

JSMF

Annual Meeting 2011

Kyoto, August 6-8, 2011

Saturday, August 6, 2011

Room A

- OS-2 Numerical Analysis of Structures on Mesoscopic Scale (1) 8:50~10:10**
Chair: Masato YOSHINO (Shinshu Univ.)
- A111 An immersed boundary-thermal lattice Boltzmann method based on the implicit correction method
○ Takeshi SETA (Univ. of Toyama)
- A112 Numerical simulations for flow pattern of molten slag at bottom of IGCC gas furnace
○ Yosuke MATSUKUMA (Kyushu Univ.), Yuji MAEDA (Kyushu Univ.), Daisuke IMAJYO (Kyushu Univ.), Gen INOUE (Kyushu Univ.), Masaki MINEMOTO (Kyushu Univ.)
- A113 Study of fluid dynamics of two-phase flow in Hull Cell using COMSOL Multiphysics
○ Lizhu TONG (Keisoku Engineering System Co, Ltd.)
- A114 Numerical simulations of resin-air flows around filaments using IB-PF method
○ Yasuhiro INOUE (Kyoto Univ.), Kazuki ISHIDA (Kyoto Univ.), Naoki TAKADA (Kyoto Univ.), Satoru OKUDA (Kyoto Univ.), Masaki HOJO (Kyoto Univ.)
- OS-2 Numerical Analysis of Structures on Mesoscopic Scale (2) 10:30~11:30**
Chair: Takeshi SETA (Univ. of Toyama)
- A121 Two phase flow simulation in microchannel by LBM-VOF
○ Takehiro UEDA (Osaka Prefecture Univ.), Masayuki KANEDA (Osaka Prefecture Univ.), Kazuhiko SUGA (Osaka Prefecture Univ.)
- A122 Numerical simulations of two- and three-phase fluid flows based on a diffuse-interface model
○ Naoki TAKADA (AIST), Junichi MATSUMOTO (AIST), Sohei MATSUMOTO (AIST)
- A123 Lattice Boltzmann simulation of motion of bodies with viscoelastic membrane in fluid flows
Murayama TOSHIRO (Shinshu Univ.), ○ Masato YOSHINO (Shinshu Univ.), Shingo KATSUMI (Shinshu Univ.)

- OS-15 Multiphase Flow of Micro and Mini Scale (1) 13:10~14:50**
Chair: Masahiro TAKEI (Chiba Univ.)
- A131 Effects of liquid properties on interfacial area concentration, drag coefficient and interfacial friction force in gas-liquid two-phase bubble flow in vertical small diameter pipes
○Hiroaki TSUBONE (Ariake National College of Tech.), Akimaro KAWAHARA (Kumamoto Univ.), Michio SADATOMI (Kumamoto Univ.)
- A132 Prediction of void fraction and frictional pressure drop on air-liquid two-phase flow in a vertical mini-channel
○Ryo YAMAGUCHI (Kumamoto Univ.), Imamura SHOGO (Kumamoto Univ.), Kawahara AKIMARO (Kumamoto Univ.), Sadatomi MICHIO (Kumamoto Univ.)
- A133 Research on flow patterns and frictional pressure drop of horizontal gas-liquid two-phase flow in flat rectangular microchannels
Hideo IDE (Kagoshima Univ.), Hiroshi HASHIGUCHI (Toyota Corp.),
○Kentaro SATONAKA (Kagoshima Univ.), Kei NAGAI (Kagoshima Univ.)
- A134 Heat transfer characteristics of gas-liquid slug flow in mini-channel
○Mai MITSUI (Keio Univ.), Hidenori YAGI (Keio Univ.), Koichi TERASAKA (Keio Univ.), Satoko FUJIOKA (Keio Univ.), Daisuke KOBAYASHI (Keio Univ.)
- A135 Fundamental study on flow boiling heat transfer in mini-channels
○Akira NISHIMOTO (Shinshu Univ.), Yasuo KOIZUMI (Shinshu Univ.)
- OS-15 Multiphase Flow of Micro and Mini Scale (2) 15:10~16:30**
Chair: Hiroaki TSUBONE (Ariake National College of Tech.)
- A141 Effect of tube diameter on flow phenomena of gas-liquid two-phase flow in microchannels
○Koki IKEHARA (Kagoshima Univ.), Kyoko TSURUMOTO (Kagoshima Univ.), Ryuji KIMURA (IPEC), Wataru TANABE (Toyota Kyushu), Hideo IDE (Kagoshima Univ.)
- A142 Bubble and liquid slug length for two-phase flows in a rectangular microchannel with T-junction type gas-liquid mixer
○Akimaro KAWAHARA (Kumamoto Univ.), Michio SADATOMI (Kumamoto Univ.), Satoshi SHIMOKAWA (Kumamoto Univ.), Tomoaki YONEDA (Kumamoto Univ.)
- A143 Effects of liquid viscosity on bubble generation at microfluidic t-junction
○Taiichi TARUSAWA (Hirosaki Univ.), Minori SHIROTA (Hirosaki Univ.), Takao INAMURA (Hirosaki Univ.)
- A144 Study on liquid bridging induced by microscale contact of two liquid droplets
○Yuichi SHIBATA (Ibaraki National College of Tech.), Takehiko YANAI (Ibaraki National College of Tech.), Masahiro KAWAJI (City College of City University of New York)
- OS-15 Multiphase Flow of Micro and Mini Scale (3) 16:50~18:10**

Chair: Hideo IDE (Kagoshima Univ.)

- A151 Molecular dynamics study on the relation between rotational diffusion and local viscosity of water
○Satoshi NAKAOKA (Osaka Univ.), Donatas SURBLYS (Osaka Univ.), Yasutaka YAMAGUCHI (Osaka Univ.), Koji KURODA (Dai Nippon Printing), Tadashi NAKAJIMA (Dai Nippon Printing), Hideo FUJIMURA (Dai Nippon Printing)
- A152 Visualization of solid-liquid two phase flow inside microchannel using process tomography
○Nur Tantiyani Ali OTHMAN (Nihon Univ.), Je-Eun CHOI (Chiba Univ.), Masahiro TAKEI (Chiba Univ.)
- A153 Development of non-invasive sensing technique for investigations of multiphase fluid dynamics in nano/micro-space
○Yohei SATO (Keio Univ.), Tomohiro FURUKAWA (Keio Univ.)
- A154 A study on micromixing process utilizing Marangoni convection
○Takashi YAMADA (Shibaura Inst. of Tech.), Naoki KATO (Shibaura Inst. of Tech.), Kazuki TAKEDA (Shibaura Inst. of Tech.), Naoki ONO (Shibaura Inst. of Tech.)

Room B

- GS-3 Numerical Analysis of Multiphase Flow (1) 8:50~10:10**
Chair: Koichi TSUJIMOTO (Mie Univ.)
- B111 Numerical Analysis for the Added Mass of Oscillating Body in Viscous Fluid
○Takashi TSUJI (Doshisha Univ.), Hideki SHIMOHARA (Doshisha Int.Junior/High School), Katsuya HIRATA (Doshisha Univ.)
- B112 Interface tracking simulation for bubbles with adsorption and desorption of soluble surfactant
○Kosuke HAYASHI (Kobe Univ.), Ryo KURIMOTO (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.)
- B113 Two dimensional simulation of droplet deformation and breakup using evaluation method of surface tension with geometrical conditions
○Susumu FUJIOKA (PWRI), Satoru USHIJIMA (Kyoto Univ.)
- B114 Development and validation of high-precision numerical simulation scheme for vortical flow
○Kei ITO (JAEA), Tomoaki KUNUGI (Kyoto Univ.), Hiroyuki OHSHIMA (JAEA)
- GS-3 Numerical Analysis of Multiphase Flow (2) 10:30~11:50**
Chair: Satoru USHIJIMA (Kyoto Univ.)
- B121 Numerical simulation of flow in an abrupt contraction-expansion channel using Diffuse Interface Model
○Ryota MAEDA (Mie Univ.), Koichi TSUJIMOTO (Mie Univ.), Toshihiko SHAKOUCI (Mie Univ.), Tositake ANDO (Mie Univ.)

- B122 Numerical simulation of turbulent channel flow with a flexible structure
Koichi TSUJIMOTO (Mie Univ.), ○Yusuke HADA (Mie Univ.), Toshihiko SHAKOUCHI (Mie Univ.), Toshitake ANDO (Mie Univ.)
- B123 Numerical simulation of nucleate boiling using diffuse interface model
Koichi TSUJIMOTO (Mie Univ.), ○Yosuke AKATSUKA (Mie Univ.), Toshihiko SHAKOUCHI (Mie Univ.), Toshitake ANDO (Mie Univ.)
- B124 Numerical simulation for phenomenological evaluation of laser welding
○Susumu YAMASHITA (JAEA), Tomonori YAMADA (JAEA), Tomoaki KUNUGI (Kyoto Univ.), Toshiharu MURAMATSU (JAEA)
- B125 Discussion on turbulent structures beneath the deformed free-surface by means of DNS
○Yoshinobu YAMAMOTO (Kyoto Univ.), Tomoaki KUNUGI (Kyoto Univ.)

OS-4 Wettability and Multiphase Flow (1)

13:10~14:50

Chair: Tatsuya HAZUKU (Tokyo Univ. Marine Sci. Tech.)

- B131 Instability in planar liquid sheet of surfactant solution
○Ryousuke FUJII (Osaka City Univ.), Tatsuro WAKIMOTO (Osaka City Univ.), Kenji KATOH (Osaka City Univ.)
- B132 Visualisation of two-phase flow in anode channel of direct methanol fuel cell
○Shinsuke HIRANO (Chiba Inst. of Tech.), Shigeaki ITO (Chiba Inst. of Tech.), Taito SHIOYA (Chiba Inst. of Tech.), Eiji EJIRI (Chiba Inst. of Tech.)
- B133 Cavity formed by water entry of an inclined hydrophobic circular cylinder
○Yoshiaki UEDA (Hokkaido Univ.), Manabu IGUCHI (Hokkaido Univ.)
- B134 A study on a capillary flow under the effect of dynamic wetting
○Kenji KATOH (Osaka City Univ.), Sinichiro NITTA (Osaka City Univ.), Tatsuro WAKIMOTO (Osaka City Univ.), Yasuhumi YAMAMOTO (Kansai Univ.)
- B135 Experimental study on the dynamic contact angle at an accelerating contact line
○Takahiro ITO (Toyohashi Univ. of Tech.), Takashi KINOSHITA (Toyohashi Univ. of Tech.), Susumu NODA (Toyohashi Univ. of Tech.)

OS-4 Wettability and Multiphase Flow (2)

15:10~16:30

Chair: Takahiro ITO (Toyohashi Univ. of Tech.)

- B141 Numerical simulation
of a liquid column in a capillary tube representing moving contact line by a generalized Navier boundary condition
○Yasufumi YAMAMOTO (Kansai Univ.), Takahiro ITO (Toyohashi Univ. of Tech.), Tatsuro WAKIMOTO (Osaka City Univ.), Kenji KATOH (Osaka City Univ.)

- B142 DEM-MPS coupling simulation of wetting behavior a droplet between solid particles
○Takahiro IDO (Osaka Univ.), Masaki INUI (Osaka Univ.), Toshitsugu TANAKA (Osaka Univ.), Takuya TSUJI (Osaka Univ.)
- B143 Three-phase contact line behavior passing over a defect on a plate
○Hiroyuki TANAKA (Osaka City Univ.), Yasuhumi YAMAMOTO (Kansai Univ.), Tatsuro WAKIMOTO (Osaka City Univ.), Kenji KATOH (Osaka City Univ.)
- B144 Moving contact line models for numerical simulation of a drop impact onto solid surface
○Yasufumi YAMAMOTO (Kansai Univ.), Tomomasa UEMURA (Kansai Univ.)

OS-4 Wettability and Multiphase Flow (3) 16:50~18:10

Chair: Tatsuro WAKIMOTO (Osaka City Univ.)

- B151 Effect of wall wettability on droplet entrainment and liquid film dryout in annular mist flow
○Yusuke SHIMOMURA (Tokyo Univ. Marine Sci. Tech.), Shunichi WATANABE (Tokyo Univ. Marine Sci. Tech.), Tatsuya HAZUKU (Tokyo Univ. Marine Sci. Tech.), Yutaka FUKUHARA (Tokyo Univ. Marine Sci. Tech.), Tomoji TAKAMASA (Tokyo Univ. Marine Sci. Tech.)
- B152 Electrowetting in silicon oil bath
○Kentaro TANAKA (Tokyo Univ. of Marine Sci. and Tech.), Satoshi YOSHIDA (Tokyo Univ. of Marine Sci. and Tech.), Katsumi IWAMOTO (Tokyo Univ. of Marine Sci. and Tech.)
- B153 Marangoni and interference effects in thin liquid films exposed to optical irradiation
○Fumihiko SAEKI (Tottori Univ.), Shigehisa FUKUI (Tottori Univ.), Hiroshige MATSUOKA (Tottori Univ.)
- B154 Flow field in the vicinity of the contact line moving on a vertical-heated wall
○Yoshihiro TAKEUCHI (Toyohashi Univ. of Tech.), Akira TADA (Toyohashi Univ. of Tech.), Takahiro ITO (Toyohashi Univ. of Tech.), Susumu NODA (Toyohashi Univ. of Tech.)

Room C

OS-12 Heat Transfer and Fluid Dynamics of Multiphase Flow with Phase Change (1) 8:30~10:10

Chair: Yoshiro TOCHITANI (Kanazawa Inst. of Tech.)

- C111 High-speed gas-liquid two-phase nozzle flow for carbon dioxide (Effect of nozzle inlet temperature)
○Yoichi KINOUE (Saga Univ.), Norimasa SHIOMI (Saga Univ.), Toshiaki SETOGUCHI (Saga Univ.)
- C112 Influence of surrounding fluid velocity on CO₂ hydrate film thickness
○Takehiko YANAI (Univ. of Tsukuba), Yutaka ABE (Univ. of Tsukuba), Akiko KANEKO

- (Univ. of Tsukuba), Kenji YAMANE (National Maritime Research Inst.)
- C113 Effect of CO₂ hydrate on flow behavior of liquid CO₂ in packed columns
○Yuji TAKAGI (Univ. of Tsukuba), Akiko KANEKO (Univ. of Tsukuba), Yutaka ABE (Univ. of Tsukuba), Kenji YAMANE (National Maritime Research Inst.)
- C114 Observation of Marangoni convection near an artificial bubble under temperature gradient in using alcohol aqueous solutions
○Yuki EDA (Shibaura Inst. of Tech.), Kentaro KAWA (Shibaura Inst. of Tech.), Naoki ONO (Shibaura Inst. of Tech.)
- C115 Development of ice slurry for cold storage of foods (discussion on influence of stirring rate)
○Yoshito IGARASHI (Chuo Univ.) , Koji MATSUMOTO(Chuo Univ.) ,
Yoshikazu TERAOKA(Kanazawa Univ.) , Hiroyuki INABA (Chuo Univ.) , Yoma ITO (Chuo Univ.)

OS-12 Heat Transfer and Fluid Dynamics of Multiphase Flow with Phase Change (2)

10:30~12:10

Chair: Hiroyasu OTAKE (Kogakuin Univ.)

- C121 Numerical study on bubble behavior and heat transfer characteristics in subcooled pool boiling
○Yasuo OSE (Kyoto Univ.), Tomoaki KUNUGI (Kyoto Univ.)
- C122 Research on forced convective boiling heat transfer in a vertical tube using FC-72
○Atsushi ISHIKAWA (IHI Corporation), Ryoji IMAI (IHI Corporation), Takahiro TANAKA (IHI Corporation)
- C123 Measurement of void fraction in subcooled boiling by neutron radiography
○Ryota TANAKA (Kobe Univ.), Ryo KATOU (Kobe Univ.), Hideki MURAKAWA (Kobe Univ.), Katumi SUGIMOTO (Kobe Univ.), Nobuyuki TAKENAKA (Kobe Univ.)
- C124 Visualization of super- and sub- critical water mixing behavior by neutron radiography
○Nobuyuki TAKENAKA (Kobe Univ.), Katsumi SUGIMOTO (Kobe Univ.), Seiichi TAKAMI (Tohoku Univ.), Ken-ichi SUGIOKA (Tohoku Univ.), Takao TSUKADA (Tohoku Univ.), Tadafumi ADSCHIRI (Tohoku Univ.) and Yasushi SAITO (Kyoto Univ.)
- C125 Motion of adsorbent particle in silicone oil with electric field
○Hideki KAWAKITA (Kanazawa Inst. of Tech.), Yoshiro TOCHITANI (Kanazawa Inst. of Tech.)

OS-8 Boiling and Two-Phase Flow in Microgravity (1)

13:10~14:50

Chair: Haruo KAWASAKI (JAXA)

- C131 Thermal hydraulic characteristics in a mechanical pump driven two-phase flow loop under microgravity (Response characteristics of two-phase flow loop to gravity change)
○Hitoshi ASANO (Kobe Univ.), Soumei BABA (Kyushu Univ.), Yasuhisa SHINMOTO (Kyushu Univ.) , Haruhiko OHTA (Kyushu Univ.), Osamu KAWANAMI (Univ. Hyogo),

- Yuto WADA (Kyushu Univ.), Yuuki KANAI (Kobe Univ.), Tatsuya HAMADA (Univ. Hyogo), Kenji SARUWATARI (Univ. Hyogo)
- C132 Thermal hydraulic characteristics in a mechanical pump driven two-phase flow loop under microgravity (Heat transfer characteristics of boiling two-phase flow in a copper heated tube)
○Soumei BABA (Kyushu Univ.), Yuto WADA (Kyushu Univ.), Osamu KAWANAMI (Univ. Hyogo), Tatsuya HAMADA (Univ. Hyogo), Kenji SARUWATARI (Univ. Hyogo), Hitoshi ASANO (Kobe Univ.), Yuuki KANAI (Kobe Univ.), Yasuhisa SHINMOTO (Kyushu Univ.), Haruhiko OHTA (Kyushu Univ.)
- C133 Thermal hydraulic characteristics in a mechanical pump driven two-phase flow loop under microgravity (Characteristics of adiabatic one-component two-phase flow)
○Yuuki KANAI (Kobe Univ.), Hitoshi ASANO (Kobe Univ.), Soumei BABA (Kyushu Univ.), Yuto WADA (Kyushu Univ.), Yasuhisa SHINMOTO (Kyushu Univ.), Haruhiko OHTA (Kyushu Univ.), Osamu KAWANAMI (Univ. Hyogo), Tatsuya HAMADA (Univ. Hyogo), Kenji SARUWATARI (Univ. Hyogo)
- C134 Bubble motion in subcooled boiling under microgravity
○Kouchi SUZUKI (Tokyo Univ. Sci., Yamaguchi), Kazuhisa YUKI (Tokyo Univ. Sci., Yamaguchi), Haruhiko OHTA (Kyushu Univ.)
- C135 Nucleate boiling heat transfer in microgravity by using transparent heating surface
○Chisato KUBOTA (Kyushu Univ.), Osamu KAWANAMI (Univ. of Hyogo), Yuka ASADA (Kyushu Univ.), Yuto WADA (Kyushu Univ.), Tadashi NAGAYASU (Kyushu Univ.), Yasuhisa SHINMOTO (Kyushu Univ.), Haruhiko OHTA (Kyushu Univ.), Oleg KABOV (Universite Libre de Bruxelles), Johannes STRAUB (Technische Universitaet Muenchen)
- OS-8 Boiling and Two-Phase Flow in Microgravity (2) 15:10~16:30**
Chair: Hitoshi ASANO (Kobe Univ.)
- C141 Effects of gravity and pipe diameter on interfacial area transport of vertical upward bubbly flow (1st Report, Measurement of two-phase flow parameters)
○Shogo MABUCHI (Tokyo Univ. Marine Sci. Tech.), Yutaka TAKATA (Tokyo Univ. Marine Sci. Tech.), Tatsuya HAZUKU (Tokyo Univ. Marine Sci. Tech.), Yutaka FUKUHARA (Tokyo Univ. Marine Sci. Tech.), Tomoji TAKAMASA (Tokyo Univ. Marine Sci. Tech.)
- C142 Effects of gravity and pipe diameter on interfacial area transport of vertical upward bubbly flow (2nd Report, Development of interfacial area transport equation)
○Tatsuya HAZUKU (Tokyo Univ. Marine Sci. Tech.), Yutaka TAKATA (Tokyo Univ. Marine Sci. Tech.), Tomoji TAKAMASA (Tokyo Univ. Marine Sci. Tech.), Takashi HIBIKI (Purdue Univ.)
- C143 Fundamental study on temperature variation of gas/liquid-tank for space use
○Haruo KAWASAKI (JAXA), Atushi OKAMOTO (JAXA), Hiroyuki SUGITA (JAXA), Yasurou KANAMORI (MELCO)

- C144 Thermo-fluid analysis and evaluation test in propellant tank for rocket propellant system
○Ryoji IMAI (IHI), Yuki KAMEYA (IHI), Norio SUGI (IHI Aerospace), Takuma INOUE (IHI Aerospace), Shinichiro ISHIZAKI (IHI Aerospace), Masumi FUJITA (JAXA), Isao KUBOTA (JAXA)

OS-8 Boiling and Two-Phase Flow in Microgravity (3) 16:50~18:30

Chair: Ryoji IMAI (IHI Corporation)

- C151 Feasibility and challenges for loop heat pipe for anti-icing of aircraft wing leading edge
○Randeep SINGH (Fujikura Ltd.), Masataka MOCHIZUKI (Fujikura Ltd.), Yuji SAITO (Fujikura Ltd.), Koichi MASHIKO (Fujikura Ltd.), Kazuhiko GOTO (Fujikura Ltd.)
- C152 Investigation of gravitational effect on loop heat pipe performance
○Hiroki NAGAI (Tohoku Univ.), Hiromichi TAMAMURA (Tohoku Univ.), Kohei MAGOME (Tohoku Univ.), Hosei NAGANO (Nagoya Univ.), Hiroyuki OGAWA (ISAS/JAXA)
- C153 The influence of groove shape on loop heat pipe's performance
○Masakazu KUROI (Nagoya Univ.), Hosei NAGANO (Nagoya Univ.), Atsushi OKAMOTO (JAXA), Hiroyuki OGAWA (JAXA)
- C154 Visualization of a loop heat pipe using neutron radiography
○Atsushi OKAMOTO (JAXA), Ryuta HATAKENAKA (JAXA), Hiroshi IIKURA (JAEA)
- C155 Experiments on boiling heat transfer from a large area under high heat flux conditions for the development of high-performance thermal management systems in space
○Shohei KANAZAWA (Kyushu Univ.), Hiroyuki KOBAYASHI (Kyushu Univ.), Kazutoshi KAJIMOTO (Kyushu Univ.), Yasuhisa SHINMOTO (Kyushu Univ.), Haruhiko OHTA (Kyushu Univ.)

Room D

OS-14 Application on Multi-Phase Flow Technology to Development of Nuclear Power (1)

8:30~10:10

Chair: Michitsugu MORI (Tokyo Electric Power Company)

- D111 Experimental research that concerns bubble behavior of ONB in forced convection
○Tatsuya UENO (Osaka Univ.), Tomio OKAWA (Osaka Univ.), Rouhllah Ahmadi (Osaka Univ.)
- D112 Effects of liquid properties on liquid-lump velocity in vertical upward gas-liquid two-phase flow
○Fuminori MATSUYAMA (Sasebo National College of Tech.), Papa MOMBO (Sasebo National College of Tech.)
- D113 Effect of surface tension on wall and interfacial friction forces for two-phase bubble flows in a subchannel

○Koji ANEGAWA (Kumamoto Univ.), Takatoshi MASUDA (Kumamoto Univ.),
Ming Hao YU (Kumamoto Univ.), Akimaro KAWAHARA (Kumamoto Univ.),
Michio SADATOMI (Kumamoto Univ.),

- D114 Measurements of void fraction in a liquid-metal two-phase flow
Yasushi SAITO (Kyoto Univ.), ○Yudai YAMAMOTO (Kyoto Univ.), Kaichiro MISHIMA (INSS)
- D115 Applicability of electrical resistance tomography under actual operating conditions of glass melters
○Noriaki ICHIJO (IHI Corporation), Shinsuke MATSUNO (IHI Corporation), Susumu TOKURA (IHI Corporation), Yoshikatsu TOCHIGI (IHI Corporation), Kazuhiko NISHI (Yokohama National Univ.), Meguru KAMINOYAMA (Yokohama National Univ.)

OS-14 Application on Multi-Phase Flow Technology to Development of Nuclear Power (2)

10:30~12:10

Chair: Tomio OKAWA (Osaka Univ.)

- D121 Study on gas-liquid bubbly flows in a 4x4 rod bundle
○Yuya MURAMATSU (Kobe Univ.), Shigeo HOSOKAWA (Kobe Univ.), Kosuke HAYASHI (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.)
- D122 Countercurrent flow limitation at the upper end of PWR pressurizer surge line
○Chihiro YANAGI (INSS), Takashi FUTATSUGI (Kobe Univ.), Kosuke HAYASHI (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.), Ikuo KINOSHITA (INSS, Kobe Univ.), Michio MURASE (INSS)
- D123 Countercurrent gas-liquid flow in a PWR hot leg (1) (Effects of channel shape and size)
○Ikuo KINOSHITA (INSS, Kobe Univ.), Michio MURASE (INSS), Yoichi UTANOHARA (INSS), Dirk LUCAS (HZDR), Christophe VALLEE (HZDR), Akio TOMIYAMA (Kobe Univ.)
- D124 Countercurrent gas-liquid flow in a PWR hot leg (2) (VOF calculations for full-scale conditions)
○Yoichi UTANOHARA (INSS), Michio MURASE (INSS), Ikuo KINOSHITA (INSS, Kobe Univ.), Chihiro YANAGI (INSS), Takashi TAKATA (Osaka Univ.), Akira YAMAGUCHI (Osaka Univ.), Akio TOMIYAMA (Kobe Univ.)
- D125 Countercurrent gas-liquid flow in a PWR hot leg (3) (VOF calculations for 1/15-scale tests)
○Michio MURASE (INSS), Ikuo KINOSHITA (INSS, Kobe Univ.), Chihiro YANAGI (INSS), Yoichi UTANOHARA (INSS), Takashi TAKATA (Osaka Univ.), Akira YAMAGUCHI (Osaka Univ.), Akio TOMIYAMA (Kobe Univ.)

OS-9 Multiphase Flow in Natural Phenomena (1)

13:10~14:30

Chair: Susumu ARAKI (Osaka Univ.)

- D131 Large eddy simulation of settling particles
○Naoki TSURUTA (Kyoto Univ.), Eiji HARADA (Kyoto Univ.), Hitoshi GOTOH (Kyoto Univ.)

- D132 Application of a numerical wave tank for Gamcheon Port Project in Korea
○Kwang-Ho LEE (Nagoya Univ.)
- D133 Three-dimensional numerical simulation on drifting behavior of a container on an apron due to tsunami run-up and drawdown
○Tomoaki NAKAMURA (Nagoya Univ.), Norimi MIZUTANI (Nagoya Univ.)
- D134 Numerical examination on behavior characteristics of floating panel using solid-gas-liquid-multiphase flow numerical model "DOLPHIN-3D"
○Koji KAWASAKI (Nagoya Univ.), Tetsuya MATSUNO (Nagoya Univ.), Han Dinh UT (Nagoya Univ.), Tadashi FUKUMOTO (Nishimatsu Construction)
- OS-9 Multiphase Flow in Natural Phenomena (2) 15:10~16:30**
Chair: Koji KAWASAKI (Nagoya Univ.)
- D141 Wave pressure on underside of horizontal plate due to descending water surface
○Susumu ARAKI (Osaka Univ.), Yasuo KOTAKE (Toyo Construction Co., LTD.)
- D142 Light-transmission measurement of sediment flux due to water flows
○Takenori SHIMOZONO (Tokyo Univ. of Marine Sci. Tech.), Keita KOBAYASHI (Tokyo Univ. of Marine Sci. Tech.), Akio OKAYASU (Tokyo Univ. of Marine Sci. Tech.)
- D143 Wind-driven and suction effects for potential storm surge in Tokyo Bay under present climate
○Tomokazu MURAKAMI (NIED), Hironori FUKAO (Gifu Univ.), Jun YOSHINO (Gifu Univ.), Takashi YASUDA (Gifu Univ.), Satoshi IIZUKA (NIED), Shinya SHIMOKAWA (NIED)
- D144 Distribution of density flow in seseragi—fishway at the Nagaragawa estuary barrage
○Kiyoshi WADA (Gifu National College Tech.), Masahiro ANDO (Gifu National College Tech.), Hiroyuki TAGAMI (Gifu National College Tech.), Takumi OKABE (Toyoashi Univ. Tech.)

Room E

- OS-11 Dynamics of Multiphase Flow (1) 8:30~10:10**
Chair: Hiroyuki TAKAHIRA (Osaka Prefecture Univ.)
- E111 Cavitation erosion of silver plated coating considering thermodynamic effect
Shuji HATTORI (Univ. of Fukui), ○Keisuke TARUYA (Univ. of Fukui), Isamu KOMORIYA (Univ. of Fukui), Kengo KIKUTA (IHI), Hiroshi TOMARU (IHI)
- E112 Effect of temperature on cavitation erosion of 9Cr-steel in Pb-Bi alloy
○Akihiro NIMURA (Univ. of Fukui), Hiroki YADA (Univ. of Fukui), Shuji HATTORI (Univ. of Fukui)
- E113 CFD calculations around a single hydrofoil using a multi-process cavitation model

- Shinichi TSUDA (Shinshu Univ.), Naoki TANI (JAXA), Nobuhiro YAMANISHI (JAXA)
- E114 Cavitation in fuel injector and liquid jet
- Go TOMISAKA (Kobe Univ.), Ryota OHASHI (Kobe Univ.), Ryohei SUGIMURA (Kobe Univ.), Akira SOU (Kobe Univ.)
- E115 Details on re-entrant motion of periodic cloud cavitation in convergent-divergent nozzle flow
- Shouta HAYASHI (Kanazawa Inst. of Tech.), Yoshitaka NOTO (SANRITZ), Yasuhiro SUGIMOTO (Kanazawa Inst. of Tech.), Keiichi SATO (Kanazawa Inst. of Tech.)
-
- OS-11 Dynamics of Multiphase Flow (2) 10:30~12:10**
- Chair: Keiichi SATO (Kanazawa Inst. of Tech.)
- E121 Focused ultrasound induced deformation and rupture of an acrylic plate near the free surface
- Yukio TOMITA (Hokkaido Univ. of Education), Shigenori TANAKA (Hokkaido Univ. of Education)
- E122 High-speed observation of orbital motion of two oscillating bubbles in an acoustic field
- Koh YAMASHITA (Hirosaki Univ.), Minoru SHIROTA (Hirosaki Univ.), Takao INAMURA (Hirosaki Univ.)
- E123 Breakup of bubbles in a venturi tube
- Yuzo NONOGUCHI (Tokyo Univ. of Agriculture and Tech.), Masaharu KAMEDA (Tokyo Univ. of Agriculture and Tech.)
- E124 Numerical simulations of bubble collapse with the Ghost Fluid Method for viscous flows
- Mitsuhiro MORIMOTO (Osaka Prefecture Univ.), Yoshinori JINBO (Osaka Prefecture Univ.), Hiroyuki TAKAHIRA (Osaka Prefecture Univ.)
- E125 The two-dimensional direct numerical simulations of the propagation of pressure waves in gas-liquid two-phase flows with the Ghost Fluid Method
- Kazuhiro NIKI (Osaka Prefecture Univ.), Yoshinori JINBO (Osaka Prefecture Univ.), Hiroyuki TAKAHIRA (Osaka Prefecture Univ.)
-
- OS-11 Dynamics of Multiphase Flow (3) 13:10~14:50**
- Chair: Yukio TOMITA (Hokkaido Univ. of Education)
- E131 Relationship between resist removal characteristics and physical force of steam-water mixed spray
- Kentaro HASHIMOTO (Shizuoka Univ.), Toshiyuki SANADA (Shizuoka Univ.), Takashi MASHIKO (Shizuoka Univ.), Hideo HORIBE (Kanazawa Inst. of Tech.)
- E132 Observation of behavior of single droplet impact on solid surface
- Yasuki SAKURAI (Hokkaido Univ.), Toshihide FUJIKAWA (Hokkaido Univ.), Masao WATANABE (Hokkaido Univ.), Toshiyuki SANADA (Shizuoka Univ.), Kazumichi KOBAYASHI (Hokkaido Univ.), Shigeo FUJIKAWA (Hokkaido Univ.)

- E133 Numerical simulations of maximum pressure generated by high-speed-droplet impact
○Yuki TATEKURA (Hokkaidou Univ.), Kazumichi KOBAYASHI (Hokkaidou Univ.), Masao WATANABE (Hokkaidou Univ.)
- E134 CFD analysis of ultrasonic atomization process for ethanol concentration and mist recovery
○Ryosuke FUJII (Doshisha Univ.), Naomichi HIRATA (Doshisha Univ.), Yasushige MORI (Doshisha Univ.), Kazuo MATSUURA (NanoMistTechnologies), Katsumi TSUCHIYA (Doshisha Univ.)
- E135 Effects of particle size and concentration on bubble coalescence in slurry bubble column
○Shinpei OJIMA (Kobe Univ.), Satoshi OBATA (Kobe Univ.), Kosuke HAYASHI (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.)

OS-11 Dynamics of Multiphase Flow (4) 15:10~16:30

Chair: Masaharu KAMEDA (Tokyo Univ. of Agriculture and Tech.)

- E141 A study of mechanism of a zigzag bubble motion via 3D-visualization of the wakes
○Rintarou TACHIBANA (Shizuoka Univ.), Takayuki SAITO (Shizuoka Univ.)
- E142 Consideration of mutual interaction between bubble motion and ambient liquid-phase motion in an oscillating-grid decaying turbulence
○Yasuyuki NAGAMI (Shizuoka Univ.) , Takayuki SAITO (Shizuoka Univ.)
- E143 Micro bubble generation using orifice with air suction (Effects of open area velocity and void fraction)
Terutaka KAI (Oita Univ.), Yasuhisa SONODA (Oita Univ.), ○Hiroyuki HOSAKA (Oita Univ.), Kazuhiro NAKAMURA (Oita Univ.), Hidemi YAMADA (Oita Univ.)
- E144 Performance evaluation of micro bubble flow generator using orifice with air suction
Terutaka KAI (Oita Univ.), ○Kazuhiro NAKAMURA (Oita Univ.), Hiroyuki HOSAKA (Oita Univ.), Hidemi YAMADA (Oita Univ.)

OS-11 Dynamics of Multiphase Flow (5) 16:50~18:10

Chair: Masao WATANABE (Hokkaido Univ.)

- E151 Interaction between consecutive slug bubbles (Comparison of bubble-propagation characteristics with the Discrete Bubble Model)
Interaction between consecutive slug bubbles - Comparison of bubble-propagation characteristics with the Discrete Bubble Model
- E152 Three-dimensional measurement of gas-liquid two-phase flow dynamics in rod bundle
○Takahiro ARAI (CRIEPI), Masahiro FURUYA (CRIEPI), Taizo KANAI (CRIEPI), Kenetsu SHIRAKAWA (CRIEPI)
- E153 Three-dimensional phasic-velocity distribution measurement in a large-diameter pipe
○Taizo KANAI (CRIEPI), Masahiro FURUYA (CRIEPI), Takahiro ARAI (CRIEPI),

Kenetsu SHIRAKAWA (CRIEPI)

- E154 Bubble Dynamics and Mutual Interactions by Bubble Trucking Scheme in Large Diameter Pipe
○Masahiro FURUYA (CRIEPI), Taizo KANAI (CRIEPI), Takahiro ARAI (CRIEPI),
Kenetsu SHIRAKAWA (CRIEPI), Uwe HAMPEL (HZDR), Eckard SCHLEICHER (HZDR)

Room F

OS-3 Mass Transport and Water Treatment (1) 8:30~10:10

Chair: Katsumi TSUCHIYA (Doshisha Univ.)

- F111 Dissolution process of a bubble at high Schmidt and low Reynolds numbers
○Shogo HOSODA (Kobe Univ.), Kosuke HAYASHI (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.)
- F112 Consideration of the relation between the instantaneous mass transfer of a zigzagging CO₂ bubble and the bubble motion
○Masahiko TORIU (Shizuoka Univ.), Takayuki SAITO (Shizuoka Univ.)
- F113 Generation of multiple bubble jets encapsulating plasma and its application to water treatment
○Kei NIINUMA (Tohoku Univ.), Ryosuke NAGAI (Tohoku Univ.), Hidemasa TAKANA (Tohoku Univ.), Hideya NISHIYAMA (Tohoku Univ.)
- F114 Basic study of flow inside a diffuser for membrane bioreactor
○Fumihiko KIRA (Mitsubishi Rayon), Tomoki KAWAGISHI (Mitsubishi Rayon), Shinsuke FURUNO (Mitsubishi Rayon), Tomoyuki SANPEI (Kobe Univ.), Kosuke HAYASHI (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.)
- F115 Extent of membrane fouling suppressed by dispersed bubbles in viscous solution
○Tomoya ISHIKAWA (Doshisha Univ.), Shunsuke SAITO (Sysmex), Mika SHINOHARA (Doshisha Univ.), Yasushige MORI (Doshisha Univ.), Katsumi TSUCHIYA (Doshisha Univ.)

OS-3 Mass Transport and Water Treatment (2) 10:30~12:10

Chair: Shigeo HOSOKAWA (Kobe Univ.)

- F121 Highly effective collection of volatile material by bubbling
○Hayato HORI (Tokyo Univ. of Agriculture and Tech.), Masaharu KAMEDA (Tokyo Univ. of Agriculture and Tech.)
- F122 Effects of pH on particle adsorption onto bubble surface in microchannel
○Katsumi TSUCHIYA (Doshisha Univ.), Kouhei HAYAMA (Doshisha Univ.), Shingo HIMEDA (Doshisha Univ.), Yasushige MORI (Doshisha Univ.)
- F123 Diameter distribution function of micro-bubble generated by using a pressurized dissolution method
○Yasunari MAEDA (Kobe Univ.), Chihiro TAYA (Kobe Univ.), Shigeo HOSOKAWA (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.), Yoshihiro ITO (Panasonic Electronic Works Co.,

- Ltd), Naoki SHIBATA (Panasonic Electronic Works Co., Ltd)
- F124 Influence of flow structure on bubble collapse behavior in a venturi tube
○Yasumichi NOMURA (Univ. of Tsukuba), Akiko KANEKO (Univ. of Tsukuba), Shin-ichiro UESAWA (Univ. of Tsukuba), Yutaka ABE (Univ. of Tsukuba)
- F125 Void fraction measurement with capacitance method in dispersed bubbly flow with micro-bubbles
○Shin-ichiro UESAWA (Univ. of Tsukuba), Akiko KANEKO (Univ. of Tsukuba), Yasumichi NOMURA (Univ. of Tsukuba), Yutaka ABE (Univ. of Tsukuba)
- OS-13 Science of Micro/Nano Bubbles and Technological Application (1) 13:10~14:30**
Chair: Hideaki SHAKUTSUI (Kobe City College of Tech.)
- F131 Behavior of microbubbles in aqueous solutions
○Shozo HIMURO (Ariake National College of Tech.)
- F132 The contraction and solution characteristics of micro bubbles generated by ultrahigh-speed swirling method
○Hirofumi OHNARI (Tokuyama College of Tech.), Haruki YOSHIMURA (Houfu City Office), Yoshito OHNARI (Tokuyama College of Tech.), Yukihiro HASHIMOTO (Tokuyama College of Tech.)
- F133 Gas dissolution and gas fixation of micro bubbles
○Yoshito OHNARI (Tokuyama College of Tech.), Hirofumi OHNARI (Tokuyama College of Tech.), Yukihiro HASHIMOTO (Tokuyama College of Tech.)
- F134 Characteristics of both water and ionic solution containing micro and/or nano-bubbles based on zeta potential and proton relaxation time
○Masatoshi ENARI (Univ. of Tokyo), Liu SHU (Univ. of Tokyo), Yoshinori KAWAGOE (Univ. of Tokyo), Yosio MAKINO (Univ. of Tokyo), Seiichi OSHITA (Univ. of Tokyo)
- OS-13 Science of Micro/Nano Bubbles and Technological Application (2) 15:10~16:30**
Chair: Shozo HIMURO (Ariake National College of Tech.)
- F141 [Keynote] Preferential suppression of turbulent eddies with microbubbles
Yuichi MURAI (Hokkaido Univ.)
- F142 Study on reduction of frictional pressure drop by microbubble
○Yoichi MAEDA (Kobe City College of Tech.), Aina SHINKAI (Kobe City College of Tech.), Takayuki SUZUKI (Kobe City College of Tech.), Hideaki SHAKUTSUI (Kobe City College of Tech.)
- F143 Behavior and flow of microbubbles in a liquid under irradiation of ultrasonic waves
Naoki DOYAMA (Univ. of Fukui), ○Shohei IWAMOTO (Univ. of Fukui), Daisho WAKABAYASHI (Univ. of Fukui), Junichi OHTA (Univ. of Fukui)

Sunday, August 7, 2011

Special Session (Building 3 3F Room# 0331)

13:00~16:05

Chair: Koji KAWASAKI (Nagoya Univ.)

“Think about Earthquake and Tsunami Hazard of East Japan Great Earthquake Disaster”

1. Earthquake : Shinji TODA (Disaster Prevention Research Institute, Kyoto University)
2. Tsunami : Koji KAWASAKI (Department of Civil Engineering, Nagoya University)
3. Tsunami : Nobuhito MORI (Disaster Prevention Research Institute, Kyoto University)
4. Tsunami : Toshinori OGASAWARA
(Department of Civil and Environmental Engineering, Iwate University)
5. Disaster response : Yoshihiro OKUMURA
(The Great Hanshin-Awaji Earthquake Memorial Disaster Reduction and Human
Renovation Institute)

Q and A

Monday, August 8, 2011

Room A

OS-1 Industrial Application of Multiphase Flow (1)

8:30~10:10

Chair: Isao KATAOKA (Osaka Univ)

A311 Distribution characteristics of solid-liquid two-phase flow at manifold

○Yutaro YAMAMOTO (Univ. Tsukuba), Hideaki MONJI (Univ. Tsukuba)

A312 Pressure loss by wall friction in horizontal plug conveying of granular particles

○Yoshimitsu KOIKE (Nihon Univ.), Mitsuaki OCHI (Nihon Univ.), Kenji KOFU (Nihon Univ.)

A313 Influence of variations of nozzle-throat area ratio and sand granularity on performance of jet pump

○Naohiro TAWA (Hyogo Kenritu Univ.), Kazuhiro ITOH (Hyogo Kenritu Univ.),
Iturou HONDA (Hyogo Kenritu Univ.), Toshiki YOSHIDA (HAMADA Co., Ltd),
Akiyoshi BOUDA (HAMADA Co., Ltd), Shungo NISHIGAKI (Hyogo Kenritu Univ.),
Hirotaka TOMIOKA (Hyogo Kenritu Univ.), Hiroshige KUMAMARU (Hyogo Kenritu Univ.),
Yuji SHIMOGONYA (Hyogo Kenritu Univ.)

- A314 Suspension velocity in swirling gas-liquid two-phase flow
○Yuki MURAKAMI (Kobe City College of Tech.), Shun FUJI (Kobe City College of Tech.), Takayuki SUZUKI (Kobe City College of Tech.), Hideaki SHAKUTSUI (Kobe City College of Tech.)
- A315 Flow and collection performance of cylindrical hydrocyclone (In setting up of a underflow pipe on a side of dust chamber)
○Yuki SHIMIZU (Kochi National College of Tech.), Tatsuru KITAMURA (Kochi National College of Tech.), Keishi TAKESHIMA (Kochi National College of Tech.)

OS-1 Industrial Application of Multiphase Flow (2) 10:30~12:10

Chair: Shoji MORI (Yokohama National Univ.)

- A321 Effect of microbubble generation method on biological activity
○Rikuro NII (Akita Univ.), Hiroaki HASEGAWA (Akita Univ.), Toshihiro SUGIYAMA (Akita Univ.)
- A322 The numerical study on the applicability of air bubble model for the air injection method
○Kunihide OHASHI (NMRI)
- A323 Study on relations between differential pressure fluctuations of gas-liquid flow in narrow channel and flow-patterns
○Tatsunori KONISHI (Osaka Univ.), Kenji YOSHIDA (Osaka Univ.), Isao KATAOKA (Osaka Univ.)
- A324 Progress of void fraction and interfacial area concentration in undeveloped region of vertical upward gas-liquid two-phase flow
○Genki ISHIKAWA (Osaka Univ), Keisuke ISHIYAMA (Osaka Univ), Kouiti KONDOU (Osaka Univ), Kenji YOSIDA (Osaka Univ), Isao KATAOKA (Osaka Univ)
- A325 Modeling and validation of transport equation of interfacial area concentration in gas-liquid two-phase flow
○Isao KATAOKA (Osaka Univ.), Kenji YODHIDA (Osaka Univ.), Hidetoshi OKADA (IAE), Masanori NAITOH (IAE), Tadashi MORII (JNES)

OS-1 Industrial Application of Multiphase Flow (3) 13:10~14:50

Chair: Kouiti KONDOU (Marine Technical College)

- A331 Numerical prediction of the gas-liquid interfacial flow on the inclined walls
○Yoshiyuki ISO (IHI), Huang JJIAN (IHI), Shinsuke MATSUNO (IHI), Xi CHEN (IHI)
- A332 Effects of liquid viscosity on the liquid film characteristics in vertical upward two-phase annular flow
○Shoji MORI (Yokohama National Univ.), Nobuyuki DOBATA (Yokohama National Univ.), Kunito OKUYAMA (Yokohama National Univ.)

- A333 Void fraction distribution and flow structures of water jet with large flow rate
○Yuichi FUKUHARA (Osaka Univ.), Hiroyuki ABE (Chemikal Grouting), Hiroshi YOSHIDA (Chemikal Grouting), Kenji YOSHIDA (Osaka Univ.), Isao KATAOKA (Osaka Univ.)
- A334 Experiment study about high-velocity and large flow of water jet
○Takuya OTSUKA (Osaka Univ.), Hiroyuki ABE (CHEMICAL GROUTING CO. LTD.), Hiroshi YOSHIDA (CHEMICAL GROUTING CO. LTD.), Kenji YOSHIDA (Osaka Univ.), Isao KATAOKA (Osaka Univ.)
- A335 Study on mist generation performance by multi-fluid mixer and the mist expansion method
○Eichi SAKURAI (Kumamoto Univ.), Tomoaki IWASHITA (Kumamoto Univ.), Shinji FURUSAWA (Kumamoto Univ.), Michio SADATOMI (Kumamoto Univ.), Akimaro KAWAHARA (Kumamoto Univ.)

Room B

GS-1,2,5 Physics of Multiphase Flow (1), Multiphase Flow Physics (1), Interfacial Phenomena (1)

8:30~10:10

Chair: Yoshinobu YAMAMOTO (Kyoto Univ.)

- B311 An Experimental study of drag force acting on a solid sphere moving in still viscous liquid near a wall
○Hachiro HAMAGUCHI (Kobe Univ. Emeritus), Hisato MINAGAWA (Univ. Shiga Pref.), Hiroaki KOMATSU (Univ. Shiga Pref.), Mika MORISHITA (Fuji Machinery Co., Ltd.)
- B312 Stretching of material lines in pseudo-turbulence induced by small rising bubbles
○Mitsuru TANAKA (Kyoto Inst. Tech.), Haruka KANATANI (Kyoto Inst. Tech.), Yoshito TSUJIMURA (Fuji Heavy Industries Ltd.)
- B313 Splashing limit during drop impact onto a liquid film
○Shinpei OKAMOTO (Osaka Univ.), Takahiro KINOSHITA (Osaka Univ.), Tomio OKAWA (Osaka Univ.)
- B314 SPH simulations of binary droplet collision with different surface tension and interface tension
○Yuta HASHIMOTO (Osaka Univ.), Yasutaka YAMAGUCHI (Osaka Univ.), Koji KURODA (Dai Nippon Printing), Tadashi NAKAJIMA (Dai Nippon Printing), Hideo FUJIMURA (Dai Nippon Printing)
- B315 Simulation of bubble bouncing on a rigid wall and a free surface
○Toshiyuki OYAMA (Tokyo Univ.), Kazuyasu SUGIYAMA (Tokyo Univ.), Shu TAKAGI (Tokyo Univ.), Yoichiro MATSUMOTO (Tokyo Univ.)

GS-1,2,5 Physics of Multiphase Flow (2), Multiphase Flow Physics (2), Interfacial Phenomena (2)

10:30~12:10

Chair: Mitsuru TANAKA (Kyoto Inst. Tech.)

- B321 Influence of surface filmed particles of packed bed on wettability
Yasuo KATOH (Yamaguchi Univ.), ○Ryuichi NAGATA (Ymaguchi Univ.), Eko SISWANTO (Yamaguchi Univ.), Hiroshi KATSURAYAMA (Yamaguchi Univ.)
- B322 Simultaneous analysis of sand grains and air flow in gas-solid multiphase turbulent flow by PIV and image processing
○Kenji OTAKEGUCHI (Tokyo Univ. of Science), Daisuke AOSHIMA (Tokyo Univ. of Science), Takahiro TSUKAHARA (Tokyo Univ. of Science), Makoto YAMAMOTO (Tokyo Univ. of Science), Yasuo KAWAGUCHI (Tokyo Univ. of Science)
- B323 On the interaction between turbulence and free-surface flow in rectangular duct
Yasuhisa OGURA (Nagoya Univ.), ○Yoshiyuki TSUJI (Nagoya Univ)
- B324 On the optical technique of free surface slope measurement
Hiroyuki USHIMARU (Nagoya Univ.), Hiroyuki HARADA (Nagoya Univ.),
○Takamasa SAKATOKU (Nagoya Univ.), Tetu YASUI (Nagoya Univ.), Yoshiyuki TSUJI (Nagoya Univ.) , Mizuho IDA (JAEA), Hideo NAKAMURA (JAEA)
- B325 Flow characteristics of synthetic jet produced by bubble motion
○Atsushi NEMOTO (Kogakuin Univ.), Masato TANAKA(Kogakuin Univ.), Kotaro SATO (Kogakuin Univ.), Hideki TALEZAWA (Kogakuin Univ.), Kazuhiko YOKOTA (Aoyamagakuin Univ.)

OS-5 Flow and Control of Multiphase Jet and Wake (1) 13:10~14:50

Chair: Tomomi UCHIYAMA (Nagoya Univ.)

- B331 [Keynote] Spouting phenomenon of cohesive fine powder using air flow
○Koichiro OGATA (Oshima College of Maritime Tech.)
- B332 Shock-wave configuration in moderately underexpanded plane supersonic free jets
○Hisashi MIKAMI (Tokyo Inst. Tech.)
- B333 Visualization of vortex structure in wake of a sphere
○Yuji ITAMOTO (Univ. Tsukuba), Hideaki MONJI (Univ. Tsukuba)
- B334 A study on sound generation by gas-liquid two-phase flow through orifice nozzle in a vertical pipe and its suppression
Toshihiko SHAKOUCI (Mie Univ.), Takayuki SUZUKI (Mie Univ.), ○Hidetaka TOMIOKA (Mie Univ.), Koichi TSUJIMOTO (Mie Univ.), Toshitake ANDO (Mie Univ.)
- B335 Parameters on shedding frequency of cavitation clouds
○Hitoshi SOYAMA (Tohoku Univ.)

OS-5 Flow and Control of Multiphase Jet and Wake (1) 15:10~16:30

Chair: Toshihiko SHAKOUCI (Mie Univ.)

- B341 Analysis of influences in the initial process of liquid injection
 ○Toshimi TAKAGI (Osaka Univ.), Kikuo NARUMIYA (Osaka Sangyo Univ.),
 Hiroshi HATTORI (Osaka Sangyo Univ.)
- B342 Hydrodynamically marginal specifications of liquid lithium stable flows for the target and
 coolant of BNCT using accelerators
 ○Masamichi NAKAGAWA (Tokyo Inst. Tech.), Tooru KOBAYASHI (Kyoto Univ.),
 Minoru TAKAHASHI (Tokyo Inst. Tech.), Masanori ARITOMI (Tokyo Inst. Tech.)
- B343 Vortex simulation for behavior of solid particles falling in air
 ○Hisanori YAGAMI (Mie Univ.), Tomomi UCHIYAMA (Nagoya Univ.)
- B344 Interaction of bubbles with vortex ring launched into bubble plume
 ○Sou KUSAMICHI (Nagoya Univ.), Tomomi UCHIYAMA (Nagoya Univ.)

Room C

- OS-6 Sustainable transdisciplinary integrated multiphase flow (1) 8:30~10:10**
 Chair: Jun ISHIMOTO (Tohoku Univ.), Masaya SHIGETA (Tohoku Univ.)
- C311 A study of the motion of a skirted bubble rising in a hydrophobically modified alkali-soluble
 associative polymer
 ○Mitsuhiro OHTA (Muroran Inst. of Tech.), Yoshihiko SHIGEKANE (Muroran Inst. of Tech.),
 Naoto KOBAYASHI (Muroran Inst. of Tech.), Yutaka YOSHIDA (Muroran Inst. of Tech.),
 Shuichi IWATA (Nagoya Inst. of Tech.)
- C312 Numerical study of cryogenic solid-liquid, two-phase slush flow in a rectangular pipe
 ○Katsuhide OHIRA (Tohoku Univ.), Atsuhito OTA (Tohoku Univ.)
- C313 Pressure-drop reduction phenomenon of cryogenic solid-liquid, two-phase slush flow in a
 corrugated bellows
 ○Katsuhide OHIRA (Tohoku Univ.), Jun OKUYAMA (Tohoku Univ.), Kei NAKAGOMI
 (Tohoku Univ.), Koichi TAKAHASHI (Tohoku Univ.)
- C314 Control of movement and alignment of nano-diamond dispersion with AC electric field
 ○Hiromichi OBARA (Tokyo Metropolitan Univ.), Shinichi TASHIRO (Tokyo Metropolitan
 Univ.)
- C315 Streamer development in air/methane mixture at high temperature and pressure
 ○Hidemasa TAKANA (Tohoku Univ.), Yasunori TANAKA (Kanazawa Univ.),
 Hideya NISHIYAMA (Tohoku Univ.)
- OS-6 Sustainable transdisciplinary integrated multiphase flow (2) 10:30~11:50**
 Chair: Kazuo MATSUURA (Tohoku Univ.), Jun ISHIMOTO (Tohoku Univ.)

- C321 [Keynote] Detailed numerical simulation of liquid fuel spray formation and its extension to engine combustion analysis
○Junji SHINJO (Japan Aerospace Exploration Agency)
- C322 Predicting the extinction of diffusion microflame
○Yusuke KAKIZAKI (Yamagata Univ.), Kazunori KUWANA (Yamagata Univ.)
- C323 Numerical simulation of melting process of polymer by imposing localized thermal input
○Yang Kyun KIM (Hokkaido Univ.), Akter HOSSAIN (Hokkaido Univ.), Yuji NAKAMURA (Hokkaido Univ.)
- C324 Simple mathematical model of nanopowder growth in vapor phase synthesis
○Masaya SHIGETA (Tohoku Univ.), Valerian A. NUMCHINSKY (Keiser Univ., USA)
-
- OS-6 Sustainable transdisciplinary integrated multiphase flow (3) 13:10~14:30**
Chair: Hiromichi OBARA (Tokyo Metropolitan Univ.), Jun ISHIMOTO (Tohoku Univ.)
- C331 Magnetically-driven heat transport device using a magnetic fluid
○Yuhiro IWAMOTO (Doshisha Univ.), Ryuji OKUDA (Doshisha Univ.), Xiao-Dong NIU (Doshisha Univ.), Hiroshi YAMAGUCHI (Doshisha Univ.)
- C332 Heat transfer characteristics and system performance of CO₂ heat pump using solid-gas two phase flow
○Tomoya HOBO (Doshisha Univ.), Xiao-Dong Niu (Doshisha Univ.), Yuhiro IWAMOTO (Doshisha Univ.), Hiroshi YAMAGUCHI (Doshisha Univ.)
- C333 Development of ultra-high heat flux cooling and ashing-less wafer cleaning system using micro-solid nitrogen spray
○U OH (Tohoku Univ.), Daisuke TAN (Exon Mobil Japan), Jun ISHIMOTO (Tohoku Univ.)
- C334 The sensing-based risk mitigation control of hydrogen leakage in a partially open space with low height openings
○Kazuo MATSUURA (Tohoku Univ.), Masami NAKANO (Tohoku Univ.), Jun ISHIMOTO (Tohoku Univ.)

Room D

- OS-7 Fundamentals and Applications of Optics and Ultrasonics (1) 8:30~10:10**
Chair: Yuichi MURAI (Hokkaido Univ.)
- D311 PTV/PIV measurement of flow in a suction sump
○Miki TAOA (Doshisha Univ.), Jiro FUNAKI (Doshisha Univ.), Katsuya HIRATA (Doshisha Univ.)
- D312 Flow characteristics of micro-scale three-phase flow in a vertical channel
○Takuya MIMURA (Kyoto Inst. of Tech.), Atsuhide KITAGAWA (Kyoto Inst. of Tech.),

Yoshimichi HAGIWARA (Kyoto Inst. of Tech.)

- D313 Measurements of wall shear stress and velocity distribution in two-phase flow in a horizontal duct
○Shinji NARITA (Kobe Univ.), Hideki MURAKAWA (Kobe Univ.), Katsumi SUGIMOTO (Kobe Univ.), Nobuyuki TAKENAKA (Kobe Univ.)
- D314 Development of a simultaneous measurement technique of bubble diameter/velocity and solution concentration using a photoelectric optical fiber probe
○Masahiro YAMADA (Shizuoka Univ.) , Takayuki SAITO (Shizuoka Univ.)
- D315 Measurements of bubble velocity using spatial filter velocimetry
○Shigeo HOSOKAWA (Kobe Univ.), Yasuhiro SATO (Kobe Univ.), Takaaki MATSUMOTO (Kobe Univ.), Kosuke HAYASHI (Kobe Univ.), Akio TOMIYAMA (Kobe Univ.)

OS-7 Fundamentals and Applications of Optics and Ultrasonics (2) 10:30~12:10

Chair: Kotaro SATO (Kogakuin Univ.)

- D321 The effect of rotation on resonant frequency of electrostatic levitated droplet
○Rui TANAKA (Univ. of Tsukuba), Satoshi MATSUMOTO (JAXA), Akiko KANEKO (Univ. of Tsukuba), Yutaka ABE (Univ. of Tsukuba)
- D322 Study on internal and external flow structure and interfacial mass transfer of an acoustically levitated droplet
○Hikaru ISHII (Univ. of Tsukuba), Akiko KANEKO (Univ. of Tsukuba), Koji HASEGAWA (Univ. of Tsukuba), Yutaka ABE (Univ. of Tsukuba)
- D323 Visual analysis for mechanistic elucidation of droplets bursting under ultrasonic atomization
○Kazuma FUJITA (Doshisha Univ.), Yuichi YOSHIKI (Nichias Corp.), Yasushige MORI (Doshisha Univ.), Katsumi TSUCHIYA (Doshisha Univ.)
- D324 Flow visualization of a micro-bubble two-phase flow in a cylinder with a rotating disk
○Masaaki ISHIKAWA (Univ. of the Ryukyus), Tom UECHI (Univ. of the Ryukyus), Kunio IRABU (Univ. of the Ryukyus), Isao TERUYA (Univ. of the Ryukyus), Munehiro NITTA (Univ. of the Ryukyus)
- D325 Ultrasonic flow field measurement around a bubble plume using a rotating TDX unit
○Yuji TASAKA (Hokkaido Univ.), Hidekazu KITAURA (Hokkaido Univ.), Yuichi MURAI (Hokkaido Univ.), Seiji KINO (MTI)

OS-7 Fundamentals and Applications of Optics and Ultrasonics (3) 13:10~14:50

Chair: Masaaki ISHIKAWA (Univ. of the Ryukyus)

- D331 Pressure performance characteristics of a disk type viscous micro pump
○Hiromi FUKUSHIMA (Kogakuin Univ.), Naoya EGUTI (Kogakuin Univ.), Kotaro SATO (Kogakuin Univ.), Kazuhiko YOKOTA (Aoyamagakuin Univ.)

- D332 Flow characteristics of synthetic jet on a cylindrical wall
○Rei KOIZUMI (Kogakuin Univ.), Chikashi NAKAGAWA (Minebea), Koichi NISHIBE (Kogakuin Univ.), Kotaro SATO (Kogakuin Univ.), Kazuhiko YOKOTA (Aoyama Gakuin Univ.)
- D333 Flow characteristics of the flat plate wing with a bowing slot
○Yuki KAMITANI (Kogakuin Univ.), Kotaro SATO (Kogakuin Univ.), Kazuhiko YOKOTA (Aoyama Gakuin Univ.)
- D334 Control of wall attachment of microbubbles using a plate with super-hydrophilic surface
○Atsuhide KITAGAWA (Kyoto Inst. of Tech.), Mao MIKAMI (Kyoto Inst. of Tech.), Yoshimichi HAGIWARA (Kyoto Inst. of Tech.)
- D335 Flow-induced oscillations of a free surface and intermittent bubble injection by vortices behind a moving cylinder
○Ichiro KUMAGAI (Hokkaido Univ.), Koji OYABU (Hokkaido Univ.), Yuji TASAKA (Hokkaido Univ.), Yuichi MURAI (Hokkaido Univ.)
- OS-7 Fundamentals and Applications of Optics and Ultrasonics (4) 15:10~16:30**
Chair: Yuji TASAKA (Hokkaido Univ.)
- D341 Effects of inclination angle of heated plate on laminar natural convection with sub-millimeter bubbles
○Tatsuaki OKU (Kyoto Inst. of Tech.), Atsuhide KITAGAWA (Kyoto Inst. of Tech.), Yoshimichi HAGIWARA (Kyoto Inst. of Tech.)
- D342 A measurement method for non-uniform bubbles by using an Single-Tip Optical fiber Probe (Relationship between a pre-signal and bubble orientation)
○Yuki MIZUSHIMA (Shizuoka Univ.), Takayuki SAITO (Shizuoka Univ.)
- D343 Study on correlation between laser interference fringes and light intensity derived from fine particles with focused laser beam
○Hiroto SAKAKI (Univ. of Tsukuba), Akiko KANEKO (Univ. of Tsukuba), Yutaka ABE (Univ. of Tsukuba), Masatoshi IKE (Apptex LLC)
- D344 Simultaneous measurement of motion and temperature of individual particles under a fluidized state
○Takuya MIYAUCHI (Osaka Univ.), Satoshi OH (Osaka Univ.), Takuya TSUJI (Osaka Univ.), Toshitsugu TANAKA (Osaka Univ.)

Room E

- OS-10 Modeling and Simulation of Particulate Multiphase Flow (1) 8:30~10:10**
Chair: Tositsugu TANAKA (Osaka Univ.)

- E311 Measurement of fluid force on particulate oscillatory flow by telemetry system
○Shoichi YASUDA (Hokkaido Univ.), Takanori SAWANO (Hokkaido Univ.),
Shusaku HARADA (Hokkaido Univ.)
- E312 Three dimensional measurement and simulation of micro-particle concentration on solid-liquid
two-phase flow in microchannel
○Je Eun CHOI (Chiba Univ.), Masahiro TAKEI (Chiba Univ.)
- E313 Study of solid-liquid multiphase flow simulation by Lagrangean method
○Yoshinori YAMADA (Univ. of Tokyo), Mikio SAKAI (Univ. of Tokyo)
- E314 Direct numerical simulation of droplet dispersion in a gas-liquid annular flow
○Yoichi MITO (Kitami Inst. of Tech.), Akitaka MOMOTA (Kitami Inst. of Tech.)
- E315 Experimental investigation with flowability and floodability of cohesive fine powder
○Koichiro OGATA (Oshima College of Maritime Tech.), Kohei MUNECHIKA (Oshima
College of Maritime Tech.), Kana YANAGIHARA (Oshima College of Maritime Tech.)
-
- OS-10 Modeling and Simulation of Particulate Multiphase Flow (2) 10:30~12:10**
Chair: Tomomi UCHIYAMA (Nagoya Univ.)
- E321 Change in internal strength of particle aggregate in shear flow
○Kento HORII (Hokkaido Univ.), Ryoko OTOMO (Hokkaido Univ.), Shusaku HARADA
(Hokkaido Univ.)
- E322 Mixture and Transportation of Micro Particles in a Plasma Tube
Keisuke SHINOHARA (Tohoku Univ.), ○Hidemasa TAKANA (Tohoku Univ.),
Hideya NISHIYAMA (Tohoku Univ.)
- E323 DEM-MPS analysis and PTV measurement of particle motion in liquid
○Toshihiro KAWAGUCHI (Kansai Univ.), Kenichiro HAGIHARA (Osaka Univ.),
Masaki INUI (Osaka Univ.), Takuya TSUJI (Osaka Univ.), Toshitsugu TANAKA (Osaka Univ.)
- E324 Influence of solid wall on the flow field including dense particles
○Takuya TSUJI (Osaka Univ.), Eiji NARITA (Osaka Univ.), Toshitsugu TANAKA (Osaka
Univ.)
- E325 Development of modified body force type immersed boundary method
○Tomoya WAKAMATSU (Osaka Univ.), Takuya TSUJI (Osaka Univ.), Toshitsugu TANAKA
(Osaka Univ.)
-
- OS-10 Modeling and Simulation of Particulate Multiphase Flow (3) 13:10~14:50**
Chair: Shusaku HARADA (Hokkaido Univ.)

- E331 Visualization of flow in a fluidized bed by simulation and experiment
○Azri bin ALIAS (Okayama Univ. of Science), Kenya KUWAGI (Okayama Univ. of Science), Yu SHIMOYAMA (Okayama Univ. of Science), Toshihiro TAKAMI (Okayama Univ. of Science), Hiroyuki HIRANO (Okayama Univ. of Science)
- E332 Dynamic force on a single tube and tube bundle in gas-fluidized beds
Yusumi NAGAHASHI (Kochi National College of Tech.), ○Daiki YAMAMOTO (Kochi National College of Tech.), Shingo YAMAMOTO (Chugai Phm. Mnft. Co), J.R.GRACE (UBC), Yutaka ASAKO (Tokyo Metropolitan Univ.)
- E333 DEM-CFD coupling simulation of Geldart's Group A particles in fluidized bed (Dynamic adhesion force model and the range of application)
○Tomonari KOBAYASHI (Sumitomo Chemical Co., Ltd.), Toshitsugu TANAKA (Osaka Univ.)
- E334 A study on prediction accuracy of CFD simulations for bubbling fluidized bed
○Yoshiyuki YAMANE (IHI), Zhihong LIU (IHI)
- E335 Large-scale DEM-CFD simulation of two - dimensional fluidized bed
○Yasuyuki NISHIJIMA (Osaka Univ.), Takuya TSUJI (Osaka Univ.), Tositsugu TANAKA (Osaka Univ.)

Room F

- OS-13 Science of Micro/Nano Bubbles and Technological Application (3) 8:30~10:10**
Chair: Koichi TERASAKA (Keio Univ.)
- F311 Particle evaluation by direct observation of microbubble with microscope
○Yusuke NISHIUCHI (Kochi National College of Tech.), Hideki TAKEUCHI (Kochi National College of Tech.), Ippei TANABE (Kochi National College of Tech.), Shohei MORI (Kochi National College of Tech.), Kyoichi YAMANAKA (Kochi National College of Tech.), Asuka YAMAMOTO (Kochi National College of Tech.), Yuji SUZUE (Kochi National College of Tech.), Takashi HATA (Kochi National College of Tech.)
- F312 Study on hydraulic performance of multi-fluid mixer and dissolution characteristics of microbubbles generated by the mixer
○Masahiro KATO (Kumamoto Univ.), Shinji SHIKATANI (Kumamoto Univ.), Michio SADATOMI (Kumamoto Univ.), Akimaro KAWAHARA (Kumamoto Univ.)
- F313 Deaerating effect of cavitation type micro-bubble generator
○Kazuhiro MIMA (Okayama Univ. of Science), Hiroshi TAMURA (Okayama Univ. of Science), Jun'ya HORI (Okayama Univ. of Science)
- F314 Nonlinear oscillation of an insonified microbubble with shell-coating
○Hiroki KUBO (Keio Univ.), Akihiro SATOU (Keio Univ.), Shunsuke ITO (Keio Univ.),

Toshihiko SUGIURA (Keio Univ.)

- F315 Nonlinear oscillation caused by interaction between insonified microbubbles
○Akira TSURUOKA (Keio Univ.), Akihiro SATO (Keio Univ.), Mitsutoshi FUJIWARA (Keio Univ.), Kei TERADA (Keio Univ.), Toshihiko SUGIURA (Keio Univ.)

OS-13 Science of Micro/Nano Bubbles and Technological Application (4) 10:30~12:10
Chair: Keiji YASUDA (Nagoya Univ.)

- F321 Exploratory research for nanobubbles produced by shearing of gas-liquid mixture
○Koichi TERASAKA (Keio Univ.), Asako TODA (Keio Univ.), Satoko FUJIOKA (Keio Univ.), Masatoshi KAWARAGAKI (Keio Univ.), Hideyasu TSUJI (Kyowa Kisetsu), Yoshinori URATANI (Beckman-Coulter)
- F322 Structure and viscoelastic properties of supramolecular aggregates in water containing nano-bubbles
○Haruka HIRAI (Kyushu Univ.), Atsuomi SHUNDO (Kyushu Univ.), Kazuya TAKEKUNI (NEXCO), Keiji TANAKA (Kyushu Univ.)
- F323 Development of high density nano-bubble generation system by nanoGALF technology
○Masakazu KASHIWA (IDEC Corp.), Haruaki KIMURA (IDEC Corp.), Yoshiaki ISHIDA (IDEC Corp.), Jun TOKUDA (IDEC Corp.), Toshihiro FUJITA (IDEC Corp.), Kouichi TERASAKA (Keio Univ.)
- F324 The high-concentrated stable production of ID 100 nm-nano-bubbles by nanoGALF technology
○Shigeo Maeda (IDEC Corp., Osaka Univ.), Jun Tokuda (IDEC Corp.), Masakazu KASHIWA (IDEC Corp.), Haruaki KIMURA (IDEC Corp.), Yoshiaki ISHIDA (IDEC Corp.), Toshihiro FUJITA (IDEC Corp.), Kouichi TERASAKA (Keio Univ.), Susumu KUWABATA (Osaka Univ.)
- F325 Measurement of nano-bubble generated by nanoGALF using three types of particle size measuring equipment
○Shigeo MAEDA (IDEC Corp., Osaka Univ.), Jun TOKUDA (IDEC Corp.), Toshihiro FUJITA (IDEC Corp.), Kouichi TERASAKA (Keio Univ.), Susumu KUWABATA (Osaka Univ.)

OS-13 Science of Micro/Nano Bubbles and Technological Application (5) 13:10~14:50
Chair: Shozo HIMURO (Ariake National College of Tech.)

- F331 Study on decomposition of organic substance in liquid phase using ozone micro bubble and photocatalyst (1) (Influence of different MB generators on the removal efficiency)
○Fumio YASUI (Techno Ryowa Ltd.), Hajime TAMURA (Techno Ryowa Ltd.), Kazuhiko SEKIGUCHI (Saitama University), Kim Kyung HWAN (Saitama University), Tetsuya KITASHIRO (Saitama University)

- F332 Study on decomposition of organic substance in liquid phase using ozone micro bubble and photocatalyst (2) (Influence of various factors on removal efficiency and evaluation of decomposition products)
○Kazuhiko SEKIGUCHI (Saitama Univ.), Tetsuya KITASHIRO (Saitama Univ.), Kyung Hwan KIM (Saitama Univ.) , Hajime TAMURA (Techno Ryowa Ltd.), Fumio YASUI (Techno Ryowa Ltd.)
- F333 An effective photocatalytic degradation of organic component in liquid phase using a newly developed TiO₂ assisted reactor with ozone micro bubbles
○Kyung Hwan KIM (Saitama Univ.), Kazuhiko SEKIGUCHI (Saitama Univ.), Takeshi YOSHIDA (Saitama Univ.), Fumio YASUI (Techno Ryowa Ltd.), Hajime TAMURA (Techno Ryowa Ltd.)
- F334 Examination of the Wastewater treatment method on bioethanol production process by using ozone micro-bubbles
○Yukihiko HASHIMOTO (Tokuyama College of Tech.), Yoshito OHNARI (Tokuyama College of Tech.), Hirofumi OHNARI (Tokuyama College of Tech.)
- F335 Examination of the wastewater treatment method on bioethanol production process by using ozone microbubbles
○Naoyuki BAN (Nagoya Univ.), Keiji YASUDA (Nagoya Univ.)

OS-13 Science of Micro/Nano Bubbles and Technological Application (6) 15:10~16:50
Chair: Fumio YASUI (Techno Ryowa Ltd.)

- F341 Development of photovoltaic-driven water purification system using micro-bubbles and aerobic bacteria
○Michio SADATOMI (Kumamoto Univ.), Akimaro KAWAHARA (Kumamoto Univ.), Shigeki SAKAEDA (Kumamoto Univ.), Shinji SHIKATANI (Kumamoto Univ.)
- F342 Influence of microbubble given to organics decomposition by microorganism under drain
○Ippei TANABE (Kochi National College of Tech.), Takahiro MATSUDA (Kochi National College of Tech.), Asuka YAMAMOTO (Kochi National College of Tech.), Shohei MORI (Kochi National College of Tech.), Kyoichi YAMANAKA (Kochi National College of Tech.), Yuji SUZUE (Kochi National College of Tech.), Takashi HATA (Kochi National College of Tech.), Hisatoyo MORINAGA (Kochi National College of Tech.), Yusuke NISHIUCHI (Kochi National College of Tech.), Hideki TAKEUCHI (Kochi National College of Tech.), Hiroyasu TOBE (Kochi National College of Tech.)
- F343 Generation of W/O emulsion using direct-contact condensation of steam microbubbles
○Megumi YUDA (Keio Univ.), Chiaki WATANABE (Keio Univ.), Koichi TERASAKA (Keio Univ.), Satoko FUJIOKA (Keio Univ.) and Daisuke KOBAYASHI (Keio Univ.)

- F344 Study on making microemulsion using microbubble generation mechanism
○Kyoichi YAMANAKA (Kochi National College of Tech.), Shohei MORI (Kochi National College of Tech.), Ippei TANABE (Kochi National College of Tech.), Yuji SUZUE (Kochi National College of Tech.), Takashi HATA (Kochi National College of Tech.), Yusuke NISHIUCHI (Kochi National College of Tech.), Hideki TAKEUCHI (Kochi National College of Tech.)
- F345 Separation of oil from O/W emulsion by using micro-bubbles
○Koichi HANEDA (Nagoya Univ.), Keiji YASUDA (Nagoya Univ.)