via Improved Acetone-OH Simultaneous PLIF

Yuji NAKAMURA, Yuichiro YAMADA, Mitutomo HIROTA and Tutomu SAITO

87 Experimental Examination on Shape and Mechanical Characteristic of THA using 2D and 3D Photoelasticity Method

Nobutaka MAEZAKI, Tsutomu EZUMI and Masashi HACHIYA

115 Shape Measurement of Deployable Parabolic Antenna for Satellite by Whole-space Tabulation Method

Takayuki SHIOKAWA, Yoshiyuki SHIOJI, Motoharu FUJIGAKI, Ken HIGUCHI, Naoko

KISHIMOTO, Yoshiharu MORIMOTO and Akihiro MASAYA

11:20-12:45 Biomechanics II

Chairperson: K. NISHIHARA (Osaka Electro-Communication University), I. KITAYAMA (Kinki University)

128 Compressive Force Induced Gene Expression of Human Periodontal Ligament Cells (**Invited Presentation**)

Mirei CHIBA, Ryosuke MIYAI and Haruhide HAYASHI

116 Prediction of Changes in Bone Strength of Osteoporotic Vertebrae during a 3-year Drug Treatment based on Numerical Bone Fracture Analyses

Daisuke TAWARA, Jiro SAKAMOTO, Hideki MURAKAMI and Norio KAWAHARA

123 Microdamage Accumulation in Cortical Bone under Compressive Loading

Ei YAMAMOTO, Yuki MATSUMOTO and Yutaka NAKAYAMA

139 Estimation of Lower Extremity Alignment using MRI-based Bone Surface Model

Keisuke SASAGAWA, Koichi KOBAYASHI, Yoshio KOGA, Makoto SAKAMOTO and Yuji TANABE

----- **Room 4 (Nov. 7, Sunday)** -----

8:50-9:50 Composites

Chairperson: Y. TANABE (Niigata University)

10 Effect of Powder Contents on Viscoelastic Behavior of Glass Powder filled Composite

Takenobu SAKAI, Koichi OKABE and Satoru YONEYAMA

104 New Durability Evaluation of Fiber Reinforced Plastics

Masanori OKANO, Masahiro MUTO, Hiroyuki NISHIMURA and Yoshimichi FUJII

140 Comparison of Experimental and FEM Results for Impact Behavior of CFRP/Steel Hybrid Members

Hyoung-Soo KIM, Yoshio AOKI and Goichi BEN

10:05-11:05 Sensors and Actuators

Chairperson: M. FUTAMURA (Akita Prefectural University)

16 Differential Strain Gage - a New Sensor Device for Microsystems

Martin STOCKMANN, Joachim SCHUMANN and Ingolf MÖNCH

127 Development of Sensor System for Measurement of Distributions of Contact Pressure and Shear Stress on Contacting Skin Surface

Kazuhiko SASAGAWA and Kohta TOKIYOSHI

136 Deformation Behavior of IPMC Actuator under Various Solvents, Temperatures, and Frequencies

Takuma KOBAYASHI and Masaki OMIYA

11:20-12:40 Materials Processing

Chairperson: E. UMEZAKI (Nippon Institute of Technology), Y. ONO (Tottri University)

66 Alkali Leaching of Ni-Al Microchannel Lining Layers

Yusuke SAITOH, Tatsuya OHMI, Masatoshi SAKAIRI and Manabu IGUCHI

67 Ni-Al Alloy Transpiration-cooling Device by Powder-metallurgical Microchanneling Process

Masutaka OMURA, Tatsuya OHMI, Takehiko KUMAGAI and Manabu IGUCHI

68 Anodic Oxidation of the Inner Wall of the Microchannel Formed in Sintered Aluminum Body

Masashi ISHIDA, Tatsuya OHMI, Masatoshi SAKAIRI and Manabu IGUCHI

69 Dealloying of Cu-Zn Microchannel Lining Layers for Producing Microporous Catalyst
Kazuki KOBAYASHI, Tatsuya OHMI, Masatoshi SAKAIRI and Manabu IGUCHI

----- Hall (Nov. 7, Sunday) -----

13:00-15:20 Poster Session and Special Presentation by Students of technical high school and college of technology

● **Poster Session**

- 2 Theoretical Analysis for the Fast Birefringence Measurement System using Dual Electro-optic Crystal Modulators
Lianhua JIN, Yukinori MASAMURA, Eiichi KONDOH, Hiroyuki KOWA and Kuniharu TAKIZAWA
- 19 The Shape Design for Life Extension on the Slipper Metal of Hot Rolling Process
Hyun-Seung LEE and Young-Shin LEE
- 20 Consideration of Damages of a Floating Roof of Oil Storage Tank by using Numerical Simulation
Yoshihiro HIROKAWA, Minoru YAMADA, Haruki NISHI, Shinsaku ZAMA and Ken HATAYAMA
- 26 Fundamental Gasification Characteristics in a Fluidized Bed Gasifier with Triple-beds and Dual Circulation
Takahiro MURAKAMI, Minoru ASAI and Yoshizo SUZUKI
- 27 Effect of Operating Pressure on NO_x and N₂O Emissions in Sewage Sludge Combustion
Takahiro MURAKAMI and Yoshizo SUZUKI
- 30 Effect of Hydrogen and Loading on Mechanical Properties of High Tensile Steel
Mariko NAKAMURA, Hiroyuki SAITO, Takashi SAWADA and Kenichi TAKAI
- 43 Reflection and Transmission of Longitudinal Elastic Pulses at a Discontinuity of Two Dissimilar Cylindrical Bars
Takashi YOKOYAMA and Kenji NAKAI
- 49 An Experimental Study on Sealing Performance of a Novel SUS316L Metal Gasket under 70 MPa Hydrogen Gas Environment
Nan BU, Naohiro UENO, Seiji FUKUYAMA and Masaaki IMADE
- 50 Prediction of Strength and Failure for Brittle Epoxy Adhesive Joints of Dissimilar Adherends
Mohd AFENDI, Tokuo TERAMOTO and Ruslizam DAUD
- 57 Phase-shifting Photoelasticity using Polarization High-speed Camera
Wataru MURATA, Eisaku UMEZAKI, Takashi ONUMA and Arata MIHARA
- 61 Application of Molecular Tagging Velocimetry to a Supersonic Micro Jet
Taro HANDA, Kohei IMAMURA and Sosuke MIZUTA
- 78 Observation of Evaporation of Soy Sauce at Pouring Lip of Liquid-packaging Bags
Koujiro KATO, Eisaku UMEZAKI, Yuuma SHINODA and Katsunori FUTASE
- 83 Experimental Study on Locations Estimation of High Correlation Sound Sources using Combined SSP and MUSIC Method
Michio UNEDA, Hiroaki KONDO, Yusuke MURAOKA and Ken-ichi ISHIKAWA
- 85 Characteristics of Ultrasonic Flowmeter Located Downstream of Elbow
Hideaki MONJI, Takeshi NAKATANI and Masaki SETO
- 88 CO₂ Flow Boiling in Small Diameter Smooth and Micro-fin Tubes
Lei GAO, Yoshihito WATANABE and Tomohiro HONDA
- 97 Quantitative Measurement of Supersonic Flow Field around an Asymmetric Cone Model with CGBOS Method and 3D-CT Reconstruction

- Hiroko KATO, Kenta HAMADA, Ryusuke NODA, Masanori OTA and Kazuo MAENO
- 98 Investigation on the Vortex Shedding from a Finite Height Cylinder
Jiun-Jih MIAU and Hsin-Hown LEE
- 110 Study on Accuracy Evaluation of Three Dimensional Visualization Measurement using Near Field Stereo System based on Digital Image Correlation Methodology
Michio UNEDA, Mikio TOSHIMA and Ken-ichi ISHIKAWA
- 135 Bending Degradation of Critical Current in Bi2223 High-temperature Superconducting Tapes
Muneo FUTAMURA, Shin ITO and Seiichi SUDO
- 148 Defatting and Dehydrating of Meat Products during Heating in Steam Convection Oven
Junko YAMAGATA, Hiroyuki IYOTA, Kuniko SUGIYAMA and Nobuya NISHIMURA

● **Special Presentation by Students of technical high school and college of technology**

Chairperson T. SAWAI (Kinki University)

* Supervisor

- S1 A Challenge for Fusion of Technology, Science, and Engineering through Making of Multi-joint Robots Modeling a Trilobite
Atsushi YAMADA, Keisuke NAKATA, Kou NAKATA, Naoto YOSHII, Hiroaki YODA and Norimitsu NAGASHIO*
(Kyoto Municipal Rakuyo Technical High School)
- S2 A Challenge for Production of a Two-Legged Robot for Coexistence of Humans
Kousuke YOSHII, Yoshito ISHIKAWA, Syungo UEMATSU, Hiroki OE, Gaku KAWAMURA, Yuuki KODAMA, Kazuki SAWAI and Ryo UENO*
(Kyoto Municipal Rakuyo Technical High School)
- S3 Fundamental Combustion Properties of Pruned Branches of Fruit Tree for Energy Utilization
Kosuke SATO and Kunihiro NAMBA*
(Osaka Prefectural College of Technology)
- S4 Fundamental Researches of Bamboo for Energy Utilization
Tomohiro YANAGI and Kunihiro NAMBA*
(Osaka Prefectural College of Technology)
- S5 A Simulation of Thickness Distribution on Curved Substrate for Ion Beam Assisted Vapor Deposition
Kunihiro MORISATO, Noriyuki OHASHI and Toshiro KOBAYASHI*
(Tsuyama National College of Technology)
- S6 Design and Applications of a DVD-R Spectroscope
Seishi KANBASHI, Shouta OKAZAKI, Yuto NAKATA and Makoto SATO*
(Tsuyama National College of Technology)
- S7 Study of Flow Oscillations in Natural-Circulation Boiler with Small-Scale Loop
Naoaki MATSUO, Ayaka TAKEMOTO and Shoji YAMAUCHI*
(Kagawa National College of Technology)
- S8 How to Purge Residual Liquid in Pipeline Pocket
Hideaki MATSUMOTO, Takayuki NISHIHARA and Shoji YAMAUCHI*
(Kagawa National College of Technology)
- S9 Dynamic Response of Non-homogeneous Poroelastic Shells of Revolution
Yusuke OBA and Takeshi GONDA*
(Yonago National College of Technology)
- S10 Suspension Velocity of a Particle in Swirling Gas-Liquid Two-Phase Flow
Yuki MURAKAMI, Shun FUJII, Takayuki SUZUKI* and Hideaki SHAKUTSUI*

(Kobe City College of Technology)

15:20-15:30 Closing Ceremony

Chairperson K. KATO (Osaka City University), Mirei CHIBA (Tohoku University)