JSRAE Annual Conference Program

(1) Each presentation has 20 minutes including 5 minutes for discussion.
(2) Symbol (○/◎) shows speakers.
(3) For multiple authors from the same institution, the affiliation of the first author from each institution is mentioned. The affiliation(s) of other author(s) is same as the preceding author.

-------- #1 Day -----

Room A <5 September (Wed.)>

Organized Session OS-5
"Technological Development in Heat Exchangers"
Organizers: HASHIMOTO Katsumi (CRIEPI), GAO Lei (FUKUOKA Univ.), DANG Chaobin (The Univ. of Tokyo)

09:20～10:40 OS-5(1) [Chairperson: HASHIMOTO Katsumi (CRIEPI)]

A111 [Keynote] Toward high-efficient removal of heat from high-density heat generators
- microbubble emission boiling, vapor bubble condensation, dynamic wetting, etc-
○UENO Ichiro（Tokyo Univ. Science）

A112 Study on the Effect of Thermal Spray Coating on Subcooled Boiling Heat Transfer in Horizontal Narrow Channel
◎TAGAWA Chinaru（Kobe Univ.）, SUGIMOTO Katsumi, MURAKAWA Hideki, ASANO Hitoshi

A113 Numerical analysis of bubble expansion characteristics in a diverging tube during flow boiling
◎XU Jingren（The Univ. of Tokyo）, DANG Chaobin, HIHARA Eiji

Workshop WS-5
"Trends in Development of Heat Exchangers"
Moderators: HOUFUKU Mamoru (Hitachi-Johnson Controls Air Conditioning), TSUNODA Isao (Keihin Corporation), HIROTA Masafumi (Mie Univ.)

11:00 ～ 12:20 WS-5(1) [Chairperson: HIROTA Masafumi (Mie Univ.)]

A121 [Keynote]Importance of heat exchange technology in medical field
○FUMOTO Koji（Aoyama Gakuin Univ.）

A122 Examination about the improving performance of the Micro Channel heat exchanger
○ HAYASE Gaku（ Samsung Electronics CO. LTD.）

A123 Development of a Micro Channel Heat Exchanger for Upward Blow-off Outdoor Unit
○HIROKAWA Tomoki（Daikin Industries, Ltd.）, INOUE Satoshi（Daikin Applied Americas, Inc.）, YOSHIOKA Shun（ Daikin Industries, Ltd.）, ORITANI Yoshio, FUJINO Hirokazu

13:30～14:50 WS-5(2) [Chairperson: TSUNODA Isao (Keihin Corporation)]

A131 Development of V type dimple for air and water heat exchanger
○IWASAKI Mitsuru（Calsonic Kansei Corp.）, YAMANAKA Mayumi, HIRAHARA Hiroyuki（Saitama Univ.）, UEMURA Tomotaka

A132 Cool Strage Evaporator
○ KAMOSHIDA Osamu（ Keihin Thermal Technology Corporation ）, HIGASHIYAMA Naohisa

A133 Heat Exchengers for Automobile Air Conditioner
○SATO Hideaki（DENSO CORPORATION）

A134 Performance analysis of a proposed air-conditioning system for electric vehicle
○ ZHANG Li（ Central Research Insitute of Electric Power Industry）, HASEGAWA Hiromi, SAIKAWA Michiyuki

15:10 ～ 16:30 WS-5(3) [Chairperson: HOUFUKU Mamoru (Hitachi-Johnson Controls Air Conditioning)]

A141 Development of Pre-coated Aluminum Fin Stocks for Air Conditioning Heat Exchangers
Case study on high function
○YAEGASHI Tatsuhiro（UACJ Corporation）, SASAZAKI Mikine

A142 Study of the reduce power consumption of the vending machine
○TSUCHIYA Toshiaki（Fujielectric co., Ltd）, MATSUBARA Takeshi, AJIMA Masaaki

A143 Influence of corrosion form on heat transfer performance of all aluminum heat exchanger
○SHIOMI Kohei（UACJ Corporation）, IKAMI Hiroshi, TOYAMA Tomoaki, FUKADA Sayo

A144 Activity Report of the Research Project “Advanced Heat Exchanger Technology for the Adjustment to Environmental Changes"

○ INOUE Norihiro（Tokyo Univ. of Marine Science and Technology）

Room B <5 September (Wed.)>

Organized Session OS-7
"Refrigerators/Heat Pumps based on Absorption, Adsorption or Chemical Reactions"
Organizers: IKUMI Yonezo (Waseda Univ.), KUBOTA Mitsuhiro (Nagoya Univ.), HAMAMOTO Yoshinori (Kyushu Univ.), MIYAZAKI Takahiko (Kyushu Univ.)

09:20～10:40 OS-7(1) [Chairperson: MIYAZAKI Takahiko (Kyushu Univ.)]

B111 Trends of absorption heat pump system research in ISHPC 2017
○IKUMI Yonezo（Waseda Univ.）

B112 Dynamic Characteristic Analysis of Solar-assisted Absorption Air-conditioning System
Simulation and experimental verification about single effect absorption cycle operation
◎ YAMASHITA Hiroki（Graduate school of Osaka City Univ.）, SAKATA Keiju（Osaka City Univ.）, NISHIMURA Nobuya, YAMADA Kenji（Osaka Gas Co., Ltd., Energy Engineering Department）

B113 Evaluation of COP of an absorption refrigeration cycle using a separable ionic liquid by cycle simulation
◎ KARATSU Takeshi（Tokyo Univ. of Agriculture and Technology）, NAKAYAMA Masayuki, AKISAWA Atsushi, OHNO Hiroyuki

B114 Study of Droplet motion on Temperature-responsive Surface
◎ CHENG Zhizhong（The Univ. of Tokyo）, DANG Chaobin, HIHARA Eiji（Chaobin）

11:00～12:20 OS-7(2) [Chairperson: IKUMI Yonezo (Waseda Univ.)]

B121 Heat Releasing Behavior of LiOH/LiOH·H2O Reaction for Low-temperature Heat Storage
○KUBOTA Mitsuhiro（Nagoya Univ.）, OHASHI Satoshi, YAMASHITA Seiji, KITA Hideki

B122 Heat discharging performance of small-scale chemical heat battery working with calcium chloride hydration
◎ ICHINOSE Atsuhiro（Nagoya Univ.）, KOBAYASHI Noriyuki, LI Jun

B123 Preparation of Silica-Coated Aluminum Composite for Water Vapor Adsorption
○ KUMITA Mikio（Kanazawa Univ.）, NISHIZAWA Junya, KONGDAM Chompassorn, KODAMA Akio, HIGASHI Hidenori, SETO Takafumi, OTANI Yoshio

B124 Study on Adsorption Heat Pump using Natural Mesoporous Material
Part 7 Experimental study on overall mass transfer rate of WSS-LiCl composite absorbent
◎ SEOL Sung-hoon（Hokkaido Univ.）, NAGANO Katsunori, TOGAWA Junya（Nihon Netsugen System）

13:30 ～ 14:10 OS-7(3) [Chairperson: KUBOTA Mitsuhiro (Nagoya Univ.)]

B131 Study on Adsorption Heat Pump using Natural Mesoporous Material
Part 8: Comparison of cooling performance using adsorbent coated and filled types heat exchangers
○TOGAWA Junya（Nihon Netsugen System）, KUROKAWA Asami（Hokkaido Univ.）, NAGANO Katsunori

B132 Study on Adsorption Heat Pump using Natural Mesoporous Material
Part-9: Cooling performance evaluation and COP improvement using labo-scale 1kW AHP
◎ HE Fang（Hokkaido Univ.）, NAGANO Katsunori, TOGAWA Junya（Nihon Netsugen System）

B133 (Canceled)

B134 (Canceled)

14:30～15:30 OS-7(4) [Chairperson: HAMAMOTO Yoshinori (Kyushu Univ.)]

B141 Effect of Temperature conditions to the Performance of 3BED-2stage Adsorption refrigeration cycle
◎TAKEDA Naoya（Tokyo Univ. of Agriculture and Technology）, NAKAYAMA Masayuki, AKISAWA Atsushi

B142 Study on adsorption heat pump cycle using activated carbon and HFC-245fa
○ MIYAZAKI Takahiko（Kyushu Univ.）, KAWAKAMI Hayato, TAKATA Nobuo, KOYAMA Shigeru

B143 Simulation of adsorption thermal storage using meso-porous silica
◎ UETSUKI Ryosuke（Kyushu Univ.）, NARUKAWA Tomoya, FRANTISEK Miksik, TAKATA Nobuo, MIYAZAKI Takahiko

Room C <5 September (Wed.)>

Organized Session OS-9
"Application of Simulation Technology for Refrigeration, Air-conditioning and Water Heating"
Organizers: YAMAGUCHI Seiichi (Waseda Univ.), NONAKA Masayuki (Hitachi-Johnson Cntrols Air-Conditioning, Inc.), YAMASHITA Koji (Mitsubishi Electric Corp.), TAIRA Shigeharu (Daikin Industries, LTD.)

09:20～10:40 OS-9(1) [Chairperson: YAMAGUCHI Seiichi (Waseda Univ.)]

C111 [Keynote]Utilization of two simulation methods - design and development / regulation and evaluation
○SAWACHI Takao（Building Research Institute）, MIYATA Masato（National Institute Land and Infrastructure Management）

C112 Sutdy on refrigerant leakage detection method for compression type heat pump
◎YOSHIDA Chihiro（Waseda Univ.）, OHNO Keisuke, YAMAGUCHI Seiichi, SAITO Kiyoshi, NISHIYAMA Noriyuki（Tokyo gas Co., Ltd.）, WAKABAYASHI Tsutomu（Osaka gas Co., Ltd.）, TANIGUCHI Keiji（Toho gas Co., Ltd.）

C113 Generation of Training Dataset for Supervised Learning on VAV System Faults and the Fault Detection and Diagnosis by Convolutional Neural Network
○WU Yangjun（The Univ. of Tokyo）, MIYADA Syouhei, LIM Jongyeon, AKASHI Yasunori

11:00 ～ 12:00 OS-9(2) [Chairperson: NONAKA Masayuki (HITACHI-Johnson Controls Air-Conditioning, Inc.)]

C121 (Canceled)

C122 A study on the control characteristics of gas injection heat pump cycle by numerical simulation
○ NAKANO Daiki（Waseda Univ.）, OHNO Keisuke, YAMAGUCHI Seiichi, SAITO Kiyoshi, UDAGAWA Yosuke（NTT FACILITIES, INC.）, FUTAWATARI Naoki

C123 Heat transfer in a confined channel of multi-heat sink with oscillating flux heat source cooling by a pulsating impinging jet
◎HUNG Chien-cheng（National Taipei Univ. of Technology）, HUANG Po-chuan, WU Chen-chung

C124 Development of Air Flow System for Plant Factory Aiming for Homogeneous Air Conditioning Environment
Measurement of distribution of temperature and the wind velocity in the multistage plant cultivation rack
○ SUMITANI Daisaku（Seiken Co., Ltd.）, MORIUCHI Koji, UEDA Yasushi

13:30～14:30 OS-9(3) [Chairperson: YAMAGUCHI Seiichi (Waseda Univ.)]

C131 Study on indoor ventilation for commercial air conditioning refrigerant leakage using lower flammable refrigerant
○KISHITANI Tetsushi（The Japan Refrigeration and Air Conditioning Industry Association）, SASAKI Shunji

C132 Study on Air Circulation at the time of A2L Refrigerant Leakage in Raised Floor Air Conditioning for Server Room
○ YAMASHITA Koji（JRAIA）, KAWAI Kazuhiko, SHIMIZU Mizuho（Mitsubishi Electric Engineering）

C133 The Reduction of Air-conditioning Energy by the Fryer Local Ventilation System using Inducted Air for Convinience Stores
○ ISHIBASHI Takuma（SANDEN Advanced Technology）, KASUYA Junichiro, IGARASHI Susumu

Room D <5 September (Wed.)>

Organized Session OS-1
"Present Status and Future Development of Compressors"
Organizers: FUKUTA Mitsuhiro (Shizuoka Univ.)

09:40 ～ 10:40 OS-1(1) [Chairperson: KIMATA Yoshiyuki (Mitsubishi Heavy Industries Thermal Systems)]

D111 Friction Analysis of Connecting Structure of Piston in Reciprocating Compressor for Refrigerator
○ NAGATA Shuhei（Hitachi Ltd.）, SUZUKI Hiroa（Hitachi Appliances, Inc.）

D112 Study of Suction Chamber Injection Compressor
◎ IWATAKE Wataru（Mitsubishi Electric）, KAWAMURA Raito, SEKIYA Shin, SASAKI Kei, TAKAI Akihito

D113 Experimental Study of Leakage Reduction on Reciprocating Compressor
◎MINEMOTO Atsushi（Hiroshima Institute of Thechnology）, SAWAI Kiyoshi, IIDA Noboru（Panasonic Corporation）, KINJO Kenji, ISHII Noriaki（Osaka Electro-Communication Univ.）

11:00～12:00 OS-1(2) [Chairperson: SAWAI Kiyoshi (Hiroshima Institute of Technology)]

D121 Development of an Evolutionary Three-Dimensional Scroll Compressor
○HOTTA Yohei（Mitsubishi Heavy Industries Thermal Systems, Ltd.）, SATO Hajime（Mitsubishi Heavy Industries, Ltd.）, KIMATA Yoshiyuki（Mitsubishi Heavy Industries Thermal Systems, Ltd.）, ITO Takahide（Mitsubishi Heavy Industries, Ltd.）, YAMASHITA Takuma

D122 Development of Large Capacity 3D Scroll Compressor for First Stage of Two-stage Compression System
○TATEISHI Taichi（Mitsubishi Heavy Industries, Ltd.）, TANIGUCHI Masahiro（Mitsubishi Heavy Industries Thermal Systems, Ltd.）, SATO Hajime（Mitsubishi Heavy Industries, Ltd.）, TAKASU Yogo（Mitsubishi Heavy Industries Thermal Systems, Ltd.）, KIMATA Yoshiyuki

D123 Evaluations of dissolution properties for Lubricants with the Low GWP Refrigerants
○MATSUMOTO Tomoya（Idemitsu Kosan Co., Ltd.）, KAWAGUCHI Yasuhiro

Seminar on Compressor Technology SN-1
Moderators:Kenji TOJO (TOJO R&D Design Office)

13:30 ～ 14:50 SN-1(1) [Chairperson: TOJO Kenji (TOJO R&D OFFICE/Waseda Univ.)]

D131 Approach to a natural refrigerant
-Natural five-
○KOBAYASHI Keizo（MAYEKAWA MFG.CO., LTD.）

D132 Development of Efficient Heat Pump System for EV/PHEV
○ ITO Satoshi（DENSO CORPORATION）, KOBAYASHI Hiroyuki, INOUE Seiji, TANIHATA Takuya, ENDO Yoshiharu, HAYASHI Hiroyuki

D133 Micro-channel Heat Exchanger for Sky Air Outdoor Unit
○ YOSHIOKA Shun（Daikin Industries）, ORITANI Yoshio, JINDOH Masanori

D134 R410A condensing unit with functions to detect refrigerant shortage, and to assist refrigerant charging
○SATA Hiroshi（Mitsubishi Electric Co., Ltd.）, OCHIAI Yasutaka, SAITO Makoto, SUZUKI Kota, IKEDA Takashi

15:10 ～ 16:30 SN-1(2) [Chairperson: CHIKANO Masatsugu (Hitachi, Ltd.)]

D141 The Feature of the Hybrid PowerConditioner Cooler
SAKAKIBARA Hisayoshi（DENSO CORPORATION）, TANAKA Masaaki, OHKI Junichi（DENSO AIRCOOL CORPORATION）, ○YAMAGUCHI Shoichi, EZAWA Naofumi

D142 Large capacity and high efficiency rotary compressor「1000A4 series」
○ HASEGAWA Keiichi（TOSHIBA Carrier Corporation）

D143 Development of the Large Capacity Semi-hermetic Single Screw Compressor for Ice Storage Chiller
○ MORI Kazuki（Daikin Industries, Ltd.）, MIYAMURA Harunori, GOTO Hideyuki, MATSUURA Hideki

D144 Simulation of Internal Leakage in a Blowhole of a Screw Compressor
○ CHIBA Kotaro（Hitachi Ltd.）, TAKANO Masahiko（Hitachi Industrial Equipment Systems Co. Ltd.）

Room E <5 September (Wed.)>

Workshop WS-1
"Geothermal Heat Utilization in Shallow Layer"
Moderators: SASAKI Naoe (Nihon Univ.), TAKEDA Tetsuaki (Univ. of Yamanashi)

09:00 ～ 10:40 WS-1(1) [Chairperson: NAGANO Katsunori (Hokkaido Univ.)]

E111 [Keynote] Future of Ground Source Heat Utilization of Shallow Layers
○KAKIZAKI Takao（Nihon Univ.）, OGUMA Masahito

E112 R&D of GSHP System with Variable Capacity System Control
○OGUMA Masahito（Nihon Univ.）, YABUKI Taisei, MOROHASHI Norio, KAKIZAKI Takao

E113 Thermal Performances of Ground Source Heat Pump Systems with Pile and Borehole Heat Exchangers
○YABUKI Taisei（Nihon Univ.）, MOROHASHI Norio, OGUMA Masahito, KAKIZAKI Takao

E114 Improvement efficiency of heat pump system with thermal storage device
○ TAIRA Hirotoshi（Eng., Nihon Univ.）, MOROHASHI Norio, OGUMA Masahito, KAKIZAKI Takao

11:00 ～ 12:20 WS-1(2) [Chairperson: KAKIZAKI Takao (Nihon Univ.)]

E121 Study on Thermophysical Properties of Shallow Ground
-Influence of Ground Temperature on Thermal Diffusivities-
○ YAMADA Hideki（ Nihon Univ. ）, MITSUYAMA Seiken, ITO Kosuke, TANAKA Saburo, SASAKI Naoe

E122 Heating Field Tests on Heat Pomp Air-Conditioning System using Shallow Ground Heat Source
○SUGANUMA Yuto（Univ. of Fukui）, MIHARA Shinji, MIYAMOTO Shigenobu, NAGAI Niro, KAWAKAMI Takehiko（ CORONA ）, HASHIZUME Yoshimitsu（Mitani Sekisan）

E123 Development of Floor Heating System using Shallow Ground Heat Source Heat Pump and Air Source Heat Pump
Numerical Simulation
○ MIYAMOTO Shigenobu（Univ. of Fukui）, NAGAI Niro, SUGANUMA Yuto, KAWAKAMI Takehiko（CORONA）

E124 Investigation of the Hot Water Supply Utilization in Heat Pump Air-Conditioning System Using Shallow Ground Heat Source
○ MIHARA Shinji（ Univ. of Fukui ）, SUGANUMA Yuto, MIYAMOTO Shigenobu, NAGAI Niro, KAWAKAMI Takehiko（CORONA）, HASHIZUME Yoshimitsu（Mitani Sekisan）

13:30 ～ 15:10 WS-1(3) [Chairperson: NAGAI Niro (Univ. of Fukui)]

E131 [Keynote] The development of Ground Source Heat Pump system for single-family houses (Part 3)
Several examples of direct expansion method underground heat exchanger
○ YODA Osamu（ Fujishima Construction ）, OKUBO Hiroji, TAKEDA Tetsuaki（ Univ. of Yamanashi）

E132 Effect of introduction of ground source heat pump in Yamanashi Prefecture
HAGIHARA Toshio（Hagihara Boring Co., Ltd.）, ONO Toshio, ○NAKAZAWA Toshiya

E133 Effect of energy conservation of ground source heat pump applied as agricultural house air-conditioning system
MUKOUYAMA Satoshi（Yamanashi Prefecture）, MATSUKAWA Tsutomu, ISHII Toshiyuki, KOMIYAMA Yoshitaka, ○ TAKEDA Tetsuaki（Univ. of Yamanashi）, ISHIGURO Shuhei

E134 Research and development on ground source heat pump in Univ. of Yamanashi
○ ISHIGURO Shuhei（ Univ. of Yamanashi ）, TAKEDA Tetsuaki, MARUMO Yuki, WATANABE Seiya, NISIZAWA Ryoichi, OKAZAWA Ryosuke, AOKI Tomoya

15:30 ～ 16:50 WS-1(4) [Chairperson: TAKEDA Tetsuaki (Univ. of Yamanashi)]

E141 Thermosiphon for Recovering Ground Surface Heat
Performance Properties Considering Geometrical Effect of Corrugated Pipe
○ MIYAZAKI Tatsuya（ Waseda Univ. ）, KATSUTA Masafumi, MINOURA Takeshi

E142 Validation of Calculation Model for Vertical Spiral Ground Heat Exchangers by Comparing with Measurement Data
○ HIGASHITANI Takashi（ Hokkaido Univ. ）, KATSURA Takao, FANG Yuzhi, NAGANO Katsunori, AKAI Hitoshi（Fukushima Univ.）, OE Motoaki（ Inoac Corp. ）, SEGAWA Kazuyuki（Tohoku Electric Power Co., Inc.）

E143 Evaluation of ground water flow surrounding ground heat exchanger by using thermal response test result
○KATSURA Takao（Hokkaido Univ.）, SHOJI Yutaka, CHEA Hobyung, NAGANO Katsunori, AKAI Hitoshi（Fukushima Univ.）, TAKEUCHI Susumu（ Tohoku Electric Power Co., Inc. ）, OKADA Manamu

E144 Development of Calculation Model for Borehole Ground Heat Exchanger by Considering Inside Thermal Capacity and Its Application
○ FANG Yuzhi（ Hokkaido Univ. ）, HIGASHITANI Takashi, KATSURA Takao, NAGANO Katsunori

Room F <5 September (Wed.)>

General Session GS

09:00～10:40 GS-1(1) [Chairperson: YASUHARA Kaoru (Yamagata Univ.)]

F111 Development of Sky-source Heat Pump system utilizing renewable energy
○SHIOYA Masaki（Kajima Corporation）, ONO Eikichi, SHIMO Taizo（Kajima Corporaion）, SHIBA Yoshiro（ ZENERAL HEATPUMP INDUSTRY CO.）, SHIBASAKI Koji（MARUWA Electronic Inc.）

F112 Operation Mechanism and Performance in Self-Excited Vibration Type Flat Aluminum Heat Pipe and Vapor Chamber

◎ TOMIYAMA Shusuke（Waseda Univ.）, KATSUTA Masahumi, YOSHIMURA Takahide

F113 Quantitative measurement of fluctuation of turbulent heat transfer in a pipe by high-speed infrared imaging
○ NAKAMURA Hajime（National Defense Academy）, SHIIBARA Naoki（Japan Ground Self-Defense Force）, YAMADA Shunsuke（National Defense Academy）

F114 Laminar flow forced convective heat transfer of Al2O3-water nanofluids
○ AKAMATSU Masato（Yamagata Univ.）, IZAWA Hiroki, YASUHARA Kaoru, IWAMOTO Mitsuo（Oita Univ.）

F115 Estimation Method of Dynamic Amount of Heat in Sewage Pipeline
○ CHEN Weian（Tokyo Univ.）, AKASHI Yasunori, LIM Jongyeon

11:00 ～ 12:20 GS-1(2) [Chairperson: AKAMATSU Masato（Yamagata Univ.）]

F121 Study on Boiling-Cooling using by Frost Layer
◎SUGINO Taiyo（Tamagawa Univ.）, OKUBO Hidetoshi

F122 Influence of lubricant oil on flow pattern of refrigerant in narrow tube
◎ NISHIHATA Katsuya（Shizuoka Univ.）, FUKUTA Mitsuhiro, MOTOZAWA Masaaki, MAKIMOTO Naoya（DENSO）

F123 Variation of visualization of mist formed in the cooled container and response of QCM sensor to mist formation
○ YASUHARA Kaoru（Yamagata Univ.）, TSUKAMOTO Taisei（Grad Sch Yamagata Univ.）

F124 Study of Reduction for Microbial Quantity in Air Conditioning System
Influence and Application of UV Irradiation Time on Microbial Sterilization Effect
○ TAKATSUKA Takeshi（Shin Nippon Air Technologiies）

Organized Session OS-3
"Industrial Heat Pump"
Organizers: WATANABE Choyu (Chubu Electric Power), HASHIMOTO Katsumi (CRIEPI), KAIDA Takenobu (CRIEPI)

13:30～14:50 OS-3(1) [Chairperson: HASHIMOTO Katsumi (CRIEPI)]

F131 Trends in Heat Pump Technology in Europe
Technological Trends in Heat Pump Conference 2017 and European Heat Pump Summit 2017
○WATANABE Choyu（Chubu Electric Power）

F132 Analysis of installation case study on industrial heat pumps
○KAIDA Takenobu（Central Research Institute of Electric Power Industry）, UCHIYAMA Yohji（Japan Electro-Heat Center）, WATANABE Choyu（Chubu Electric Power Co., Inc.）, HASHIMOTO Katsumi（Central Research Institute of Electric Power Industry）

F133 Development of an Air-source Heat Pump Using Low-GWP Refrigerants to Heat Circulation Water
◎MORI Takachika（Mitsubishi Heavy Industries Thermal Systems）, AKATSUKA Kei, WATANABE Choyu（Chubu Electric Power）, NAKAYAMA Hiroshi

F134 Development of a hot water circulation Heat Pump using R1234ze(E) as the refrigerant
◎KAGAYA Kengo（Mayekawa Mfg. CO., Ltd.）, SHIGA Motoyasu, FUCHIKAMI Hideki

15:10 ～ 16:50 OS-3(2) [Chairperson: WATANABE Choyu (Chubu Electric Power)]

F141 Development of high temperature steam generating Low GWP refrigerant 2 stage cycle heat pump utilizing thermal energy of waste hot water
○ ONISHI Yusuke（Fuji Electric Co., Ltd）, YOSHIDA Tokitaka, AJIMA Masaaki, IWASAKI Masamichi

F142 Air-cooled Heat Pump Module Type Chilling Unit 『Universal Smart X EDGEseries』
○MATSUSHITA Kaoru（TOSHIBA CARRIER CORPORATION）, TANNO Hideki, MORITA Takeru, AOKI Toshimasa, SHIDA Shougo

F143 Development of Direct Expansion-Type Water Source Heat Pump for the Exhaust Heat Recovery
○ OKUNO Toshihiko（Science Inc.）, KUWABARA Takashi, KOYAMA Akira, SHISHIDO Jun（Tohoku Electric Power Co., Inc.）, HASHIMOTO Katsumi（Central Research Institute of Electric Power Industry）

F144 A numerical simulation on the characteristics of cooling heat transfer and pressure drop of a supercritical pressure fluid flowing in a chevron-type plate heat exchanger
◎WATANABE Naoto（Kyushu Univ.）, KUROSE Kizuku, MIYATA Kazushi, MORI Hideo, HAMAMOTO Yoshinori, UMEZAWA Shuichi（TEPCO）, SUGITA Katsuhiko

F145 Condensation Heat Transfer of HFO1233zd(E) in a Chevron-type Plate Heat Exchanger
○ MIYATA Kazushi（Kyushu Univ.）,

WATANABE Naoto, YAMASAKI Yuki, MORI Hideo, HAMAMOTO Yoshinori, UMEZAWA Shuichi（TEPCO）, SUGITA Katsuhiko

-------- #2 Day -----

Room A <6 September (Thu.)>

Organized Session OS-5
"Technological Development in Heat Exchangers"
Organizers: HASHIMOTO Katsumi (CRIEPI), GAO Lei (FUKUOKA Univ.), DANG Chaobin (The Univ. of Tokyo)

09:20～10:40 OS-5(2) [Chairperson: ASANO Hitoshi (Kobe Univ.)]

A211 Air-side performance of finless heat exchangers
◎MUROFUSHI Takahiko（the Univ. of Tokyo）, HIGASHI Tomohiro, DANG Chaobin, HIHARA Eiji

A212 Measure Considerations on the Mechanism for Deposits and Adhesion of Impurities in Very Hard Water related to Three-dimensional (3D) Smart Hollow Structure
○KAIJIAN Wang（Fujitsu General Laboratories LTD., ）, TOSHIHIKO Takahashi, KENJI Komine（Fujitsu General LTD., ）, MINORU Tadatsu（Fujitsu General Laboratories LTD., ）

A213 Effects of cooling method for condensation heat transfer in plate-fin heat exchanger
◎OISHI Shohei（Kyushu Univ.）, FUKUDA Sho（Kyushu Sangyo Univ.）, MIYAZAKI Takahiko（Kyushu Univ.）, TAKATA Nobuo, KOYAMA Shigeru

A214 The effect of pressure on condensation heat transfer of HFC134a flowing in a horizontal single rectangular mini-channel
◎ARATA Yohei（Kyushu Univ.）, MATSUMOTO Takashi（Mitsubishi Electric Corporation）, KUTSUNOYA Kai（Kyushu Univ.）, MIYATA Kazushi, HAMAMOTO Yoshinori, MORI Hideo

11:00 ～ 12:20 OS-5(3) [Chairperson: GAO Lei (FUKUOKA Univ.)]

A221 Visualization of Flow Boiling of Propane/Lubricating in Mini-Channels
○ SAITOH Shizuo（Tokyo Univ.）, DANG Chaobin, HIHARA Eiji

A222 An Experiment on Boiling Heat Transfer of R32 / Lubricant Mixtures Inside a Multiport Tube
◎KIKUCHI Shogo（Graduate School of Marine Science and Technology, Tokyo Univ. of Marine Science and Technology）, EDA Hikaru, JIGE Daisuke（Tokyo Univ. of Marine Science and Technology）, INOUE Norihiro, KOYAMA Shigeru（International Institute for Carbon-Neutral Energy Research, Kyushu Univ.）

A223 An Experimental Study on Flow Boiling Characteristic of R1234ze(E) in a Plate-Fin Heat Exchanger
◎ SUGIHARA Kota（ School of Marine Electronics and Mechanical Engineering, Tokyo）, JIGE Daisuke（Tokyo Univ. of Marine Science and Technology）, INOUE Norihiro

A224 Flow boiling heat transfer characteristics of zeotropic refrigerant mixtures in microchannels
DANG Chao（Beijing Jiaotong Univ.）, JIA Li, DANG Chaobin（The Univ. of Tokyo）, ○SONG Mengjie

Room B <6 September (Thu.)>

Organized Session OS-2
"Heat and Mass Transport Phenomena with Solid-Liquid Phase Change"
Organizers: TERAOKA Yoshikazu (Kanazawa Univ.), ASAOKA Tatsunori (Shinshu Univ.)

09:40 ～ 10:40 OS-2(1) [Chairperson: TERAOKA Yoshikazu (Kanazawa Univ.)]

B211 Heat transfer characteristics of slurry heat medium for latent heat storage system
◎ MATSUMOTO Yoshikazu（Shinshu Univ.）, ABE Shunsuke, NAKAZONO Junichi（Mitsubishi Electric Corp.）, ASAOKA Tatsunori（Shinshu Univ.）

B212 Flow and ice distribution characteristics of ice slurry in T-junction
◎MORIMOTO Takashi（Aoyama Gakuin Univ.）, KOBAYASHI Takuya（ Fujitsu general ）, KUMANO Hiroyuki（Aoyama Gakuin Univ.）

B213 Thermophysical properties of microcapsuled phase change material with inorganic shell
○ITANO Hiroshi（Okayama Univ.）, YAMADA Yutaka, HORIBE Akihiko

11:00 ～ 12:00 OS-2(2) [Chairperson: ASAOKA Tatsunori (Shinshu Univ.)]

B221 Freezing process of a water droplet on super-hydrophobic surfaces
◎WU Qian（Univ. of Tokyo）, OKAGAKI Jun, HSU Wei-lun, DAIGUJI Hirofumi

B222 Continuous generation of ice containing ozone MBs due to cycle reversal of belt velocity
Investigation on concentration of ozone gas released from ice due to melting
◎AYATANI Rikuto（Chuo Univ.）, UMEHARA Yuri, UEDA Jun, EHARA Kohei, MATSUMOTO Koji

B223 Influence of a repeated use of cooling storage

material by solidification and melting on concentration distribution of additive
◎ HAMAGUCHI Kohei（Tokyo Institute of Technology）, OKAWA Seiji, HOZUMI Tsutomu

Room C <6 September (Thu.)>

Organized Session OS-4
"Performance Evaluation of Refrigerators, Air-conditioners and Heat Pump Water Heaters"
Organizers: WATANABE Choyu (Chubu Electric Power), SAITO Kiyoshi (Waseda Univ.), NISHIMURA Nobuya (Osaka City Univ.), WAKUI Tetsuya (Osaka Prefecture Univ.)

09:20 ～ 10:40 OS-4(1) [Chairperson: Nobuya NISHIMURA (Osaka City Univ.)]

C211 Performance Evaluation of a High Temperature Heat Pump using Low GWP refrigerants
○WATANABE Choyu（Nagoya Unv.）, TOMITA Shuto, YAMADA Motoki, NAKAMURA Toshiyuki, YAMADA Tomoyuki, HATTORI Atsuki, AONO Yoshitada

C212 Performance test of heat pump cycle using refrigerant mixtures of HFC32 and HFO1123
◎ TAKEZATO Kosei（Kyushu Univ.）, HIRAYAMA Junki, MIYAZAKI Takahiko, TAKATA Nobuo, KOYAMA Shigeru

C213 Cycle Simulation of Automotive CO_2 Air Conditioner
Changes in cycle behavior in unsteady state accompanying changes in driving mode
◎FUJIMORI Yoji（Waseda Univ.）, SANO Koki（graduated from Waseda Univ.）, KATSUTA Masahumi（Waseda Univ.）

C214 Annual performance evaluation of CO_2 refrigerated display cabinets relative to geographical location
◎VARELA Daryl Anne（Waseda Univ.）, REDO Mark Anthony, GIANNETTI Niccolo, OHNO Keisuke, YAMAGUCHI Seiichi, SAITO Kiyoshi

11:00 ～ 12:20 OS-4(2) [Chairperson: WATANABE Choyu (Chubu Electric Power)]

C221 Development of a Simple Measuring Method of Actual Performances of Room Air Conditioner
In-situ measurement of refrigerant state of room air conditioner using multi sensor
◎ YAMAMOTO Shintaro（Graduate school of Osaka City Univ.）, KOMORI Daisuke, NISHIMURA Nobuya（Osaka City Univ.）

C222 Performance Monitoring and Diagnostics of Multi-Split Type Air-Conditioning System by Support Vector Machine
Diagnostics of Performance Degradation Under Steady Operating Condition
○ WAKUI Tetsuya（Osaka Prefecture Univ.）, YOKOYAMA Ryohei

C223 Study on a high accuracy performance evaluation method of VRF system
○KAMETANI Shigeki（Tokyo Univ. of Marine Science and Technology）, NAKAO Masaki（Osaka City Univ.）, NAKASO Yasuhsa, MATSUI Emi（Tokyo Univ. of Marine Science and Technology）

C224 Performance Evaluation of the Combined Gas Engine Heat Pump Air Conditioners
○MATSUI Emi（Tokyo Univ. of Marine Science and Technology）, KAMETANI Shigeki

Room D <6 September (Thu.)>

Workshop WS-4
"The latest HVAC&R technology of natural refrigerants"
Moderators: SAITO Kiyoshi (Waseda Univ.), KANDO Masanori (Mayekawa Manufacturing), IRIE Tomoyoshi (EBARA REFRIGERATION EQUIPMENT & SYSTEMS), OHNO Keisuke (Waseda Univ.)

09:20～10:20 WS-4(1) [Chairperson: Kiyoshi SAITO (Waseda Univ.)]

D211 R&D Trends in 2018 IIR-GUSTAV LORENTZEN Conference
○TOJO Kenji（TOJO R&D Office / Waseda Univ.）

D212 Steam generation technology using the absorption heat transformer
○ IRIE Tomoyoshi（Ebara Refrigeration Equipment & Systems）

D213 Development of a highly efficient refrigeraton system
○ARIMOTO Ryohei（Mayekawa Mfg. Co., Ltd.）, TERASHIMA Iwao

D214 Heat Transfer and Flow Mode Characteristics of Falling Liquid Film outside a Horizontal Tube
○ INOUE Norihiro（Tokyo Univ. of Marine Science and Technology）, JIGE Daisuke, MIYATA Masahiro（Graduate School of Tokyo Univ. of Marine Science and Technology）

Workshop WS-6
"Frontiers in Biological Heat and Mass Transport"
Moderators: KATAOKA Noriyuki (Nihon Univ.)

11:00 ～ 12:20 WS-6(1) [Chairperson: KATAOKA Noriyuki (Nihon Univ.)]

D221 (Canceled)

D222 Raman microspectroscopic imaging of frozen biopolymer solution
○ KURATA Kosaku（ Kyushu Univ. ）, TAKAMATSU Hiroshi

D223 Basic and applied study of noninvasive thermal treatment using high intensity focused ultrasound
○TAKAGI Ryo（National Institute of Advanced Industrial Science and Technology (AIST)）

D224 Damage reduction by pressurized dissolution of xenon gas in cold storage of cells.
○UJIHIRA Masanobu（Kitasato Univ.）

D225 Voxel-based Simulation of Air-conditioning in the Human Nasal Cavity
KIMURA Shinya（Chiba Univ.）, MIURA Shuta, SERA Toshihiro（ Kyushu Univ. ）, YOKOTA Hideo（RIKEN）, ONO Kenji（Kyushu Univ.）, ○ TANAKA Gaku（Chiba Univ.）

Room E <6 September (Thu.)>

Workshop WS-3
"Forefront of Untapped Thermal Energy Utilization"
Moderators: MIYAZAKI Takahiko (Kyushu Univ.), IKUMI Yonezo (Waseda Univ.), YAMAGUCHI Seiichi (Waseda Univ.), KUBOTA Mitsuhiro (Nagoya Univ.), TSUJIGUCHI Takuya (Kanazawa Univ.)

10:20 ～ 12:20 WS-3(1) [Chairperson: MIYAZAKI Takahiko (Kyushu Univ.)]

E211 Potential of Bamboo as a Biomass Fuel
○ASOU Hiroyuki（Fukuoka Univ.）

E212 Solar Thermal Application
○YABASE Hajime（Waseda Univ.）

E213 Problems and possibilities of sewage heat utilization
○MIKE Masahito（Sogo Setsubi Consulting Co., Ltd.）

E214 Trends of Waste to Energy
○UNO Susumu（TAKUMA CO., LTD.）

IGARASHI Hall <6 September (Thu.)>

International Session IS
"Advancement in HVAC&R in Asia"
Organizers: TOJO Kenji (TOJO R&D Design Office), NONAKA Masayuki (Hitachi-Johnson Cntrols Air-Conditioning, Inc.), SASAKI Naoe (Nihon Univ.)

13:30～15:00 IS(1) [Chairperson: TOJO Kenji (TOJO R&D Design Office)]

I231 ASHRAE Activities-how You Can Participate
○ OLESEN Bjarne W. (Technical Univ. of Denmark / ASHRAE Former President)

I232 Introduction to TSHRAE Activities
○SHIH, Yang-Cheng (National Taipei Univ. of Technology / TSHRAE President)

I233 Performance analysis of sorption air-conditioning system using polymer desiccant
○YOUNG Soo Chang (Kookmin Univ. /SAREK)

-------- #3 Day -----

Room A <7 September (Fri.)>

Organized Session OS-5
"Technological Development in Heat Exchangers"
Organizers: HASHIMOTO Katsumi (CRIEPI), GAO Lei (FUKUOKA Univ.), DANG Chaobin (The Univ. of Tokyo)

09:20～10:40 OS-5(4) [Chairperson: DANG Chaobin (The Univ. of Tokyo)]

A311 Study on Flow Characteristics of Refrigerant-Oil Two-Phase Flow in a Capillary Tube
- 1st Report: Experiment under Single-Phase Inflow Condition of Oil with Dissolved Refrigerant-
◎ MORIYAMA Takashi（Mitsubishi Electric Corp.）, ASANO Hitoshi（Kobe Univ.）

A312 Visualization and Void Measurement of Refrigerant Flow in Cross-Flow Type Mini-channel Evaporator
◎ MORIYASU Ryosuke（Kobe Univ.）, SUGIMOTO Katsumi, MURAKAWA Hideki, ASANO Hitoshi, KUBO Yohei（Kobe Steel）, FUKUTANI Kazuhisa

A313 Experimental Study on Distributions of Gas-Liquid Refrigerant Flows in Multi-Pass Channels Improvement of Uniformity of Gas-Liquid Distributions
◎ OKADA Shoya（Mie Univ.）, HIROTA Masafumi, MARUYAMA Naoki, NISHIMURA Akira

A314 Two-phase Flow Distribution Characteristics of R134a from Horizontal Header to Multi-Pass Branches
The Effect of Orifice Insertion on Distribution Characteristics
◎ YOTSUGURI Yuma（Waseda Univ.）, KATSUTA Masahumi, SONDA Kensuke, TABEI Yusuke

11:00～12:20 OS-5(5) [Chairperson: JIGE Daisuke (Tokyo Univ. of Marine Science and Technology)]

A321 Effect of Inlet Quality on Flow Pattern inside Tube with Inner Diameter of 0.3mm
○ENDOH Kazuhiro（Hitachi, Ltd.）

A322 Characteristics of Flow Boiling Heat Transfer and Flow Distribution in Non-Uniformly Heated Parallel Mini-Channels
◎KUROSE Kizuku（Kyushu Univ.）, MIYATA Kazushi, HAMAMOTO Yoshinori, MORI Hideo

A323 A Simulation on the Influence of the Degree of Non-uniformity in Heating Surface Temperature between Channels on the Flow Boiling Heat Transfer Capacity of a Refrigerant in Two Parallel Mini-channels
◎ KAWASUSO Takuya（Kyushu Univ.）, KUROSE Kizuku, MIYATA Kazushi, HAMAMOTO Yoshinori, MORI Hideo

A324 Theoretical analysis on flow boiling instability inside radial expending channel heat exchanger
◎HONG Sihui（Univ. of Tokyo）, DANG Chaobin, HIHARA Eiji

13:30 ～ 14:50 OS-5(6) [Chairperson: MIYATA Kazushi (Kyushu Univ.)]

A331 Marangoni effect on nucleate pool boiling of self-rewetting fluid
◎HU Yanxin（1.Guangdong Univ. of Technology, China 2.The Univ. of Tokyo）, SONG Mengjie（The Univ. of Tokyo）, HUANG Jin（Guangdong Univ. of Technology, China）, DANG Chaobin（The Univ. of Tokyo）

A332 Effect of inlet throttle on flow boiling instability in multi-port extruded tubes
◎CAO Xufa（Tokyo Univ.）, DANG Chaobin, HIHARA Eiji

A333 Numerical investigation of the effect of channel shape on heat transfer characteristics of supercritical CO_2
○ LIU Xinxin（Chongqing Univ.）, DANG Chaobin（Tokyo Univ.）, XU Xiaoxiao（Chongqing Univ.）, LIU Chao

A334 Evaporation and condensation local heat transfer of R1123/R32 binary mixture in a plate heat exchanger
○KARIYA Keishi（Saga Univ.）, WAKASUGI Shota, MIYARA Akio

15:10～16:30 OS-5(7) [Chairperson: KARIYA Keishi (Saga Univ.)]

A341 Study on Boiling Heat Transfer in Horizontal Tube Bundle
◎ZENZAI Hideki（Kobe Univ.）, SUGIMOTO Katsumi, MURAKAWA Hideki, ASANO Hitoshi, TAKUBO Maki（Fuji Electric）, MYOGAN Ichiro

A342 Experimental investigation on the two phase flow and heat transfer characteristics of a novel radial microchannel heat exchanger
◎SONG Mengjie（The Univ. of Tokyo）, DANG Chaobin, CAO Xufa, DANG Chao（Beijing Jiaotong Univ.）, LIU Xinxin（Chongqing Univ.）

A343 Development and Performance Evaluation of Novel Absorber Surface with Temperature-

Responsive Wettability
◎KAKIGI Sho（The Univ. of Tokyo）, DANG Chaobin, HIHARA Eiji

A344 Experimental Study on Measurement of Liquid Film Thickness Using Image Processing on Two Different Falling Film Evaporator Tubes.
○TAKAHASHI Hiroyuki（Kobelco & Materials Copper Tube, LTD.）, MATSUNO Tomonobu

Room B <7 September (Fri.)>

Organized Session OS-12
"Phenomena and Application Technology on Frost, Snow and Ice"
Organizers: INOUE Sho (National Institute of Technology, Ichinoseki College), ONISHI Hajime (Kanazawa Univ.), NAGANO Tomohiro (Daikin Industries, Ltd.)

09:20 ～ 10:40 OS-12(1) [Chairperson: Ryosuke MATSUMOTO (Kansai Univ.)]

B311 Effect of wettability of cooling surface on thickness frost layer
◎AGUI Haruka（Tamagawa Univ.）, OHKUBO Hidetoshi, KANEKO Sohei（Nippon Paint Surf Chemicals.Co., LTD.）, MATSUZAKI Masaki

B312 Effect of Air Velocity on Frost Formation Characteristics of Adsorbent Coated Heat Exchanger
◎NAKANO Kosuke（Kanazawa Univ.）, ONISHI Hajime, HARUKI Masashi, TADA Yukio

B313 Influence of Surface Treatment of Aluminum Fin on Frosting Phenomenon
○ KIRIISHI Madoka（ Kobe Steel, Ltd. ）, TAKENAKA Makoto, NISHIDA Mika

B314 Experimental Study of Delaying Effect of the Frost Formation on Pre-cooler Tube Surfaces Using Super-Hydrophobicity Tube by Anodic Oxidation Method
Study on Influence of Mainstream Flow Velocity to Frost Formation
○TOKAWA Satoru（Waseda Univ.）, KURATA Takumi, HATTORI Akihiro, HORIKOSHI Daiki, SATO Tetsuya

11:00 ～ 12:20 OS-12(2) [Chairperson: Hajime ONISHI (Kanazawa Univ.)]

B321 Fundamental study on reduction of frost formation
◎ YOKOYAMA Shohi（ Tamagawa Univ ）, OHKUBO Hidetoshi, AGUI Haruka

B322 Measurement of frost layer thickness using stereo camera
◎ EMOTO Taiga（ National Institute of Technology, Ichinoseki College）, INOUE Sho, WAKASHIMA Shin-ichiro

B323 Effect of cooling surface temperature affecting scraping force of frost layer
○ NAKAGAWA Kaito（ National Institue of Technology, Ichinoseki College）, INOUE Shou, WAKASHIMA Shinichirou

B324 Study on Two-dimensional Frost Formation Model on Flat Place Cooling Surface under Forced Convection
○HATTORI Akihiro（Waseda Univ.）, TOKAWA Satoru, KURATA Takumi, HORIKOSHI Daiki, KINOSHITA Yoshiaki, SATO Tetsuya

13:30～14:50 OS-12(3) [Chairperson: Sho INOUE (National Institute of Technology, Ichinoseki College)]

B331 Defrosting Phenomena on Corrugated Louver Fin under Forced Convection Condition
◎ YAMAGISHI Junya（ Waseda Univ. ）, KATSUTA Masafumi, DOSHIDA Hiroki, YASUI Kenzo

B332 Defrosting Characteristics between Concave-Convex Plate under Forced Convection Condition Understanding of Fundamental Phenomena and Effect of Surface Properties
◎IKUTAYA Shota（Waseda Univ.）, KATSUTA Masafumi, DOSHIDA Hiroki, TERAKADO Yuki

B333 Evaluation of Melted Water Behavior During Defrosting by Using X-ray Radiography
◎ SHIOKAWA Takahiro（ Kansai Univ. ）, MATUMOTO Ryosuke, NAGASAWA Yoshiki, NISHIURA Yuto, SAITO Yasushi（Kyoto Univ.）, ITO Daisuke

B334 Development of protection against snow for Air conditioner outdoor unit
○ YAMAMOTO Yoshinori（ MitsubishiElectric Corp. ）, KEIKO Katagishi, HIROSE Etsuko, MORIOKA Reiji

Organized Session OS-6
"Thermophysical Properties of Refrigerants"
Organizers: AKASAKA Ryo (Kyushu Sangyo Univ.), MATSUDA Kenji (JRAIA), KAYUKAWA Yohei (AIST)

15:10 ～ 16:50 OS-6(1) [Chairperson: MATSUDA Kenji (JRAIA)]

B341 Thermodynamic Properties for Aqueous Solution of Ammonia
Second Report Existence and Behaivior near the Maximum Density
○ OGUCHI Kosei（ Kanagawa Institute of

Technology）

B342 Thermodynamic Properties of Low-GWP Alternative Refrigerants
○ FUKUSHIMA Masato（AGC Inc.）, HAYAMIZU Hiroki

B343 Ab initio quantum chemistry calculations for ideal-gas heat capacites of HFO refrigerants
○AKASAKA Ryo（Kyushu Sangyo Univ.）

B344 Aternative refrigerants for low temperatures to substitute R23
○KAYUKAWA Yohei（AIST）

B345 Measurements of thermal conductivity of R1224yd(Z) in liquid state
○MIYARA Akio（Saga Univ.）, MD. JAHANGIR Alam, KARIYA Keishi

Room C <7 September (Fri.)>

Organized Session OS-11
"Desiccant/Humidity Control/Open Cycle Air Conditioning"
Organizers: YAMAGUCHI Seiichi (Waseda Univ.), TSUJIGUCHI Takuya (Kanazawa Univ.), NABESHIMA Yuki (Toyohashi Univ. of Technology), AKAHIRA Akira (Aomori Prefectural Industrial Technology Research Center)

10:20～12:20 OS-11(1) [Chairperson: NABESHIMA Yuiki (Toyohashi Univ. of Technology)]

C311 Investigation of Performance Necessary for Air-conditioning System of Plant Factory in Snowy Region
○AKAHIRA Akira（Industrial Research Institute, Aomori Prefectural Industrial Technology Research Center）

C312 Development of Partial Load Control Method for Low Dew Point Honeycomb Rotor Dehumidifier with Variable Supply Air Volume
○ AYAME Hisao（SNK）, NAGASAKA Shigeyuki, TSUJIGUCHI Takuya（Kanazawa Univ.）, KODAMA Akio

C313 Development of ultra-low dew point dehumidified honeycomb rotor and dehumidifier using heat pump waste heat
○OKANO Hiroshi（Seibu-giken CO., LTD）, JIN Wei-li, INOUE Koji, SHIMADA Takahiro, EJIMA Hiroaki

C314 Novel air conditioning system combining desiccant coated heat exchanger
◎HIGASHI Tomohiro（The Univ. of Tokyo）, DANG Chaobin, HIHARA Eiji

C315 Study on Latent Heat Sensible Heat Separation Air Conditioning
Part1) Capability Required for Outside Air Treatment Air Conditioner
○ EBINE Takeshi（Techno Ryowa Ltd.）, TAKIGUCHI Yosuke

C316 Study on Latent Heat Sensible Heat Separation Air Conditioning
Part2) Development of Outside Air Treatment Air Conditioner Using Llithium Chloride Solution
○TAKIGUCHI Yosuke（Techno Ryowa Ltd.）, EBINE Takeshi

13:30～14:50 OS-11(2) [Chairperson: YAMAGUCHI Seiichi (Waseda Univ.)]

C321 Investigation on heat and mass transfer of internally cooled contactor using ionic liquid
◎ KANEKO Takuya（Waseda Univ.）, YAMAGUCHI Seiichi, SAITO Kiyoshi, NAKAYAMA Hiroshi（CHUBU Electric Power Co., Inc.）, WANG Xinming（Evonik Japan Co., Ltd.）

C322 Measurement Method of The Temperature And Humidity Distribution in the Desiccant Rotor
○ NABESHIMA Yuiki（Toyohashi Univ. of Technology）, MATSUURA Daisuke, KIMURA Ryushi（National Institute of Technology, Kochi College）

C323 Effect of the rate of adsorption on the dehumidification performance of the desiccant wheel
○ TSUJIGUCHI Takuya（Kanazawa Univ.）, OSAKA Yugo, KODAMA Akio

C324 CFD Simulation of Transient Heat and Mass Transfer During Regeneration in a Multilayer Sheet-type Desiccant Dehumidifier
◎SHAMIM Jubair A.（The Univ. of Tokyo）, PAUL Soumyadeep, HSU Wei-lun, KITAOKA Kenji（AGC Asahi Glass New Product R&D Center）, DAIGUJI Hirofumi（The Univ. of Tokyo）

15:10～16:50 OS-11(3) [Chairperson: TSUJIGUCHI Takuya (Kanazawa Univ.)]

C331 Heat transfer characteristics of composite organic-sorbent particle layer
HORIBE Akihiko（Okayama Univ.）, YAMADA Yutaka, ○MURATA Tomonori

C332 Sorption and desorption rate of organic polymer sorbent
◎ NAGAI Satoru（Japan Exlan CO., LTD.）, HORIBE Akihiko（Okayama Univ.）, YAMADA Yutaka

C333 Sound wave assisted enhancement of water adsorption kinetics
○ FUJIKI Junpei（TUAT）, NAKAYAMA Masayuki, UEDA Yuki, AKISAWA Atsushi

C334 Investigation on wetted area of fin-tube contactor
○INUI Hanako（Waseda Univ.）, YAMAGUCHI Seiichi, SAITO Kiyoshi, NAKAYAMA Hiroshi（Chubu Electric Power Co.）, WANG Xinming（Evonik Japan Co.）

C335 Theoretical prediction of the wetting characteristics of aqueous ionic liquid on a finned-tube desiccant contactor
◎ GIANNETTI Niccolo（Waseda Univ.）, YAMAGUCHI Seiichi, SAITO Kiyoshi, WANG Xinming（Evonik Japan Co., Ltd）, NAKAYAMA Hiroshi（Chubu Electric Power Co., Inc）

Room D <7 September (Fri.)>

Organized Session OS-10
"Low Temperature Application and Technology for Food and Biological Materials"
Organizers: IMAIZUMI Teppei (Gifu Univ.), TANAKA Fumina (Kyushu Univ.), KONO Shinji (MAYEKAWA MFG Co. Ltd)

09:20 ～ 10:40 OS-10(1) [Chairperson: IMAIZUMI Teppei (Gifu Univ.)]

D311 Effect of Cooling Storage on Starch Digestibility of Cooked Rice
TAMURA Masatsugu（Utsunomiya Univ.）, ○ OGAWA Yukiharu（Chiba Univ.）

D312 Fatty acid metabolism relating gene expression in cucumber fruit during cold storage
◎ OKIGA Haruna（Gifu Univ.）, THAMMAWONG Manasikan, NAKANO Kohei

D313 Evaluation of freezing damage of cell membrane using electrical impedance analysis
○ANDO Yasumasa（Institute of Vegetable and Floriculture Science, NARO）, SOTOME Itaru（Food Research Institute, NARO）, OKUNISHI Tomoya, OKADOME Hiroshi, HAGIWARA Shoji, NABETANI Hiroshi

D314 Effect of Freezing and Thawing on the Quality of Durian (Durio zibethinus Murray) Produced in the Philippines
○ARAKI Tetsuya（Tokyo Univ.）, TAGUBASE Jackie, PALANGGA Zarryn (Univ. of the Philippines Mindanao), LIU Hsiuming (The Univ. of Tokyo), UENO Shigeaki (Saitama Univ.), YOSHIE Yumiko (Toyo Univ.)

11:00～12:00 OS-10(2) [Chairperson: WATANABE Manabu (Tokyo Univ. of Marine Science and Technology)]

D321 The CFD-Experiment for Evaluating Thermal Performance in Impingement Food-Freezer
◎MASUDA Kazunori（MAYEKAWA MFG. CO., LTD.）, TOBARI Yuta, KONO Shinji

D322 The Air Conditioning Design of Dual Temperature Container for Consolidated Transport
◎TANAKA Fumina（Kyushu Univ.）, SEKIYA Madoka, TANAKA Fumihiko, FUJITA Akira（DENSO CORPORATION）, KATOU Shinji, TANIGUCHI Masami

D323 Study of firmness prediction of peach fruits during exportation based on actual transportation data
○ NAKAMURA Nobutaka（NARO）, GOTO Kazuhisa, KIUCHI Yasuo（YAMATO GLOBAL LOGISTICS JAPAN CO., LTD.）, KANETA Tomoko（Tokushima Agriculture, Forestry, and Fisheries Technology Suppoot Center）, NAGATA Masayasu（NARO）, SHIINA Takeo（Chiba Univ.）

13:30 ～ 14:30 OS-10(3) [Chairperson: TANAKA Fumina (Kyushu Univ.)]

D331 Effect of storage conditions on quality properties of fried chicken
○ UENO Shigeaki（Saitama Univ）, OKAWA Hiromi（Saitama Univ.）, ICHIHARA Shimoto（Fuji Electric Co Ltd）, YAMADA Tetsuya, SHIMADA Reiko（Saitama Univ.）

D332 The study of some factors causing texture changes in frozen food gels during storage under subzero temperature
○KOBAYASHI Rika（NUBS）, NAGAI Yuri, OZEKI Ami（TUMSAT）, KAWAI Kiyoshi（Hiroshima Univ.）, ISHIGURO Takahiro（Asahimatsu Foods Co., LTD.）, TAKENAGA Fumio（NUBS）, SUZUKI Toru（TUMSAT）

D333 Quality evaluation of freezing burn of frozen food by X-ray micro-CT
◎ AKIHIDE Iwasawa（College of Bioresource Sciences, Nihon Univ.）, GABSOO Do, SADANORI Sase, RIKA Kobayashi, MASUGU Sato（Japan Synchrotron Radiation Research Institute）

14:50～16:10 OS-10(4) [Chairperson: KOUNO Shinji (MAYEKAWA MFG. Co., Ltd)]

D341 A metabolic profile in red-flesh fish muscle during subzero temperature treatment and thawing.
○ NAKAZAWA Naho（TUMSAT）, MAEDA Toshimichi（National Fisheries Univ.）, FUCHIYAMA Yuki（TUMSAT）, SHIBAYAMA

Syungo, OKAZAKI Emiko

D342 Study of quality evaluation of frozen red meat fish prepared with several different procedures on board
◎KANG Kai（Tokyo Univ. of Marine Science and Technology）, NAKAZAWA Naho, TANAKA Ryusuke（Miyazaki Univ.）, OSAKO Kazufumi（Tokyo Univ. of Marine Science and Technology）, OKAZAKI Emiko

D343 The influence of freshness at the freezing on the quality of fish meat
○WATANABE Manabu（Tokyo Univ. of Marine Science and Technology）, KOBAYASHI Tomoya（Graduate School of Tokyo Univ. of Marine Science and Technology）, SUZUKI Toru（Tokyo Univ. of Marine Science and Technology）

D344 Investigation of high quality freezing using ice slurry
Quality improvement of fishery products
◎ NAKAJIMA Yuto（Tokyo Univ. of Marine Science and Technology）, SUZUKI Toru, WATANABE Manabu

16:30～17:30 OS-10(4) [Chairperson: ARAKI Tetsuya (The Univ. of Tokyo)]

D351 Observation of glassy state relaxation in frozen dextrin solutions by X-ray computed tomography
○NAKAGAWA Kyuya（Kyoto Univ.）, TAMIYA Shinri, KONO Shinji（Mayekawa MFG.）, DO Gabsoo（Nihon Univ.）, OCHIAI Takaaki（Asahi Group Foods）

D352 Temperature dependence of Recrystallization of Suspended aqueous solution
○KIMIZUKA Norihito（Hirosaki Univ.）

D353 Influence of Water Crystallization on Freeze-thaw Stability of Mayonnaise
◎ SHRIFUL Islam Muhammad Shariful（Gifu Univ.）, KATSUNO Nakako, KAWAHARA Hidehisa（Kansai Univ.）, NISHIZU Takahisa（Gifu Univ.）

Room E <7 September (Fri.)>

Organized Session OS-8
"Refrigeration systems contribute to environmental problems"
Organizers: HIRAO Toyotaka (MITSUBISHI HEAVY INDUSTRIES THERMAL SYSTEMS, LTD), HAMAMOTO Yoshinori (Kyushu Univ.)

09:20 ～ 10:40 OS-8(1) [Chairperson: HIRAO Toyotaka (Mitsubishi Heavy Industries Thermal Systems, Ltd)]

E311 Development of air conditioning system applying low GWP refrigerant
◎ IKEDA Soshi（MitsubishiElectric Corp.）, NISHIO Jun, ISHIMURA Katsuhiro, OKANO Hiroyuki

E312 Study on consideration of direct expansion system for environmental test laboratory
○ NAGATA Junichiro（SankiEngineering Co., Ltd）, FUKUMORI Kanta, UEMURA Satoshi

E313 Method of Controlling the Gas Injection flow rate in Two-Stage Compression Cycle
○ SACHIO Sekiya（Hitachi, Ltd）, ATSUSHI Kubota（Hitachi, Ltd）, MASAYUKI Nonaka（Hitachi-Johnson Controls Air Conditioning）, HISASHI Daisaka

E314 Experimental Demonstration of Local Cooling Technology utilizing Low-Pressure Refrigerant
◎ NATSUMEDA Takafumi（NEC）, MIYAMOTO Yoshinori, CHIBA Masaki, TODOROKI Koichi, RAJPUT Nirmal, YOSHIKAWA Minoru

11:00～12:20 OS-8(2) [Chairperson: HAMAMOTO Yoshinori (Kyushu Univ.)]

E321 Control of two-phase refrigerant distribution profile of vertical header
Insertion structure of branch pipe and application to multi type air conditioner for Europe market
◎ MATSUMOTO Takashi（Mitsubishi Electric Corporation）, ONAKA Yoji, OKANO Hiroyuki

E322 Research and development for the spread of ATES (Aquifer Thermal Energy Storage)
Economic and Environmental evaluation of the ATES using centrifugal chillers using Low-GWP Refrigerants
○ NAKASO Yasuhisa（Mitsubishi Heavy Industries Thermal Systems, Ltd.）, CUI Linri, SAKAI Masanobu, MIYOSHI Naoya, TOGANO Yoshie, YAMAGUCHI Toru, TSUJI Kiyokazu

E323 Assessment of energy conservation with intermittent supply airflow control algorithm for room air conditioner
◎ FAN Yunqing（Mitsubishi Electric Corporation）, TOYASHIMA Masaki, SAITO Makoto

E324 The Development of Hybrid Hot Water Heating Unit
The Improvement of Efficiency of The Hybrid Hot Water Heating Unit
○MURAMATSU Yasuhito（Rinnai Corporation）, AKAKI Nobuyuki, IMAI Seishi

Workshop WS-2
"Heat pump systems connected with global development"
Moderators: NAKAYAMA Shinichi (Fuji Electric Co., LTD), SUZUKI Koji (SANKI ENGINEERING CO., LTD)

13:30～14:50 WS-2(1) [Chairperson: NAKAYAMA Shinichi (Fuji Electric Co., LTD)]

E331 [Keynote] Fundamentals and trend of demand response programs: towards massive penetration of variable renewable generation
○ASANO Hiroshi（Central Research Institute of Electric Power Industry）

E332 Overview of Virtual Power Plant Project in Toyota City
Utilization of Air-conditioning Equipment for Power Supply and Demand Management
○YAMADA Takukan（Chubu Electric Power Co., Inc.）

E333 Demonstration Project on Automated Demand Response with Air Conditioning System and IoT technology in the Portuguese Republic
The 1st report - Outline Report of the Project -
○ NAKAO Takuya（Daikin Industries, Ltd.）, FURUI Shuji, FUJIMOTO Shuji, NAKAGAWA Koichi, SEGUCHI Teppei, MASUDA Ryoh, FONSECA Rui

15:10～16:50 WS-2(2) [Chairperson: SUZUKI Koji (SANKI ENGINEERING CO., LTD)]

E341 [Keynote] Securing IoT System Security
IoT security circumstance around IoT system venders
○OGINO Tsukasa（CCDS）

E342 IoT technolory in vending machine
Creative new values
○ MURAKI Takayuki（FUJI ELECTRIC CO., LTD.）, MAEKAWA Tomonori, ITO Osamu

E343 R&D Activities for High Performance Lithium Ion Batteries
○KAWAJI Jun（Hitachi, Ltd.）

E344 Relaxation of mildly flammable refrigerants and domestic standards
○YAMASHITA Koji（JRAIA）

Room F <7 September (Fri.)>

International Session IS
"Advancement in HVAC&R in Asia"
Organizers: TOJO Kenji (TOJO R&D Design Office), NONAKA Masayuki (Hitachi-Johnson Cntrols Air-Conditioning, Inc.), SASAKI Naoe (Nihon Univ.)

09:20 ～ 10:40 IS(2) [Chairperson: Masato AKAMATSU (Yamagata Univ.)]

F311 The Optimal Thermo-Hydraulic Design for the Indoor Unit of a Split-Type Air-Conditioner
○ CHANG I-fang（National Taipei Univ. of Technology）, SHIH Yang-cheng

F312 Precision Enhancement of a Machine Tool by Cooling Flow Rate
○ KUN-YING Li（National Chin-Yi Univ. of Technology）, LUO Win-jet, HONG Xiang-hao, LUO Shi-jie（Industrial Technology Research Institute）

F313 Developing a High-efficiency HVAC system with dehumidification function for electric vehicle
○CHANG Tong-bou（Department of Mechanical and Energy Engineering, National Chiayi Univ.）, HUANG Jhong-wei, HSU Jer-jia

F314 Clean Cooling of Buildings
○ OLESEN Bjarne W. (Technical Univ. of Denmark / ASHRAE Former President)

11:00 ～ 12:00 IS(3) [Chairperson: Junnosuke OKAJIMA (Tohoku Univ.)]

F321 The Optimal Thermo-Hydraulic Design for the Data Center by Using the Taguchi Method
○ TANG Tzu-ching（National Taipei Univ. of Technology）, SHIH Yang-cheng

F322 Design and Development of Control Module for the Air Purifier
○ CHANG Ya-ling（National Chin-Yi Univ. of Technology）, LIU Yu-ling, KUAN Yean-der, CHIU Yu-wei

F323 Application of Icepak Set Heat Transfer Analysis Software to PV BOX Ventilation Calculation and Data Simulation Analysis
○ Kuan Yean-der（National Chin-Yi Univ. of Technology）, Hwang Pin-chyuan, WANG Yu-hsuan

13:30～14:50 IS(4) [Chairperson: Takahiro OKABE (Hirosaki Univ.)]

F331 Numerical Study on the Droplet Separation Efficiency for the Spiral Liquid-Vapor Separation Device in a Falling Film Evaporator
○ TSOU Jui-chen（National Taipei Univ. of Technology）, LIU Yu-jie, SHIH Yang-cheng, CHIEN Liang-han

F332 Condensation heat transfer and pressure drop characteristics inside small diameter microfin tubes
○ BASHAR M. Khairul（Saga Univ.）, NAKAMURA Keisuke, KARIYA Keishi, MIYARA Akio

F333 The CFD-Based Optimal Design for the Air-to-Air Fixed Plate Membrance Heat Exchanger
○ WU Chiao-hung（National Taipei Univ. of Technology）, SHIH Yang-cheng

F334 Periodic Fluid Flow and Heat Transfer in a Square Cavity Due to an Eccentric Rotating Cylinder
○HUANG Xuan-long（National Taipei Univ. of Technology）, SHIH Yang-cheng