

## CONFERENCE SCHEDULE AT A GLANCE

### DECEMBER 1ST (FRIDAY)

Time	100th Anniversary Hall of Engineering Faculty
11:00 - 19:00	Registration
13:00 - 13:20	Opening ceremony
13:20 - 14:20	Liou, Tong Miin (National Tsing Hua University) Keynote Lecture-1 Prof. Koji OKAMOTO
14:20 - 14:40	Coffee Break
14:40 - 15:40	Tomimura, Toshio (Kumamoto University) Keynote Lecture-2 Prof. Choongsik BAE
15:40 - 16:00	Coffee Break
16:00 - 17:00	Saitoh Hironori (Sojo University) Keynote Lecture-3 Prof. Irina ZNAMENSKAYA
17:30 - 19:00	Welcome Ceremony

### December 2nd (Saturday)

Time	Faculty of Engineering Building 2					
	Room A (211)	Room B (212)	Room C (214)	Room D (221)	Room E (222)	Room F (223)
8:00 - 17:30	Registration					
9:00 - 10:00						Yoshikawa Hiroyuki (Kumamoto University) Keynote Lecture-4 Prof. Gennaro CARDONE
10:00 - 10:20	Coffee Break					
10:20 - 11:50	<b>Heat transfer and combustion-1</b> Hirata, Katsuya (Doshisha University) 009, 015, 017, 025, 026	<b>Multiphase flow-1</b> Yang, Chien-Yuh (National Central University) 002, 004, 010, 019, 021	<b>Numerical visualization and image processing-1</b> Ekaterina, Koroteeva (Lomonosov Moscow State University) 022, 035, 036, 053, 057	<b>Vortex-1</b> Mori, Hideo (Kyushu University) 016, 020, 039, 060, 069	<b>Jet-1</b> Oshima, Motohiro (Toyama Prefectural University) 027, 049, 050, 051, 061	<b>Numerical visualization-1</b> OHMI, KAZUO(Osaka Sangyo University) 005, 018, 029, 030, 038
11:50 - 13:00	Lunch					
13:00-14:00						Fushinobu, Kazuyoshi (Tokyo Institute of Technology) Keynote Lecture-5 Prof. Tai-Wen HSU
14:00 - 14:20	Coffee Break					
14:20-15:50	<b>Poster</b> 【14:20 - 15:00】 006, 012, 013, 014, 023, 028, 031, 052 【15:10 - 15:50】 076, 081, 091, 100, 102, 118, 124	<b>Multiphase flow-2</b> Tagawa, Toshio(Tokyo Metropolitan University) 047, 062, 067, 089, 121	<b>Numerical visualization and image processing-2</b> SHIHH CHENG HU(National Taipei University of Technology) 087, 090, 093, 111, 122	<b>Vortex-2</b> Jiahn-Horng, Chen (National Taiwan Ocean University) 072, 075, 086, 092, 099	<b>Jet-2</b> Mariani Raffaello (Nanyang Technological University) 074, 078, 095, 101, 108	<b>Numerical visualization-2</b> Stefan Puttinger(Johannes Kepler University Linz) 054, 070, 077, 079, 096
15:50 - 16:10	Coffee Break					
16:10 - 17:30		<b>Multiphase flow-3</b> SAITO, Takayuki(Shizuoka University) 110, 113, 116, 119	<b>Numerical visualization and image processing-3/Other researches</b> Ninomiya, Nao (Utsunomiya University) 123, 043, 068, 044	<b>Vortex-3</b> AEDLA, Raju(Kumamoto University) 109, 114, 115	<b>Laser based methods-1</b> Fukui, Tomohiro (Kyoto Institute of Technology) 040, 033, 045	<b>Numerical visualization-3</b> Someya, Satoshi (AIST) 106, 112, 120, 125, 071
19:00 - 21:00	Banquet (Hotel MIELPARQUE Kumamoto)					

### December 3rd (Sunday)

Time	Faculty of Engineering Building 2					
	Room A (211)	Room B (212)	Room C (214)	Room D (221)	Room E (222)	Room F (223)
8:00 - 11:50	Registration					
9:00 - 10:00						Koito Yasushi (Kumamoto University) Keynote Lecture-6 Dr. Friedrich LEOPOLD
10:00 - 10:20	Coffee Break					
10:20 - 11:50	<b>Heat transfer and combustion-2</b> Nakamura, Yuji (Toyoehashi University of Technology) 042, 046, 056, 083, 104	<b>Physiological/Biological flow</b> Fukue, Takashi(Iwate University) 001, 024, 065, 094, 107	<b>Non-Newtonian fluids flow/Environment</b> Torii, Shuichi (Kumamoto University) 007, 105, 011, 032, 103	<b>Turbo machinery/Classical and advanced measurement</b> AEDLA, Raju(Kumamoto University) 063, 085, 055, 064, 084	<b>Laser based methods-2</b> Ota, Masanori(Chiba University) 058, 080, 088	<b>Applications</b> Yonemoto Yukihiko (Kumamoto University) 003, 066, 098

## TECHNICAL PROGRAM

**Friday, December 1st, 2017**

### 100<sup>th</sup> Anniversary Hall of Engineering Faculty

**13:00 – 13:20** Opening Ceremony

**13:20 – 14:20** KEYNOTE LECTURE-1

*Chairperson: Liou, Tong Miin (National Tsing Hua University)*

PSFVIP11-KN1 PROGRESS AND FUTURE OF HIGH-SPEED QUANTITATIVE VISUALIZATION

*Koji OKAMOTO (The University of Tokyo, Japan)*

**14:40 – 15:40** KEYNOTE LECTURE-2

*Chairperson: Tomimura, Toshio (Kumamoto University)*

PSFVIP11-KN2 DIAGNOSTICS ON SPRAY AND COMBUSTION PROCESS OF ALTERNATIVE FUELS  
IN ENGINES

*Choongsik BAE (Korea Advanced Institute of Science and Technology, Korea)*

**16:00 – 17:30** KEYNOTE LECTURE-3

*Chairperson: Saitoh Hironori (Sojo University)*

PSFVIP11-KN3 DIGITAL IMAGING IN FLOW VISUALIZATION AND CFD SIMULATION

*Irina ZNAMENSKAYA (Lomonosov Moscow State University, Russia)*

**Saturday, December 2nd, 2017**

### Room F (223)

**9:00 – 10:00** KEYNOTE LECTURE-4

*Chairperson: Yoshikawa Hiroyuki (Kumamoto University)*

PSFVIP11-KN4 THERMO-FLUID-DYNAMIC ANALYSIS BY INFRARED THERMOGRAPHY: A REVIEW

*Gennaro CARDONE (University of Naples Federico II, Italy)*

### Room A (211)

**10:20 – 11:50** Heat transfer and combustion-1

*Chairperson: Hirata, Katsuya (Doshisha University)*

- PSFVIP11-009 ENHANCED BOILING HEAT TRANSFER ON VIBRATED HEATING SURFACE  
*K. HAMAHATA, S. TORII and H. SHIRAIWA*
- PSFVIP11-015 STUDY ON HEAT TRANSFER CHARACTERISTICS OF GRAPHENE OXIDE  
NANOFLUID ON PHASE CHANGE  
*M. MATSUMURA and S. TORII*
- PSFVIP11-017 STUDY ON HEAT EXCHANGER FOR EXHAUST HEAT RECOVERY IN SMALL BIOMASS  
UTILIZATION SYSTEM  
*S. MATSUMOTO and S. TORII*
- PSFVIP11-025 DYNAMIC BEHAVIOR OF INTERACTING FLICKERING FLAMES  
*A. BUNKWANG, A. BERTHIER, T. MATSUOKA and Y. NAKAMURA*
- PSFVIP11-026 POOL FIRES OVER THE CIRCULATING FLOW FIELDS  
*M. MIZUNO, T. MATSUOKA, Y. NAKAMURA, and K. KUWANA*

**Room B (212)**

**10:20 – 11:50 Multiphase flow-1**

*Chairperson: Yang, Chien-Yuh (National Central University)*

- PSFVIP11-002 NUMERICAL SIMULATION OF BINARY COLLISION OF LIQUID DROPS IN THE  
ABSENCE OF GRAVITATIONAL FIELD  
*T. TAGAWA and Y. ANZAI*
- PSFVIP11-004 EVALUATING THE DAMPING EFFECT OF A SLAG LAYER ON THE MOLD FLOW IN  
CONTINUOUS CASTING OF STEEL  
*S. PUTTINGER, M. SAEEDIPOUR and S. PIRKER*
- PSFVIP11-010 STUDY ON HIGH-EFFICIENCY BOILER BY A DIRECT SENDING OF ELECTRICITY  
*T. ISHIMOTO and S. TORII*
- PSFVIP11-019 NUMERICAL STUDY OF MULTIPHASE FLOWS IN A LADLE FOR DIFFERENT  
CLOSURE MODELS  
*E. K. RAMASETTI, V.-V. VISURI, P. SULASALMI, A. KÄRNÄ and T. FABRITIUS*
- PSFVIP11-021 VISUALIZATION OF TRANSIENT TWO-PHASE FLOW BEHAVIOR IN A PUMP USING  
X-RAY RADIOGRAPHY

**Room C (214)**

**10:20 – 11:50 Numerical visualization and image processing-1**

*Chairperson: Ekaterina, Koroteeva (Lomonosov Moscow State University)*

PSFVIP11-022 NATURAL BACKGROUND ORIENTED SCHLIEREN AND MULTISCALE VISUALIZATIONS OF OVERPRESSURE WAVE RESULTING FROM VAPOR CLOUD EXPLOSION

*P. LAURET, P. SLANGEN, F. HEYMES, L. APRIN, N. LECYSYN and A. OSMONT*

PSFVIP11-035 MEAN SELF – ADAPTIVE PLATEAU HISTOGRAM EQUALIZATION FOR BIOMASS CLASSIFICATION USING SATELLITE IMAGES

*A. RAJU and S. TORII*

PSFVIP11-036 APPLICATION OF COMPUTATIONAL FLUID DYNAMICS (CFD) MODEL FOR CONVENIENT ANAEROBIC DIGESTION PLANT

*F. HUQE and S. TORII*

PSFVIP11-053 VISUALIZATION OF SOLUTION FLOW IN DIAGNOSTIC BIOCHIPS

*S. AOYAMA and K. MONDEN*

PSFVIP11-057 LIFT FORCE GENERATION OF CROSS-FLOW OVER A LINEARLY TRANSLATING CIRCULAR CYLINDER BY A STRIP-PLATE SET DOWNSTREAM IN CRUCIFORM ARRANGEMENT

*W. HEMSUWAN, K. SAKAMOTO and T. TAKAHASHI*

**Room D (221)**

**10:20 – 11:50 Vortex-1**

*Chairperson: Mori, Hideo (Kyushu University)*

PSFVIP11-016 VISUALIZATION OF NECKLACE VORTEX SYSTEM IN FRONT OF A CIRCULAR CYLINDER

*A. INAGAKI, Y. KAWANO and H. YAMADA*

PSFVIP11-020 FLOW VISUALIZATION OF THE MUTUAL INTERFERENCE FLOW OF TWO CIRCULAR CYLINDERS OF DIFFERENT DIAMETER

*Y. YOKOI and R. VITKOVIČOVÁ*

PSFVIP11-039 FLOW VISUALISATION OF NON-SPINNING SOCCER BALL USING DIRECT NUMERICAL SIMULATION

*T. ASAI, S. HONG, K. KIMACHI and A. NAKAMURA*

PSFVIP11-060 EXPERIMENTAL STUDY OF VORTEX BREAKDOWN IN AN OPEN CYLINDRICAL CONTAINER WITH A ROTATING BOTTOM ENDWALL

*E. TAMURA, K. SUZUKI, R. IWATSU and H. S. KOYAMA*

PSFVIP11-069 AERODYNAMIC CHARACTERISTICS OF CONCAVE SQUARE CYLINDER (INFLUENCE OF ASPECT RATIO)

*T. TAKAYA and H. OKANAGA*

#### **Room E (222)**

**10:20 – 11:50 Jet-1**

*Chairperson: Oshima, Motohiro (Toyama Prefectural University)*

PSFVIP11-027 EXPERIMENTAL INVESTIGATION OF NOZZLE SPACING EFFECTS ON CHARACTERISTICS OF ROUND TWIN FREE JETS

*A. LABAN, M. ONWUTEAKA, M. TACHIE and M. KOUPRIYANOV*

PSFVIP11-049 NOZZLE SPACING EFFECTS ON STATISTICAL PROPERTIES OF TWIN ELLIPTIC JETS

*S. S. ALEYASIN and M. F. TACHIE*

PSFVIP11-050 STATISTICAL PROPERTIES OF THREE-DIMENSIONAL TWIN JETS AT LOW AND MODERATE REYNOLDS NUMBERS

*S. S. ALEYASIN and M. F. TACHIE*

PSFVIP11-051 COMPUTER FLOW VISUALIZATION OF FREE JETS FROM SQUARE SUPERSONIC NOZZLES

*S. MAEDA, K. KUBO, S. NAKAO, D. ONO and Y. MIYAZATO*

PSFVIP11-061 ON THE APPLICATION OF CALIBRATED SCHLIEREN FOR THE ANALYSIS OF AXISYMMETRIC AND ASYMMETRIC SUPERSONIC JETS

*R. MARIANI, H. D. LIM, U. S. VEVEK, B. ZANG, Y. D. CUI and T. H. NEW*

**Room F (223)**

**10:20 – 11:50 Numerical visualization-1**

*Chairperson: Ohmi, Kazuo(Osaka Sangyo University)*

PSFVIP11-005 BIOMASS DOWNDRAFT GASIFIER DESIGN AND IMPROVEMENT USING CFD MODELLING

*P. N. A. NUGROHO and S. TORII*

PSFVIP11-018 VISUALIZATION OF SHOCK WAVE BEHAVIOR PROPAGATING IN DIFFERENT PRESSURE TRANSMITTING MEDIUM

*D. INAO, T. YAMASHITA, S. TANAKA and K. HOKAMOTO*

PSFVIP11-029 CFD-BASED VISUALIZATION OF FLOW AND HEAT TRANSFER OF PULSATING IMPINGING JET ON COOLING SURFACE

*T. FUKUE, H. SHIRAKAWA, K. HIROSE, T. FURUSAWA and W. HIRATSUKA*

PSFVIP11-030 VISUALIATION OF HEAT TRANSFER MECHANISM OF PULSATING FLOW AROUND RIBS MOUNTED IN RECTANGULAR DUCT

*J. SUZUKI, T. FUKUE, W. HIRATSUKA, H. SHIRAKAWA and K. HIROSE*

PSFVIP11-038 GROWTH RATES IN A NUMERICAL SIMULATION OF SOLUTION GROWTH

*H. SUSAWA*

**Room F (223)**

**13:00 – 14:00 KEYNOTE LECTURE-5**

*Chairperson: Fushinobu, Kazuyoshi (Tokyo Institute of Technology)*

PSFVIP11-KN5 APPLICATION OF BIV AND PIV TECHNIQUES TO BREAKING WAVE-INDUCED FLOW FIELDS OVER ARTIFICIAL REEF

*Tai-Wen HSU (National Taiwan Ocean University, Taiwan)*

**Room A (211)**

**14:20 – 15:00 Poster-1**

PSFVIP11-006 QUALIFICATION EXPERIMENT OF ULTRASONIC DOPPLER VELOCIMETRY OF LEAD-LITHIUM FLOW

*Y. UEKI, Y. NOGUCHI and M. SHIBAHARA*

- PSFVIP11-012 EFFECTS OF SLOPES AND SPACES OF PROTRUSIONS IN FISH LADDER FOR EELS ON  
MIGRATION RATE OF ANGUILLA JAPONICA  
*K. ONITSUKA, J. AKIYAMA and K. IZUMI*
- PSFVIP11-013 EFFECTS OF MAGNETIC FORCE ON SWIMMING BEHAVIOR OF ISOLATED ZACCO  
PLATYPUS IN STATIC WATER  
*K. ONITSUKA, J. AKIYAMA, K. KUNISAKI and T. TAKEDA*
- PSFVIP11-014 EFFECTS OF BOULDERS LOCATIONS OVER POOL BED IN POOL-AND-WEIR  
FISHWAY ON MIGRATION RATE OF ZACCO PLATYPUS  
*K. ONITSUKA, J. AKIYAMA and R. OGATA*
- PSFVIP11-023 EFFECTS OF VEGETATION DENSITY ON SWIMMING BEHAVIOR OF ZACCO  
PLATYPUS  
*K. ONITSUKA, J. AKIYAMA and K. JOJI*
- PSFVIP11-028 THE COMBUSTION AND TRANSITION TO DETONATION OF HIGH PRESSURE  
FLAMMABLE GAS IN CLOSED SPACES LINKED WITH A NARROW PATH  
*S.MAEDA, K.FUJIWARA and R.NANBA*
- PSFVIP11-031 SIMULTANEOUS VISUALIZATION OF FLOW AND SOUND USING PARALLEL  
PHASE-SHIFTING INTERFEROMETRY  
*R. TANIGAWA, K. ISHIKAWA, K. YATABE, Y. OIKAWA, T. ONUMA and H. NIWA*
- PSFVIP11-052 REAL-TIME VISUALIZATION SYSTEM OF BLOOD FLOW VELOCITY DISTRIBUTION  
USING CROSS-SECTIONAL MULTIPOINT LDV  
*N. SHOJI, S. AKIGUCHI, T. KYODEN, T. ANDOH, T. HACHIGA and H. KIKURA*

**15:10 – 15:50 Poster-2**

- PSFVIP11-076 HEAT TRANSFER ENHANCEMENT BY OPTIMIZING THE ARRANGEMENT OF  
VORTEX GENERATORS IN FLAT-TUBE-FIN HEAT EXCHANGER  
*K.W. SONG and T. TAGAWA*
- PSFVIP11-081 MEASUREMENT OF MASS TRANSFER COEFFICIENT IN MICROCHANNEL BY USING  
LUMINOL REACTION  
*T. YOSHIDA and R. MATSUMOTO*
- PSFVIP11-091 FLOW CHARACTERISTICS IN A CYCLONE SEPARATOR WITH A HEMISPHERIC HEAD

- PSFVIP11-100 EVAPORATION BEHAVIOR OF WATER SPRAY COOLING ON THE NANO-PARTICLE LAYER FORMED ON THE HEATING SURFACE  
*S. SAITO, K. SEZAKI, M. IWAMOTO and M. AKAMATSU*
- PSFVIP11-102 A HIGH-SPEED VISUALISATION OF BUBBLE MOTIONS AND PIV STUDY OF BUBBLE-INDUCED WATER FLOWS  
*A. M. ALIYU, H. SEO and K. C. KIM*
- PSFVIP11-118 THREE DIMENSIONAL VELOCITY DISTRIBUTION MEASUREMENT OF AN AIR COOLED FLOW PASSAGE FOR GAS TURBINE BLADES BY USING MAGNETIC RESONANCE IMAGING  
*FUJITA, K. TAKEISHI, N. KUSHIDA, T. TSURU and Y. ODA*
- PSFVIP11-124 SEMI-EMPIRICAL MODEL FOR SLIDING BEHAVIOR OF DROPLETS ON INCLINED LOW-SURFACE-ENERGY SOLID  
*E. SHONO, Y. YONEMOTO, S. SUZUKI, S. UENOMACHI and T. KUNUGI*

**Room B (212)**

**14:20 – 15:50 Multiphase flow-2**

*Chairperson: Tagawa, Toshio(Tokyo Metropolitan University)*

- PSFVIP11-047 A DISCUSSION OF THE RELATIONSHIP BETWEEN BUBBLE MOTIONS AND VORTEX SHEDDING ON THE BASIS OF THREE-DIMENSIONAL OBSERVATION OF BUBBLE WAKES  
*J. HUANG and T. SAITO*
- PSFVIP11-062 VISUALIZATION AND TEMPERATURE MEASUREMENT OF NATURAL CONVECTIVE SUBCOOLED BOILING FLOW IN A NARROW GAP  
*M. TAKEYAMA, T. KUNUGI, Z. KAWARA and T. YOKOMINE*
- PSFVIP11-067 INVESTIGATION OF WAVE AND LIGAMENT FORMATION BY CROSS FLOW ON LIQUID FILM IN A RECTANGULAR DUCT USING FLOW VISUALIZATION  
*T. TSUCHIDA, K. OHTSUKI, Y. OGATA, K. NISHIDA, R. YAMAMOTO, K. NAKAMURA, K. MARUI, and H.YOKOHATA*
- PSFVIP11-089 VISUAL OBSERVATIONS OF REFRIGERANT GAS-LIQUID FLOW DISTRIBUTIONS IN MULTI-PASS CHANNELS WITH INNER PIPE



A. EKAWA, M. HIROTA, N. MARUYAMA and A. NISHIMURA

PSFVIP11-121 WALL SURFACE WETTABILITY EFFECTS ON FLOW CHARACTERISTICS IN GAS-LIQUID TWO-PHASE FLOW THROUGH RECTANGULAR MICRO-CHANNEL  
K. MITSUYASU, T. MIYAZAKI, T. TAKEHIRA, A. KAWAHARA, Y. YONEMOTO and M. SADATOMI

**Room C (214)**

**14:20 – 15:50 Numerical visualization and image processing-2**

*Chairperson: Shiih Cheng Hu (National Taipei University of Technology)*

PSFVIP11-087 VELOCIMETRY OF WATER BOUNDARY LAYER FLOWS BY THERMAL IMAGING  
E. KOROTEEVA, I. ZNAMENSKAYA, P. RYAZANOV and A. NOVINSKAYA

PSFVIP11-090 ACCURACY IMPROVEMENT OF TURBULENCE MEASUREMENT BY 3-D 3-C PIV  
Y. TANAKA and N. NINOMIYA

PSFVIP11-093 ON THE SELF-SIMILARITY OF DISSIPATION ELEMENTS IN HOMOGENEOUS ISOTROPIC DECAYING TURBULENCE  
M. GAUDING, Y. BRAHAMI, J. H. GOEBBERT, E. VAREA and L. DANAILA

PSFVIP11-111 BEHAVIOR PREDICTION OF FIBROUS MATERIALS FOR CLARIFYING CLOGGING MECHANISM IN WASTEWATER PUMPS  
H. KANNO, Y. IMASAKA, S. SAITO, K. MIYAGAWA, M. NOHMI, M. ISONO, H. UCHIDA and M. KAWAI

PSFVIP11-122 3D PIV EXPERIMENT BY USING A SINGLE-EYE CAMERA WITH A MULTIVISION PRISM FILTER  
K. OHMI

**Room D (221)**

**14:20 – 15:50 Vortex-2**

*Chairperson: Jiahn-Horng, Chen (National Taiwan Ocean University)*

PSFVIP11-072 DENSITY MEASUREMENTS IN COMPRESSIBLE BOUNDARY LAYERS BY RAINBOW SCHLIEREN DEFLECTOMETRY  
T. TAKESHITA, K. KUBO, S. NAKAO, D. ONO and Y. MIYAZATO

- PSFVIP11-075 PIV MEASUREMENTS OF A PULSATILE TURBULENT FLOW IN AN S-SHAPED DOUBLE BEND PIPE  
*J. OKI, Y. KUGA, Y. OGATA, K. NISHIDA, R. YAMAMOTO, K. NAKAMURA, H. YANAGIDA and H. YOKOHATA*
- PSFVIP11-086 TRANSITION PATTERNS OF NEGATIVELY BUOYANT VORTEX RINGS  
*T. NAITOH and T. TANAKA*
- PSFVIP11-092 MEASUREMENTS OF TIP VORTEX TRAJECTORY GENERATED FROM PROPELLER BLADES FOR A MULTICOPTER  
*S. KUBO, A. HIGO, M. MUNEATA and H. YOSHIKAWA*
- PSFVIP11-099 INSIGHT INTO COHERENCE STRUCTURE IN LOGARITHMIC REGION OF WALL TURBULENCE WITH DETACHED EDDY BY USING CONDITIONALLY AVERAGED TWO-CAMERA PIV MEASUREMENTS  
*Y. HATTORI, H. SUTO, K. NAKAO and H. HIRAKUCHI*

**Room E (222)**

**14:20 – 15:50 Jet-2**

*Chairperson: Mariani Raffaello (Nanyang Technological University)*

- PSFVIP11-074 STRUCTURE OF UNDEREXPANDED SUPERSONIC JETS FROM AXISYMMETRIC LAVAL NOZZLES  
*H. MAEDA, H. FUKUDA, K. KUBO, S. NAKAO, D. ONO and Y. MIYAZATO*
- PSFVIP11-078 QUANTITATIVE MEASUREMENT FOR LATERAL JET / CROSS FLOW STEADY INTERACTION FIELD BY COLORED-GRID BACKGROUND ORIENTED SCHLIEREN (CGBOS) TECHNIQUE  
*K. KURIHARA, K. SHIDA, K. ISHIKAWA, S. UDAGAWA, T. INAGE, M. OTA and K. MAENO*
- PSFVIP11-095 CONDITIONAL AND CONVENTIONAL STATISTICS OF VARIABLE VISCOSITY JET FLOWS  
*Y. BRAHAMI, M. GAUDING, E. VAREA and L. DANAILA*
- PSFVIP11-101 VISUALIZATION STUDY OF ATMOSPHERIC DIELECTRIC-BARRIER DISCHARGE PLASMA JETS  
*M. OSHIMA, S. KUWASHIMA, I. WAKITA, D. OZEKI and Y. SAKAMURA*
- PSFVIP11-108 EXPERIMENTAL STUDY OF TURBULENT TWIN JETS ISSUING FROM

CLOSELY-SPACED LOW ASPECT-RATIO RECTANGULAR NOZZLES

*R. NASERI OSKOUIE, M. F. TACHIE and B.-C. WANG*

**Room F (223)**

**14:20 – 15:50 Numerical visualization-2**

*Chairperson: Stefan Puttinger (Johannes Kepler University Linz)*

PSFVIP11-054 DEVELOPMENT OF NEW BACKWASHING AIR AMPLIFYING DEVICE FOR BAG FILTER

*R. EBISUZAKI, E. MUKAI, Y. NAKAZATO, M. JITSUKAWA and K. MONDEN*

PSFVIP11-070 VISUALIZATION OF UNSTEADY TRANSONIC DIFFUSER FLOW BY HYBRID RANS-LES SIMULATION

*S. GOTO, K. KUBO, S. NAKAO, D. ONO and Y. MIYAZATO*

PSFVIP11-077 EFFECTS OF REYNOLDS NUMBERS ON VENTURI NOZZLE FLOWS AT OVEREXPANDED CONDITIONS

*S. INOUE, S. YAGI, D. ONO, S. NAKAO, and Y. MIYAZATO*

PSFVIP11-079 COMPARISON OF UNSTEADY FLOW FIELDS BY A LOW-DIMENSIONALIZATION METHOD USING DEEP LEARNING

*N. OMATA and S. SHIRAYAMA*

PSFVIP11-096 NUMERICAL STUDY ON THE EFFECTS OF THE CONFINEMENT ON THE RHEOLOGY OF A SUSPENSION

*T. FUKUI, M. KAWAGUCHI and K. MORINISHI*

**Room B (212)**

**16:10 – 17:40 Multiphase flow-3**

*Chairperson: Saito, Takayuki (Shizuoka University)*

PSFVIP11-110 VISUALIZATION OF NUCLEATE BOILING BUBBLES FROM SINGLE CAVITY UNDER FC-72 FORCED CONVECTION FLOW

*H. ARIMA, T. HASHIMOTO and N. URAYAMA*

PSFVIP11-113 CONDENSATION OF REFRIGERANT HFC-245fa ON HORIZONTAL INTEGRAL FIN-TUBES WITH AND WITHOUT GRAPHENE COATING SURFACES

*Z. KHALIDA, H.-Y. PAN and C.-Y. YANG*

PSFVIP11-116 THE EFFECTS OF MIXING-VANE ATTACHED TO A GRID SPACER ON THE DEPOSITION RATE AND THE LIQUID FILM THICKNESS FOR ANNULAR FLOW IN A VERTICAL CIRCULAR PIPE

*D. NISHIOKA, W. TAKAKI, H. TAZOE, M. ENDO, A. KAWAHARA and M. SADATOMI*

PSFVIP11-119 EXPERIMENTAL STUDY ON PRESSURE DROP FOR GAS-LIQUID TWO-PHASE FLOW THROUGH Y-BRANCH IN A RECTANGULAR MINI-CHANNEL

*Y. TABATA, A. KAWAHARA and M. SADATOMI*

### **Room C (214)**

**16:10 – 17:40 Numerical visualization and image processing-3/Other researches**

*Chairperson: Ninomiya, Nao (Utsunomiya University)*

PSFVIP11-123 PARTICLE VISUALIZATION SYSTEM BASED ON THE SCATTERING OF LIGHT PRODUCED BY A SLIDE BEAM LASER IN A CLEAN ROOM

*O. JUIÑA, S.C. HU, T. LIN and T. KANG*

PSFVIP11-043 STUDY OF TORREFACTION EFFECT ON PALM OIL EFB AND PINE TREE BARK CALORIFIC VALUE IN A STAGNANT INERT GAS CONDITION

*M. F. RAMADHANA, P. N. NUGROHO and S. TORII*

PSFVIP11-068 FLOW VISUALIZATION AND AERODYNAMICS CHARACTERISTICS OF KNUCKLING EFFECT SOCCER BALLS

*Y. KAWAKAMI, N. OSATO, M. KOMAKINE, W. SHIBUYA, T. MIZUSAWA and H. OKANAGA*

PSFVIP11-044 RECONSTRUCTION OF 3D FLOWS BY DIGITAL HOLOGRAPHIC INTERFEROMETRY AND DIFFERENTIAL INTERFEROMETRY

*F. OLCHEWSKY, Z. ESSAIDI, J.M. DESSE, F. NICOLAS, F. CHAMPAGNAT and P. PICART*

### **Room D (221)**

**16:10 – 17:40 Vortex-3**

*Chairperson: Aedla, Raju (Kumamoto University)*

PSFVIP11-109 INTERACTION OF VORTEX STREET WITH A TRANSVERSE JET IN THE LAMINAR REGIME

*T.H. LIN AND J.-H. CHEN*

PSFVIP11-114 VISUALIZATION OF FLOW AND HEAT TRANSFER BEHIND REATTACHMENT POINT IN A BACKWARD FACING STEP FLOW USING HIGH-SPEED PIV AND INFRARED THERMOGRAPHY

*S. YAMADA and H. NAKAMURA*

PSFVIP11-115 THREE-DIMENSIONAL FLOW FIELD AROUND A ROTATING CYLINDER WITH SPIRAL FIN FOR MAGNUS WIND TURBINE

*Y. IKEZAWA, H. HASEGAWA, T. ISHIDO, T. HANIU and N. MURAKAMI*

#### **Room E (222)**

##### **16:10 – 17:40 Laser based methods-1**

*Chairperson: Fukui, Tomohiro (Kyoto Institute of Technology)*

PSFVIP11-040 DIGITAL HOLOGRAPHIC INTERFEROMETRY APPLIED FOR STUDYING TRANSSONIC AND SUPERSONIC FLOWS

*J.M. DESSE, F. OLCHEWSKY, Z. ESSAIDI, F. NICOLAS, D. DONJAT, F. CHAMPAGNAT, F. LEOPOLD, F., JAGUSINSKI, D. KLATT and P. PICART*

PSFVIP11-033 THE MEASUREMENTS OF THE VIBRATIONAL AND ROTATIONAL TEMPERATURES BEHIND THE HYPERVELOCITY SHOCK WAVES BY CARS AND COMPARISON OF THE TEMPERATURES

*Y. ISHIMOTO, M.TOKUHISA, T.NAGASHIMA, K.KURIHARA, M. OTA and M. MAENO*

PSFVIP11-045 EXPERIMENTAL STUDY OF TURBULENT BOUNDARY LAYER OVER DIFFERENT SHAPED CYLINDERS

*A. NEMATOLLAHI, B. NYANTEKYI-KWAKYE, X. FANG, M. F. TACHIE, S. P. CLARK and K. DOW*

#### **Room F (223)**

##### **16:10 – 17:40 Numerical visualization-3**

*Chairperson: Someya, Satoshi (AIST)*

PSFVIP11-106 CURRENT DENSITY DISTRIBUTION IN THIN ELECTROLYTE OF SOFC

*H. IWAI, Y. TANAKA, M. SAITO, M. KISHIMOTO and H. YOSHIDA*

PSFVIP11-112 INVESTIGATION OF TURBOCHARGER CHARACTERISTICS BY FLOW VISUALIZATION USING PIV AND CFD ANALYSIS UNDER STEADY AND PULSATING FLOW

*M. CHINEN, Y. NAKAMURA, S. SHIRATORI, S. YAMADA, K. YASUI and K. MIYAGAWA*

PSFVIP11-120 VISUALIZATION OF ULTRASONIC WAVE PROPAGATION FOR WRINKLING DURING SHEET PRESS FORMING USING FDTD ANALYSIS  
*Y. SEGAWA, Y. MARUMO, T. NONAKA and Y. SAKATA*

PSFVIP11-125 EXPERIMENTAL AND NUMERICAL STUDY OF NATURAL CONVECTIVE FLOW AND PLUME SWAYING OVER A HOT CYLINDER IMMersed HORIZONTALLY IN WATER  
*A.R. GOLI, M. NILI-AHMADABADI, GH. TAHERIAN and KC. KIM*

PSFVIP11-071 COMPUTER FLOW VISUALIZATION OF UNDEREXPANDED JETS FROM AXISYMMETRIC SUPERSONIC MICRO NOZZLES  
*H. FUKUDA, H. MAEDA, D. ONO, S. NAKAO, Y. MIYAZATO, and Y. ISHINO*

**Sunday, December 3rd, 2017**

**Room F (223)**

**9:00 – 10:00 KEYNOTE LECTURE-6**

*Chairperson: Koito Yasushi (Kumamoto University)*

PSFVIP11-KN6 THE INFLUENCE OF SPIN ON THE FLOW AROUND MODELS AT SUPERSONIC SPEED  
*Friedrich LEOPOLD (French-German Research Institute of Saint-Louis, France)*

**Room A (211)**

**10:20 – 11:50 Heat transfer and combustion-2**

*Chairperson: Nakamura, Yuji (Toyohashi University of Technology)*

PSFVIP11-042 EVALUATION OF EMULSION FUEL CREATED BY VARIOUS WAYS  
*K. NAKAMURA, S. TORII, H. SINGH and A. YE*

PSFVIP11-046 HYDROTHERMAL CHARACTERISTICS IN TWO-PASS CORE AND WALL DIRECTED LOUVERED CHANNELS  
*T.M. LIOU, J.C. TSENG, S.P. CHAN and I.M. HSIEH*

PSFVIP11-056 ON CUBIC CONVECTION  
*M. KODAMA, M. NOBUHARA, H. TANIGAWA and K. HIRATA*

PSFVIP11-083 MEASUREMENT OF TEMPERATURE DIFFERENCE AND TRANSIENT FLOW OF

NATURAL CONVECTION INFLUENCED BY THERMAL RADIATION

*T. KOGAWA, E. SHOJI, J. OKAJMA, A. KOMIYA and S. MARUYAMA*

PSFVIP11-104 EXPERIMENTAL TESTS AND NUMERICAL SIMULATIONS OF SMOKE FLOWS IN A COMPARTMENT FIRE

*B.BETTING, E.VAREA, B.PATTE-ROULAND, C.GOBIN and G.GODARD*

**Room B (212)**

**10:20 – 11:50 Physiological/Biological flow**

*Chairperson: Fukue, Takashi (Iwate University)*

PSFVIP11-001 EXPERIMENT AND COMPUTATION ON AERODYNAMIC CHARACTERISTICS AND FLOW VISUALISATION OF BASIC AIRFOILS AT VERY- LOW REYNOLDS NUMBERS

*E. TAKAHASHI, K. ONISHI, H. TANIGAWA, A. UTIDA, K. SUGITANI and K. HIRATA*

PSFVIP11-024 DISPOSABLE IMPEDIMETRIC IMMUNOSENSOR FOR QUANTITATIVE DETECTION OF CHRONIC KIDNEY DISEASE

*C.-H. CHUANG, P.-Y. ZHU, M. O. SHAIKH and H.-P. WU*

PSFVIP11-065 DEVELOPMENT OF PRECISE BLOOD PERFUSION SENSOR IN ENDOSCOPE

*M. HASHIMOTO and Y. TAGUCHI*

PSFVIP11-094 NUMERICAL SIMULATION ON THE EFFECT OF BRANCHES ON THE WALL SHEAR STRESS DISTRIBUTION OF THE AORTIC ARCH

*M. KAWAGUCHI, T. FUKUI and K. MORINISHI*

PSFVIP11-107 HIGH SPATIAL AND TEMPORAL RESOLUTION COMPUTATIONAL ANALYSIS OF FLOW BETWEEN AN ENGINE CYLINDER AND MOVING PISTON

*M. OMORI, T. KURAISHI, K. TAKIZAWA and T.E. TEZDUYAR*

**Room C (214)**

**10:20 – 11:50 Non-Newtonian fluids flow/Environment**

*Chairperson: Torii, Shuichi (Kumamoto University)*

PSFVIP11-007 RHEOLOGICAL BEHAVIOR OF HIGH VISCOSITY FLUIDS AROUND A ROTATING BODY

*K. HIGASHI, Y. NOGUCHI, K. FUKUTANI, T. KAWAGUCHI, I. SATOH and T. SAITO*

- PSFVIP11-105 EFFECTS OF EXTENSIONAL RHEOLOGICAL PROPERTIES OF POLYMER SOLUTIONS ON A TWO-DIMENSIONAL TURBULENT FLOW  
*R. HIDEMA, I. MURAO, H. SUZUKI and Y. KOMODA*
- PSFVIP11-011 STUDY ON SLUDGE INCINERATION CHARACTERISTICS  
*C. LIU, S. TORII and Z. PU*
- PSFVIP11-032 OPTICAL MEASUREMENT AND IMAGE ANALYSIS DURING NITRIC OXIDE DECOMPOSITION IN MICROWAVE INDUCED PLASMA PROMOTED BY ACTIVATED COKE BED AT ATMOSPHERIC PRESSURE  
*Y. ITAYA, K. MATSUBARA, N. KOBAYASHI and R. TANAKA*
- PSFVIP11-103 NUMERICAL SIMULATION OF THE EFFECT OF BLADE SHAPES ON THE POWER COEFFICIENT OF THE SAVONIUS ROTOR  
*T. YASUDA, T. FUKUI and K. MORINISHI*

**Room D (221)**

**10:20 – 11:50 Turbo machinery/Classical and advanced measurement**

*Chairperson: Aedla, Raju (Kumamoto University)*

- PSFVIP11-063 A SOUND SOURCE VISUALIZATION WITH THE COMPUTATIONAL FLUID DYNAMICS APPROACH AND ITS APPLICABILITY FOR FLOW NOISE DETECTIONS  
*N. WATANABE*
- PSFVIP11-085 APPLICATION OF FAST-RESPONSE PRESSURE SENSITIVE PAINT FOR MEASUREMENT OF INTERNAL FLOWS  
*H. MORI, K. TAKEDA, K. HANDA, T. IMAZEKI and K. J. MOON*
- PSFVIP11-055 OPTIMIZATION OF FOCUSING SCHLIEREN SYSTEM FOR AN AXISYMMETRIC EJECTOR  
*M. NAKAYA, T. KOUCHI, Y. NAGATA and S. YANASE*
- PSFVIP11-064 A VISUALIZATION TECHNIQUE FOR TWO-DIMENSIONAL VELOCITY PROFILES USING NEWLY-DEVELOPED FLUID VELOCITY-FIELD SCANNER  
*T. HOURA and M. TAGAWA*
- PSFVIP11-084 COMPARISON OF AN INTENSITY AND A LIFETIME METHOD FOR PRESSURE AND TEMPERATURE SENSITIVE PAINT MEASUREMENTS USING A PULSED LED  
*S. YAMASHITA, S. SOMEYA and T. MUNAKATA*



**Room E (222)**

**10:20 – 11:50 Laser based methods-2**

*Chairperson: Ota, Masanori (Chiba University)*

PSFVIP11-058 ROUGHNESS EFFECTS ON TURBULENT FLOW OVER A FORWARD FACING STEP USING A TIME-RESOLVED PIV

*A. NEMATOLLAHI, D. CUI and M. F. TACHIE*

PSFVIP11-080 OBSERVATION OF BUBBLES USING PHASE RETRIEVAL HOLOGRAPHY

*A. KUBONISHI, Y. TANAKA and S. MURATA*

PSFVIP11-088 PIV ANALYSIS OF BLAST WAVES FROM A NANOSECOND DISCHARGE

*I. ZNAMENSKAYA, F. GLAZIRIN, I. DOROSHCHENKO and E. KOROTEEVA*

**Room F (223)**

**10:20 – 11:50 Applications**

*Chairperson: Nakao, Shinichiro (The University of Kitakyushu)*

PSFVIP11-003 VISUAL RACEWAY BLOCKAGE DETECTION IN A BLAST FURNACE FINDING FEASIBLE IMAGE PROCESSING STRATEGIES FOR ONLINE MONITORING AND PROCESS CONTROL

*S. PUTTINGER, H. STOCKER and S. PIRKER*

PSFVIP11-066 VISUALIZATION OF FLOW STRUCTURES AROUND THE FRONT WHEEL OF A SEDAN-TYPE AUTOMOBILE

*K. SHIMIZU, S. MITA, T. NAKASHIMA, T. NOUZAWA, T. HIRAOKA and Y. NAKAMURA*

PSFVIP11-098 INFRARED MICROSCOPIC IMAGING OF LIQUID WATER BEHAVIOR ON THE SURFACE OF A CATALYST LAYER IN A POLYMER ELECTROLYTE FUEL CELL

*T. SUZUKI, T. KOYANAGI and S. TSUSHIMA*