**Technical Program Schedule and Contents**

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

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**November 4, 2010 (1st day)**
17:00-19:00 Registration and Welcome Party (Hall)

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**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)

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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
Mitsuhiko 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 ISOBEL, 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 OYOYABU, 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 Rotational 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 BABABA, 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
Yoiichi 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 TERAO 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 SENG, 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, Khairel 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 Exciorolana Chiltoni Richardson
      Kyohei HOSHIIKA 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
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 MJAHED, 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

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 Hokpinson 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
      Jiu-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. JWEEG and Kadhim K. AL-KINANI
   54 Gait Analysis on Stairs and Other Uneven Terrains by using a Portable Gait Analyzing System
Ichiro KITAYAMA
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)

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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 Kazuhiro 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 KATO
137 Velocity and Vorticity Measurement in Flow Field using Laser Tagging Method by Photochromic Dye
Nurrina BINTI ROSLI, Youichi TOYOOKA and Kenji AMAGAI

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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 SHAKOUCHI, Junichi TAKAMURA, Koichi TSUJIMOTO and Toshitake ANDO
122 Experimental Study on Behavior of Microbubbles with different \( \zeta \)-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

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
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

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 (Tottori University)
66 Alkali Leaching of Ni-Al Microchannel Lining Layers
   Yuhusuke SAITO, 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
Dealloying of Cu-Zn Microchannel Lining Layers for Producing Microporous Catalyst
Kazuki KOBAYASHI, Tatsuya OHMI, Masatoshi SAKAIRI and Manabu IGUCHI

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 NOx 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
Investigation on the Vortex Shedding from a Finite Height Cylinder
Jiun-Jih MIAU and Hsin-Hown LEE

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

Bending Degradation of Critical Current in Bi2223 High-temperature Superconducting Tapes
Muneo FUTAMURA, Shin ITO and Seiichi SUDO

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 Kunihiko NAMBA*
( Osaka Prefectural College of Technology)

S4 Fundamental Researches of Bamboo for Energy Utilization
Tomohiro YANAGI and Kunihiko NAMBA*
( Osaka Prefectural College of Technology)

S5 A Simulation of Thickness Distribution on Curved Substrate for Ion Beam Assisted Vapor Deposition
Kunihiko 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*
15:20-15:30 Closing Ceremony
Chairperson K. KATO (Osaka City University), Mirei CHIBA (Tohoku University)