

JSRAE Annual Conference, Presentation 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.

----- The 1st Day -----

Electric Power Co.) ,ASANO Hitoshi
(Kobe Univ.)

Room A

OS-1 Technological Development in Heat Exchangers

09:00 ~ 10:40 OS-1(1) [Session chair: SASAKI Naoe (Nihon Univ.)]

A114 Effects of fin shape for condensation heat transfer in Vertical Rectangular Channel
FUKUDA Sho (Kyushu Univ.) , ◎
TANOURA Teppei, OISHI, Shohei,
TAKATA Nobuo, KOYAMA Shigeru

A111 Development of small temperature difference heat engine and heat exchange technologies
○SHIKAZONO Naoki (The Univ. of Tokyo)

OS-4 Phenomena and Application Technology on Frost, Snow and Ice
11:00 ~ 12:20 OS-4(1) [Session chair: ONISHI Hajime (Kanazawa Univ.)]

A112 Characteristics of two phase flow in a plate heat exchanger
◎WAKASUGI Shota (Graduate school of Saga Univ.), SONODA Kohki, KARIYA Kesihi (Saga Univ.) ,MIYARA Akio

A121 Improvement of heat transfer on a surface of cylinder with Synthetic jets
○OHTA Kengo (Shizuoka Univ.) , HUKIBA Katsuyoshi, HARASHINA Yutaka

A113 Study on Boiling Heat Transfer Characteristics of Vertically Upward Flows in a Single-Channel Plate-Fin Heat Exchanger -Effect of Fin pitch-
◎ MINOURA Kenji (Kobe Univ.) ,SIKICHI Kazuaki (The Kansai

A122 Effects of micro-machined groove shape on Heat Transfer with Frosting Phenomena
◎NAKAJIMA Shun (Tamagawa Univ.) , OHKUBO Hidetoshi, YAJIMA Takeshi (Tokyo Electric Power Co. Holdings, Inc.), SEKI Mitsuo

(NATOMICS Corp.) , AGUI Haruka
(Tamagawa Univ.)

ELECTRONICS Co., Ltd.) , CHOI
Yonghwa, KIM Youngmin

A123 Development of Evaporator for
Refrigerator improved Cooling and
Defrosting Performance under frosted
condition

○HORIO Yoshimasa (Panasonic Corp.) ,
HORII Katsunori, FUJITA Tomohiro

A134 Development of refrigerant distribution
in a micro channel heat exchanger for
air-conditioning

○INOUE Satoshi (DAIKIN Industries
Co., Ltd.) , HIROKAWA Tomoki,
YOSHIOKA Shun, FUJINO Hirokazu,
ORITANI Yoshio

A124 Heat transfer of microchannel heat
exchanger for precooler under frosting
condition

◎TAKACHI Shu (Shizuoka Univ.) ,
FUKIBA Katsuyoshi, HARASHINA
Yutaka

**15:30 ~ 17:10 WS-1(2) [Session chair:
FUKIBA Katsuyoshi (Shizuoka
Univ.), NISHIDA Kousaku
(Mayekawa MFG. Co., Ltd.)]**

WS-1 Trends in Development of Heat Exchangers

**13:30 ~ 15:10 WS-1(1) [Session chair:
ASANO Hitoshi (Kobe Univ.),
OKUYAMA Akira (FGL)]**

A141 Characteristics of Metal 3D Printing and
its Application to Heat Exchangers

○SHINOMIYA Naruaki (ORIST) ,
NAKAMOTO Takayuki, KIMURA
Takahiro, YAMAGUCHI Shinpei,
KATAGIRI Kazuaki

A131 Fundamental Structure of Steam Boilers
and Related Problems

○OZAWA Mamoru (Kansai Univ.)

A142 Development and application of brazed
Ti heat exchanger

○MATSU Kotaro (Tokyo Braze Co., Ltd.)

A132 Characteristics of Air Conditioning
System for Automobile and Required
Properties of its Heat Exchanger

○TSUNODA Isao (Honda R&D Co.,Ltd)

A143 New Air cooler Defrosting method using
Thermosyphon Principles

○KAYASHIMA Daiki (Mayekawa MFG.
Co., Ltd.) , YOSHIKAWA Choiku,
MUGABI Nelson

A133 Applied development of Microchannel
Heat Exchanger for increasing capacity

○HAYASE Gaku (SAMSUNG

A144 Effect and Influence of Surface
Treatment on Frost and Defrost
Formation

DANJO Yoshihide (Nihon Parkerizing Co., Ltd.) , ○CHIBA Hayato, KATAOKA Toshihisa

KUMITA Mikio, KODAMA Akio, HIGASHI Hidenori, SETO Takahumi, OTANI Yoshio

A145 Progress of studies on frost formation and its organized research activities in Japan
○FUKIBA Katsuyoshi (Shizuoka Univ.)

B114 CFD simulation for predictions of temperature and pressure distribution, and hydrogen absorption/desorption reaction rate in a packed bed of hydrogen storage material

Room B

◎MOCHIHARA Keita (Kyushu Univ.), HAMAMOTO Yoshinori, MIYATA Kazushi, MORI Hideo

OS-9 Refrigerators/Heat Pumps Based on Absorption, Adsorption or Chemical Reactions

OS-9 Refrigerators/Heat Pumps Based on Absorption, Adsorption or Chemical Reactions

09:20 ~ 10:40 OS-9(1) [Session chair: MIYAZAKI Takahiko (Kyushu Univ.)]

11:00 ~ 12:20 OS-9(2) [Session chair : KUBOTA Mitsuhiro (Nagoya Univ.)]

B111 Enhancement of Hydration Reaction of Lithium Hydroxide by Combining LiOH and Mesoporous Carbon
○KUBOTA Mitsuhiro (Nagoya Univ.) , MATSUMOTO Satoshi, MATSUDA Hitoki

B121 Enhancement of Moisture Adsorption Rate by Acoustic Wave
◎IGUCHI Keijiro (Tokyo Noko Univ.), NAKAYAMA Masayuki, UEDA Yuki, AKISAWA Atsushi

B112 Evaluation of heat storage and release process with lithium hydroxide reaction
◎ XU Haotai (Nagoya Univ.) , ICHINOSE Atuhiro, KUWATA Kazuki, KOBAYASHI Noriyuki

B122 Experimental study of activated carbon-ethanol adsorption heat storage system
◎TAKEDA Nami (Kyushu Univ.) , MIYAZAKI Takahiko, KOYAMA Shigeru, MARUYAMA Tomohiro (Calsonic Kansei Corp.) , MAEDA Shinnosuke, KAWAMATA Toru

B113 Water vapor sorption and heat transfer behaviors of $\text{CaCl}_2/\text{Al}_2\text{O}_3/\text{Al}$ composites
◎WATANABE Yuto (Kanazawa Univ.),

B123 Performance investigation of adsorber bed heat exchanger by CFD simulation

- for small scale adsorption heat pumps
 ©KHANAM Marzia (Kyushu Univ.)
- B124 Performance Analysis of Double Effect Adsorption Refrigeration Cycle with Adsorption Heat Recovery by Dynamic Simulation
 ©TAMOGAMI Akira (Tokyo Univ. of Agriculture and Technology) , NAKAYAMA Masayuki, AKISAWA Atsushi
- 13:30 ~ 14:30 OS-9(3) [Session chair: HAMAMOTO Yoshinori (Kyushu Univ.)]**
- B131 Study on Adsorption Heat Pump using Natural Mesoporous Material -4th report: Evaluation of cooling ability using small-size heat exchanger with adsorbent-
 ○TOGAWA Junya (Nihon Netsugen System) , KUROKAWA Asami (Hokkaido Univ.) , NAKAMURA Makoto, NAGANO Katsunori
- B132 Study on Adsorption Heat Pump using Natural Mesoporous Material -5th report: Development of 1kW Laboratory Scale AHP and Evaluation of Cooling Ability-
 © OMAE Seiya (Nihon Netsugen System) , MATSUMOTO Takuya, TOGAWA Junya, KUROISHI Hiroaki, MURAKAMI Shin-ichi, HARADA Katsuhiko, NAGANO Katsunori
- (Hokkaido Univ.)
- B133 Study on Adsorption Heat Pump using Natural Mesoporous Material -6th report: Development of numerical analysis program and prediction of 10 kW AHP-
 ©INOUE Mayu (Hokkaido Univ.) , KOMAKI Ayumi, NAGANO Katsunori, TOGAWA Junya (Nihon Netsugen System)
- 15:10~16:50 OS-9(4) [Session chair: IKUMI Yonezo (Waseda Univ.)]**
- B141 Simple expressions of the heat and mass transfer coefficients for horizontal-tube falling film absorbers
 © GIANNETTI Niccolo (Waseda Univ.) ,YAMAGUCHI Seiichi, SAITO Kiyoshi
- B142 A study of the absorber being suitable for the adsorbent for automobiles
 ○EBATA Yusuke (Aisin Seiki) , TSUBOUCHI Osamu, INADA Takaaki (AIST) , SOMEYA Satoshi, TAKEMURA Fumio, DANG Chaobin (Tokyo Univ.) , HIHARA Eiji
- B144 Development of a Single-Effect Double-Lift Adsorption Chiller That Uses Unused Waste Heat in Wide Temperature Difference
 ○UCHIDA Mari (Hitachi, Ltd.) , FUJII Tatsuo, KAWAMURA Hironobu,

IIZUKA Akiko, TAKEDA Nobuyuki
(Hitachi-Johnson Controls Air
Conditioning, Inc.) , UCHIDA Shuichiro

- B145 Starting Characteristic Analysis of Solar-assisted Absorption Air-conditioning System -A dynamic simulation model and experimental verification by long proof test-
◎SATO Ryota (Osaka City Univ.) ,
TAMASHITA Hiroki, NISHIMURA Nobuya, TERAO Kazutaka (Osaka Gas Co.)

Room C

GS General Session

**09:20 ~ 11:20 GS-1(1) [Session chair:
MASAYUKI Tanino (Takasago
Thermal Engineering Co.,Ltd),
KAWANAMI Tsuyoshi (Meiji Univ.)]**

- C111 Study on aseismic reinforcement method for ceiling-hung air-conditioner and its effect -Sweep-wave vibration test results of air-conditioning equipment models with different hanging length, hanging width, and weight-
◎MIZURTANI Kunio (Tokyo Polytechnic Univ.) , MIYAZAKI Tsubasa, SHINADA Naoya (SHIN-NIPPON Air Technologies) , KIMURA Takashi
- C112 Influence of the Aseismic Reinforcement

Method for Building Equipment

◎SHINADA Naoya (Shin Nippon Air Technologies Co., Ltd.) , KIMURA Takashi

- C113 Effect of pH and temperature on washing organic matter with alkaline electrolyzed water
◎TAKATSUKA Takeshi (Shin Nippon Air Technologies Co., Ltd.) , MIYAKAWA Yuji, YANAGISAWA Masayuki

- C114 Refrigeration performance of room-temperature magnetic refrigerators with layered beds of Mn alloys
◎ TANIGUCHI Tomohiro (Tokyo Institute of Technology) , OKUBO Tatsuya, OKAMURA Tetsuji, BAE Sangchul (Sanden Advanced Technology Corp.)

- C115 Control of Refrigerant Flow Rate by Using Small Orifice
◎TODOROKI Koichi (NEC) , YOSHIKAWA Minoru

- C116 High-Frequency Magnetic Refrigeration System with Displacer and Check Valves
◎TAKEUCHI Katsuhiko (Fujikura Ltd.) , KONDO Masahiro, NOMURA Ryujiro, KAWANAMI Tsuyoshi (Meiji Univ.)

OS-13 Heat and Mass Transport Phenomena with Solid-Liquid Phase Change

**13:30 ~ 14:50 OS-13(1) [Session chair:
ASAOKA Tatsunori (Shinshu
Univ.)]**

C121 Study on Thermal Storage Device using
Soft-Shelled PCM Capsule
◎ ABE Wataru (Kobe Univ.) ,
KAWANAMI Tsuyoshi (Meiji Univ.) ,
HORII Katsunori (Panasonic Corp.) ,
KATAOKA Takeshi (Kobe Univ.)

C122 Change of ice crystal orientation during
a directional growth along wall
◎ YOKOYAMA Yumi (Kanazawa
Univ.) , TERAOKA Yoshikazu,
KOBAYASHI Hokuto

C123 Effect of Flow Direction on Flow
Characteristics of Ice Slurry in T-
junction
◎ KOBAYASHI Takuya (Aoyama
Gakuin Univ.) , MAKINO Yuki (LIXIL) ,
KUMANO Hiroyuki (Aoyama Gakuin
Univ.)

C124 Predicting and Evaluating Thermal
Performance of Freezer by using 3D-
thermal Conduction Food Freezing
Model
○TOBARI Yuta (MAYEKAWA MFG.
Co., Ltd.) , MASUDA Kazunori, KON
Madoka, KONO Shinji

**15:10 ~ 16:30 OS-13(2) [Session chair:
TERAOKA Yoshikazu (Kanazawa
Univ.)]**

C131 Blockage Conditions of Erythritol Slurry
as Heat Transfer Medium for Medium to
Low Temperature Thermal Utilization
◎ MIZUMOTO Hiroshi (Shinshu
Univ.) , ABE Shunsuke, ASAOKA
Tatsunori

C132 Study on Adsorption Ice slurry
Generator -Adsorption Properties of
Ethanol Solution by Silica Gel-
◎ YOKOMIZU Fumiya (Shinshu
Univ.) , ASAOKA Tatsunori

C133 Continuous generation of ice containing
ozone MBs -Investigation on
concentration of ozone gas released from
ice due to melting-
◎ AYATANI Rikuto (Chuo Univ.) ,
MATSUMOTO Koji, EHARA Kohei,
SAKAMOTO Junki

C134 Investigation on influences of IPF and
mass of ice on cohesive force of ice
slurry
◎ UMEHARA Yuri (Chuo Univ.) ,
MATSUMOTO Koji, UEDA Jun

Room D

**OS-11 Low Temperature Application and
Technology for Food and Biological
Materials**

**09:20 ~ 10:40 OS-11(1) [Session chair:
KIMIZUKA Norihito (Miyagi**

Univ.)]

D111 Effects of pretreatment of freezing on pectin in carrot

© IMAIZUMI Teppei (Gifu Univ.) , SZYMANSKA-CHARGOT Monika (IAPAS) , PIECZYWEK M. Piotr, CHYLINSKA Monika, KOZIOL Arkadiusz, GANCZARENKO Diana, TANAKA Fumihiko (Kyushu Univ.) , UCHINO Toshitaka, ZDUNEK Artur (IAPAS)

D112 Effect of Low-Temperature Treatment on the Composition of Chinese yam (II)

○ TAKAHASHI Tadashi (Aomori Prefectural Industrial Technology Research Center) , KUDOH Ken-ichi (Chuo University Research Promotion Office) , SUZUKI Toru (Tokyo University of Marine Science and Technology)

D113 Study on quality change of food gel by low temperature aging

© OZEKI Ami (Tokyo University of Marine Science and Technology) , SUZUKI Toru

D114 Observation of the ultrastructure of frozen foodstuffs using magnetic resonance imaging

© SMOLLEN Christopherkenta (Tokyo University of Marine Science and Technology) , SUZUKI Toru

11:00 ~ 12:00 OS-11(2) [Session chair: TAKAHASHI Tadashi (Aomori Prefectural Industrial Technology Research Center)]

D121 Temperature dependence of Recrystallization of Suspended aqueous solution

○ KIMIZUKA Norihito (MIYAGI UNIVERSITY)

D122 Effect of antioxidants on the survival rate of freeze-dried lactic acid bacteria

○ KAWAI Kiyoshi (Hiroshima Univ.) , MIKAJIRI Syuto, HAGURA Yoshio, SUZUKI Dai (Tokai Univ.) , HAGIWARA Tomoaki (Tokyo Univ. Marine Sci. Technol.) , KIKAWADA Takahiro (NARO) , SUZUKI Toru (Tokyo Univ. Marine Sci. Technol.)

D123 Effects of cryoprotectant on internal freezing of medaka eggs

ONISHI Ryo (Kyushu Institute of Technology Univ.) , TANIGAWA Hirofumi , ○TSURUTA Takaharu

13:30 ~ 14:50 OS-11(3) [Session chair: IMAIZUMI Teppei (Gifu Univ.)]

D131 Multi-scale X-ray CT Image Processing for Mapping of Thermal Properties of Fruit

○ TANAKA Fumihiko (Kyushu

University) , IMAMURA Keitaro,
TANAKA Fumina, UCHINO Toshitaka

YAMAWAKI Ayuko, GENKAWA
Takuma

D132 The Design and Evaluation of the Dual
Temperature Storage Container Using
CFD

◎SEKIYA Madoka (Graduate school of
Bioresource and Bioenvironmental
Sciences, Kyushu University) ,
TANAKA Fumina (Laboratory of
Postharvest Science, Faculty of
Agriculture, Kyushu University) ,
TANAKA Fumihiko, UCHINO
Toshitaka

D142 Evaluation of Melting Degree and
Processability of Frozen Beef Using
Near-Infrared Spectroscopy.

◎ISHIZUMI Yuto (Univ. of Tsukuba) ,
ITO Yukino, GENKAWA Takuma

D143 Study on high quality thawing by using
simulation

-Application of ice slurry to thawing-

◎ NAKAJIMA Yuto (TUMSAT) ,
SUZUKI Toru, WATANABE Manabu

D133 Evaluation of transport form with quality
and environmental load of Japanese
common squid (*Todarodes Pacificus*)

◎ NAGASHIMA Futa (Tokyo
University of Marine Science and
Technology) , SUZUKI Toru,
WATANABE Manabu

D134 A Novel method for measuring
MetMyoglobin ratio by using wave
length of Soret band peak

◎KURITA Shun (Tokyo University of
Marine Science and Technology)

**15:10 ~ 16:10 OS-11(4) [Session chair:
TANAKA Fumihiko (Kyushu
Univ.)]**

D141 Taste evaluation of melting ice cream
using NIR spectroscopy

○HARA Risa (University of Tsukuba) ,

Room E

OS-10 Thermophysical Properties of Refrigerants

**09:00 ~ 10:40 OS-10(1) [Session chair:
KAYUKAWA Yohei (AIST)]**

E111 Thermodynamic Properties for Aqueous
Solution of Ammonia

-Examination of the Behavior of
Maximum Densities of this Substance-
○OGUCHI Kosei (Kanagawa Institute of
Technology)

E112 Measurements of PvTx Properties for
Binary Refrigerant Mixtures with R1123
○SAKODA Naoya (Kyushu Univ.) , MD
AMIRUL Islam, TAKATA Yasuyuki,
HIGASHI Yukihiro

E113 Surfacetension measurement of new low-GWP refrigerant R1123 by differential capillary rise method
○KONDOU Chieko (Nagasaki Univ.) , HIGASHI Yukihiro (Kyushu Univ.) , TSUYASHIMA Taro (Nagasaki Univ.)

E114 Measurement of critical parameters of HFE7000 for high temperature heat pump refrigerants.
◎TERUMASA Oki (Nihon Univ) , KATSUYUKI Tanaka

E115 Development of PpTx Property Measurement System for Refrigerants
○MATSUGUCHI Atsushi (National Defense Academy) , KAGAWA Noboru

11:00 ~ 12:20 OS-10(2) [Session chair:MATSUDA Kenji (JRAIA)]

E121 Thermodynamic Property Measurements for New Refrigerant R448A
○HIGASHI Yukihiro (Kyushu Univ.)

E122 Development of a thermal-flow type calorimeter for measuring isobaric specific heat capacity of gas
◎EGUCHI Yoji (Nihon Univ.) , TANAKA Katsuyuki

E123 A New Fundamental Equation of State for R-1234ze(Z)
○AKASAKA Ryo (Kyushu Sangyo University)

E124 The Practical Use of Lower GWP Refrigerans for Refrigeration
◎ OHKUBO Shun (DAIKIN INDUSTRIES, LTD.) , ARIMOTO Hitomi, TSUCHIYA Tatsumi, TSUCHIYA Tatsumi, SHIBANUMA Takashi

OS-5 Fundamentals and Application of Cooling by Boiling

13:30~14:30 OS-5(1) [Session chair: NAGAI Niro(Univ. of Fukui)]

E131 Saturated flow boiling CHF enhancement of water by bilayer honeycomb porous structure
◎MUTA Akihiro (Yokohama National Univ.) , MORI Shoji, OKUYAMA Kunito

E132 Study on boiling-cooling using liquid nitrogen;Part I
OHKUBO Hidetoshi (Tamagawa Univ.) , ◎MOROKUMA Takayuki (Yokohama Natonal Univ.) , TAKAMIZU Shunichi (Tamagawa Univ.)

E133 Study on Boiling-cooling using Liquid Nitrogen:Part II
◎ TAKAMIZU Shunichi (Tamagawa Univ.) , OHKUBO Hidetoshi

15:10 ~ 16:10 OS-5(2) [Session chair: MORI Shoji (Yokohama National

Univ.)]

E141 Development of Heat Pipe BACH utilizing Vapor Bubble by Boiling Nucleation

○NAGAI Niro (Univ. of Fukui)

E142 Transient transition boiling heat transfer during impact of droplets on a hot surface

○MITSUTAKE Yuichi (Saga Univ.) ,
TSUBAKI Koutarou, SHANTA Shazida,
SOEJIMA Hisayoshi

E143 Development study of capacitive void fraction sensor for cryogenic chilldown experiment.

◎SAKAMOTO Yuki (Waseda Univ.) ,
PEVERONI Laura (The von Karman
Institute for Fluid Dynamics) ,
VETRANO Rosaria (Katholieke
Universiteit Leuven) , SATO Tetsuya
(Waseda Univ.) , KOBAYASHI
Hiroaki (JAXA) , MINOTE Kazuma
(Waseda Univ.) , TANE Shohei

Room F

WS-4 Geothermal Heat Utilization in Shallow Layer

11:00 ~ 12:20 WS-4(1) [Session chair:
OGUMA Masahito (Nihon Univ.)]

F111 Design methodology for ground source heat pump system considering multiple

geological layers with ground water flow

○KATSURA Takao (Hokkaido University) , CHAE Hobyung, SAKATA Yoshitaka, NAKAMURA Makoto, NAGANO Katsunori, OHSHIMA Kunihiko (Tohoku-Electric Power Co.,Inc.) , SASAKI Masahiro, KONDO Takeshi (Nikken Sekkei Research Institute) , KUBO Ryutarō

F112 Improvement of the Simulation Model for the Vertical Type Spiral Ground Heat Exchanger and Comparing with the Field Measurement

◎HIGASHITANI Takashi (Hokkaido Univ.) , KATSURA Takao, NAGANO Katsunori, AKAI Hitoshi (Fukushima Univ.) , OE Motoaki (Inoac Corporation) , SEGAWA Kazuyuki (TOHOKU Electric Power Co.)

F113 Development of optimum control system for the heat recovery ground source heat pump system

◎ MIYASHITA Yoshiki (Hokkaido University) , KATSURA Takao, NAGANO Katsunori, NAKAMURA Yasushi (Nippon Steel & Suminkin Engineering)

F114 Evaluation of Thermophysical Properties of Shallow Ground

○TANAKA Saburo (Nihon Univ.) , YAMADA Hideki, SONE Yukiko, ITO Kosuke, SASAKI Naoe

**13:30 ~ 15:10 WS-4(2) [Session chair:
SASAKI Naoe(Nihon Univ.)]**

F121 R&D of Ground Source Heat Pump Systems with Pile Heat Exchangers
-Development for nationwide spreading of the system-
○KAKIZAKI Takao (Nihon University),
OGUMA Masahito

F122 Evaluation of the Residential Heating Operation due to GSHP with Pile Heat Exchangers
○YABUKI Taisei (Nihon University),
OGUMA Masahito

F123 GSHP with Pile Heat Exchangers for Temperate Regions
○OIKAWA Masayoshi (Nihon University),
OGUMA Masahito

F124 Effect of partial heat insulation of stainless steel U-tubes on temperature distribution of steel-pipe pile for shallow ground source heat exchanger wells
○ITO Kosuke (Nihon Univ.), TANAKA Saburo, SASAKI Naoe

WS-3 Distributed Energy Systems with Technologies Utilizing Wasted Heat

10:00 ~ 12:00 WS-3(1) [Session chair:TAKEDA Tetsuaki (Yamanashi Univ.)]

F131 Demonstration test of ground source heat

pump using foundation pile
YODA Osamu (Fujishima Co. Ltd.),
OKUBO Hiroji, ○TAKEDA Tetsuaki
(University of Yamanashi)

F132 Study of ground source heat pump using direct expansion method applied as agricultural solar house
HAGIHARA Toshio (Hagihara Boring Co. Ltd.), ONO Toshio, NAKAZAWA Toshiya, MATSUKAWA Tsutomu (Yamanashi Prefecture), KOMIYAMA Yoshitaka, ○TAKEDA Tetsuaki (University of Yamanashi),
ISHIGURO Shuhei

F133 Performance test of ground source heat pump using parallel underground heat exchanger
ISHIGURO Shuhei (Integrated Graduate School of Medicine, Engineering, and Agricultural Sciences, University of Yamanashi), MURAMATSU Norihiko,
○WATANABE Seiya, TAKEDA Tetsuaki (Graduate School of Engineering, University of Yamanashi)

F134 Performance test of ground source heat pump using direct expansion method for hot water supply system
© ISHIGURO Shuhei (Integrated Graduate School of Medicine, Engineering, and Agricultural Sciences, University of Yamanashi), TSUCHIYA Masatoshi, MARUMO Yuki, TAKEDA Tetsuaki (Graduate School of

Engineering, University of Yamanashi)

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

Room A

OS-1 Technological Development in Heat Exchangers

09:20 ~ 10:40 OS-1(2) [Session chair: KONDOU Chieko (Nagasaki Univ.)]

A211 Study on heating performance of refrigeration cycle with 'Innovative Smart Channel®' Heat Exchanger
○KAIJIAN Wang (Fujitsu General Laboratories LTD.) , TOSHIHIKO Takahashi

A212 Condensation heat transfer of refrigerants at near-critical pressures in plate heat exchangers
◎ YANAGIHARA Shuntaro (Kyushu Univ.) , TANIGUCHI Takahiro (KHI) , MORI Hideo (Kyushu Univ.) , HAMAMOTO Yoshinori, MIYATA Kazushi, UMEZAWA Syuichi (TEPCO) , SUGITA Katsuhiko

A213 An Experimental Study on Flow Boiling in Non-uniformly Heated Parallel Mini-Channels
◎ KUROSE Kizuku (Kyushu Univ.) , KAWASUSO Takuya, MIYATA Kazushi, HAMAMOTO Yoshinori, MORI Hideo

A214 A Simulation for the Flow Distribution and Unsteady Behavior of Flow Boiling in Parallel Mini-Channels
◎ KAWASUSO Takuya (Kyushu Univ.) , KUROSE Kizuku, MIYATA Kazushi, HAMAMOTO Yoshinori, MORI Hideo

11:00 ~ 12:20 OS-1(3) [Session chair: GAO Lei (Fukuoka Univ.)]

A221 Experimental Study on Distributions of Gas-Liquid Refrigerant Flows in Multi-Pass Channels
◎ EKAWA Akira (Mie University) , HIROTA Masafumi

A222 Characteristics of R134a gas-liquid two-phase flow in horizontal multi-pass channels
-characteristic grasp under actual conditions-
◎ TABELI Yusuke (Waseda Univ.) , KATSUTA Masafumi

A223 Characteristics of refrigerant flow in an evaporator for a refrigerator
◎ KITAGAWA Hiroki (Graduated school of Saga Univ.) , KARIYA Keishi (Saga Univ.) , MIYARA Akio

A224 Two-phase flow distribution at wider flow range within the vertical header of microchannel heat exchanger
◎ REDO Mark Anthony (Waseda University) , GIANNETTI Niccolo,

JEONG Jongsoo, ENOKI Koji, OTA Ikuhide, YAMAGUCHI Seiichi, SAITO Kiyoshi, KIM Hyunyoung (Samsung R&D Institute Japan)

Large Capacity Rotary Compressor
© KIMURA Shigeki (TOSHIBA CARRIER CORPORATION), HIRAYAMA Takuya, AOKI Toshimasa, SHIDA Syogo, HATAYAMA Masahiro

IS Advancement in HVAC&R Technologies in Asia

15:30 ~ 16:00 IS-1(0) [Session chair:MIYARA Akio (Saga Univ.)]

A231 ASHRAE activities related to refrigeration and refrigerants
○OLESEN Bjarne (ASHRAE)

B214 Reduction of Friction Loss in Compressors by Surface Texturing
○SATO Hajime (Mitsubishi Heavy Industries Thermal Systems, Ltd.), OGAWA Makoto, GOTO Toshiyuki (Mitsubishi Heavy Industries, Ltd.), YAMASHITA Takuma

11:00 ~ 12:20 OS-2(2) [Session chair:SATO Hajime(Mitsubishi Heavy Industries Thermal Systems, Ltd)]

Room B

OS-2 Present Status and Future Development of Compressors

09:00 ~ 10:40 OS-2(1) [Session chair:FUKUTA Mitsuhiro (Shizuoka Univ.)]

B211 Latest Trend of Permanent Magnets
○MARUKAWA Yasuhiro (Hitachi Metals,Ltd. Magnetic Materials Company), KOBAYASHI Koji

B221 Experimental investigation on oil outflow characteristics in horizontal compressor
-Reduction of unsteady oil circulation-
© MORIYAMA Takashi (Mitsubishi Electric Corp.), MURAKAMI Hiroki

B212 Measurement of clearance around bush in swing compressor by visualization of behavior
© NISHIMURA Kosuke (DAIKIN INDUSTRIES,LTD.), TANAKA Shinji (Tokyo Institute of Technology)

B222 Evaluation of dissolution properties of Lubricants and Refrigerants
-2nd Report: Effect of refrigerants-
○MATSUMOTO Tomoya (Idemitsu Kosan Co., Ltd.), KANEKO Masato, KAWAGUCHI Yasuhiro

B213 Development of High Efficiency and

B223 Measurement of surface tension by maximum bubble pressure method
-Influence of capillary direction and flow-

- ©KIMURA Ryota (Shizuoka Univ.) ,
MITSUHIRO Fukuta, MOTOZAWA
Masaaki
- B224 Reliability Improvement of Anti-
Rotation Mechanism for Scroll
Compressor
○IIZUKA Jiro (SANDEN・AC) ,
TATENYO Yuri, IYOKU Satoshi,
AKAIWA Fumio, NOBE Masayuki

SN-1 Seminar on Compressor Technology

**13:30~14:50 SN-1(1) [Session chair:TOJO
Kenji (TOJO R&D Design Office)]**

- B231 High Efficiency Room Air Conditioner
equipped with an Image Camera and a
Thermal Camera
○DAISAKA Hisashi (Hitachi-Johnson
Controls Air Conditioning, Inc.) ,
AKIYAMA Tomohito, OKUYAMA
Atsushi, KOMATSU Tomohiro (Hitachi,
Ltd.) , KOMATSU Yuto
- B232 Trend of refrigeration oil and various
evaluation technologies
○KANEKO Masato (Idemitsu Kosan
Co.,Ltd.)
- B233 Transition and Trends of Refrigeration
Oil
-Diversification of Refrigeration systems
and Refrigeration Oil-
○SAITO Rei (Japan Sun Oil Company,
Ltd.) , YOSHINO Noboru, SUZUKI

Yoshinori

- B234 Lubricant additives
○OKIDO Takeshi (JXTG Nippon Oil &
Energy Corporation)

Room C

**OS-12 Supercooling Phenomenon from
Fundamentals to Applications**

**09:20 ~ 11:20 OS-12(1) [Session chair :
WATANABE Manabu(Tokyo
University of Marine Science and
Technology)]**

- C211 Active Control of Freezing of Biological
Tissue by Utilizing High-frequency
Ultrasonic Vibration
©NISHIKAWA Kohei (Kanazawa
Univ.) , TADA Yukio, ONISHI Hajime,
HARUKI Masashi
- C212 Effect of the condition of pore processed
to a sheet of membrane on the
performance of the device for
suppressing a supercooling.
©HACHIYA Takayuki (Tokyo Institute
of Technology) , IWASHITA Naoki
(Seiko Epson Corporation) , OKAWA
Seiji (Tokyo Institute of Technology) ,
HOZUMI Tsutomu
- C213 Maximum Supercooling of Tetra-n-
Butyl Ammonium Bromide Aqueous
Solution

○INADA Takaaki (AIST) , KOYAMA Toshie, TAKEYA Satoshi, KUMANO Hiroyuki (Aoyama Gakuin Univ.)

- C214 Identification and observation of nucleation materials for TABA hydrate
◎ MORIMOTO Takashi (Aoyama Gakuin Univ.) , TAKEYA Satoshi (AIST) , INADA Takaaki, KUMANO Hiroyuki (Aoyama Gakuin Univ.)

11:00 ~ 12:00 OS-12(2) [Session chair : INADA Takaaki (AIST)]

- C221 Application of supercooling on food preservation
○WATANABE Manabu (TUMSAT) , SUZUKI Toru

- C222 Study on Inhibition of Generations and Growth of Frost-crystals by Antifreeze Materials of Microorganisms from Isolated low temperature environments
○INOUE Tadahiro (Grad. Sch.of Agl., Tamagawa Univ.) , KAMO Tomohiro (Agl., Tamagawa Univ) , YOSIMURA Yositaka, NAKAJIMA Shun (Grad. Sch.of Eng., Tamagawa Univ.) , OKUBO Hidetosi (Eng., Tamagawa Univ)

- C223 An experimental study on the collision and freezing of water droplets carried by air flow impinging on cooling surfaces
◎YONEZAWA Sho (Kyoto Institute of Technology) , ISHIKAWA Shoji,

HASEGAWA Koichi, OKUBO Hidetoshi (Tamagawa Univ.) , HAGIWARA Yoshimichi (Kyoto Institute of Technology)

- C224 Study on supercooling degree due to simultaneous mixing of two kinds of surfactant mixture with different molecules sizes
◎ UEDA Jun (Chuo Univ.) , MATSUMOTO Koji, SAKAMOTO Junki, EHARA Kohei (Chuo Univ)

SN-2 Refrigeration engineer seminar

13:30~15:30 SN-2(2) [Session chair : IRIE Tomoyoshi(Ebara Refrigeration Equipment & Systems)]

- C231 Meat Safety from Farm to Table
○MATSUMOTO Mitsuto (Nippon Veterinary and Life Science University)

- C232 A
○KAGAWA Sanae (DAIKIN INDUSTRIES,Ltd.)

- C233 A
○KOISO Hiroaki (San-Ei Gen F.F.I.Co.,Ltd.)

Room D

OS-6 Simulation Techniques for Air-conditioners, Chillers and Heat Pump Water Heaters

**09:00 ~ 10:20 OS-6(1) [Session chair:
YAMAGUCHI Seiichi (Waseda
Univ.)]**

D211 Development of general-purpose energy
system analysis simulator -ENEGY
FLOW +M-

-Evaluation of refrigerants for
compression type heat pump system-
○OHNO Keisuke (Waseda university) ,
YAMAGUCHI Seiichi, SAITO Kiyoshi

D212 Simulation accuracy of air conditioner
using low GWP refrigerant

◎ NAKAJIMA Komei (JRAIA) ,
NISHIYAMA Takumi (Mitsubishi
Electric Corporation)

D213 Evaluation of Appropriateness of Next
Generation Refrigerant for Air-
Conditioners

TAIRA Shigeharu (JRAIA) ,
○HAIKAWA Tomoyuki, MINAMIDA
Tomoatsu (Daikin Industries, LTD.)

D214 Refrigeration Cycle System Simulation
for Window Type Room Air Conditioner

○ENDO Michiko (JRAIA) ,
MATSUMURA Kenji (Hitachi-Johnson
Controls Air Conditioning) ,
YAMAZAKI Hiroshi, YOSHIDA
Yasutaka (JRAIA)

**10:40 ~ 12:40 OS-6(2) [Session chair:
YOSHIDA Yasutaka (JRAIA)]**

D221 Advancement of Refrigeration Cycle
Design for Air Conditioning

○HAGA Seiji (Mitsubishi Electric
Corp.) , YAMASHITA Koji,
HATOMURA Takeshi, TAKENAKA
Naofumi, TAMAKI Shogo, NISHIO Jun

D222 Study on High Efficiency Air
Conditioner for Data Centers

-5th Report : Control Characteristics of
Injection Cycle-

○UDAGAWA Yosuke (NTT
FACILITIES, INC.) , FUTAWATARI
Naoki, KOHATA Yuji, SAITO Kiyoshi
(Waseda univ.), YAMAGUCHI Seiichi,
OHNO Keisuke, NAKANO Daiki

D223 Study on High Efficiency Air
Conditioner for Data Centers

-6th Report: Study on Control Theory by
Simulation-

◎ FUTAWATARI Naoki (NTT
FACILITIES, INC.) , UDAGAWA
Yosuke, KOHATA Yuji, SAITO Kiyoshi
(Waseda University) , YAMAGUCHI
Seiichi, OHNO Keisuke, NAKANO
Daiki

D224 Evaluation of control method of VRF
heat pump system

○MATSUMOTO Kuniyasu (The
KANSAI ELECTRIC POWER CO.,
INC.) , OHNO Keisuke (Waseda Univ.) ,
YAMAGUCHI Seiichi, SAITO Kiyoshi

D225 Analysis of thermal fluid behavior during compression process of scroll compressor

©KAWAMURA Raito (MITSUBISHI ELECTRIC CORPORATION) , IWATAKE Wataru, SHIMIZU Mizuho (MITSUBISHI ELECTRIC ENGINEERING CORPORATION) , TATSUWAKI Kohei (MITSUBISHI ELECTRIC CORPORATION)

D226 Study on heat infiltration through the air curtain of refrigerated display cabinets

©NOMURA Takahiro (Waseda Univ.) , OHTA Ikuhide, YAMAGUCHI Seiichi, SAITO Kiyoshi

Room E

IS Advancement in HVAC&R Technologies in Asia

09:20 ~ 10:40 IS-1(1) [Session chair:MORI Shoji (Yokohama National Univ)]

E211 Develop of a Modulized Plant Factory for Planting Black Fungus

○KUAN Yean-der (National Chin-Yi University of Technology) , CHIU Yu-wei, TSAI Kuei-i, CHIEN Liang-chun

E212 Analysis of the rotary compressor efficiency in variable pressure ratio

○NA Sangkyung (Pusan National University) , MIN Byungchae,CHOI Gyungmin

E213 The Numerical Analysis on the Heat Transfer Performance of a Helical Coil Heat Exchanger

○SHIH Yang-cheng (National Taipei University of Technology) , LIN Kuan-chun, SHIH Shih-hao, CHAO Ling-yu

E214 Effect of Taiwan Ambient Conditions on Hybrid Solid Desiccant Vapor-Compression Air-Conditioning System

○LUO Win-jet (National Chin-Yi University of Technology) , DINI Faridah

11:00 ~ 12:20 IS-1(2) [Session chair:NAGAI Niro (Fukui Univ.)]

E221 Experimental study on thermal performance and boiling heat transfer of Loop heat pipe operating under gravity assisted condition

○HUYNH Phuoc Hien (Saga Univ.) , HTOO Kyaw Zin, TUHIN A. R., KARIYA Keishi, MIYARA Akio

E222 Local Evaporation Heat Transfer Characteristics of CO₂ in a Plate Heat Exchanger

○MAHMUD Mohammad Sultan (Saga Univ.) , KARIYA Keishi, MIYARA Akio

E223 Investigation of Heat and Mass Transfer of an Evaporating Liquid Film on an Elliptic Tube

○LEE Yee-ting (National Taipei

- University of Technology) , YANG An-shik, CHANG Li-wang, XIAO Yu-xian, JUAN Yu-hsuan
- E224 Nocturnal Radiative Cooling Panels Coupled with in Room PCM Ceiling Panels
 ○OLESEN Bjarne (ASHRAE)

application
 ○IKUMI Yonezo (Waseda University)

- F215 Material Development for Chemical Heat Storage and Heat Pumps
 ○KUMITA Mikio (Kanazawa Univ.)

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

Room F

Room A

WS-3 Distributed Energy Systems with Technologies Utilizing Wasted Heat

OS-1 Technological Development in Heat Exchangers

10:00 ~ 12:00 WS-3(1) [Session chair: TSUJIGUCHI Takuya (Kanazawa Univ.)]

09:20~10:40 OS-1(4) [Session chair:INOUE Norihiro(Tokyo University of Marine Science and Technology)]

- F211 Key success factors for local energy systems based on case studies
 -Utilization of heat for local demand in distributed energy models-
 ○TAKIGUCHI Shin-ichiro (Japan Research Institute)

- A311 Effect of Lubricating Oil on Flow Boiling Heat Transfer of Refrigerant R290 in Multi-Port Channels
 ○SAITOH Shizuo (Tokyo Univ.) , DANG Chaobin, HIHARA Eiji

- F212 Desiccant air-conditioning system in a business-use building and its future view
 ○HASEGAWA Iwao (Nikken Sekkei)

- A312 Improvement in Condensing Heat Transfer Performance by an Insert into a Quadrilobed Heat Transfer Tube
 ◎HIRAMATSU Ryota (Kobe Univ.) , KAWAGUCHI Taihei, ASANO Hitoshi, ASANO Tomonori (Noritz Corp.) , HARA Hitoshi

- F213 Adsorption heat pump for vehicle cooling system
 ○MAEDA Shinnosuke (Calsonic Kansei Corp.) , MARUYAMA Tomohiro, KAWAMATA Toru

- A313 Study of Performance prediction method of heat exchanger in transcritical cycle
 -Comparison of accuracy using R600 and R245fa-

- F214 Absorption heat pump cycle and

- ANDO Shinichiro (Waseda Univ.) ,
KATSUTA Masafumi, IMAI Yuji
- A314 Boiling heat transfer coefficient and pressure drop of ammonia within horizontal small channels
○YAMAGUCHI Seiichi (Waseda university) , SAITO Kiyoshi,OBATA Kenichi (MAYEKAWA MFG. CO., LTD.) , KATO Masashi, NISHIDA Kousaku
- 11:00 ~ 12:20 OS-1(5) [Session chair: NISHIDA Kousaku (MAYEKAWA MFG. CO., LTD.)]**
- A321 The effects of enhancement porous surface area and roily coolant in forced convection subcooled boiling heat transfer
◎OHASHI Junki (The University of Electro-Communications) , SANTIAGO-GALICIA Edgar, KUMATORI Kousuke, ENOKI Koji, OKAWA Tomio
- A322 Effect of microscale surface structure on droplet dynamic wettability
YAMADA Yutaka (Okayama Univ.) ,◎ SATANO Masataka, HARUKI Naoto (Okayama Pref. Univ.) , HORIBE Akihiko (Okayama Univ.)
- A323 R1234ze(E) boiling enhancement on aluminum surface by using laser interference surface structuring
- ◎NAKAO Ryo (Nagasaki Univ.) , SUETSUGU Wataru, KONDO Chieko, KOYAMA Shigeru (Kyushu Univ.)
- A324 Pool Boiling Heat Transfer characteristics around a Horizontal Low Thermal Conductivity Tube
-Hysteresis effect and heat transfer enhancement by thermal spray coating under hot water heating condition-
◎HIRONAKA Shigeo (Kobe Univ.) , MIYAZAKI Takeru, MURAKAWA Hideki, SUGIMOTO Katsumi, ASANO Hitoshi, TAKUBO Maki (Fuji Electric) ,MYOUGAN Ichiro
- 13:30 ~ 14:50 OS-1(6) [Session chair:KARIYA Keishi (Saga Univ.)]**
- A331 Effect of Lubricant Oil on Flow Boiling Heat Transfer Characteristics of R32 in a Horizontal Multiport Tube
◎EDA Hikaru (Graduate School of Marine Science and Technology, Tokyo University of Marine Science and Technology) , KIKUCHI Shogo (School of Marine Electronics and Mechanical Engineering, Tokyo University of Marine Science and Technology) , JIGE Daisuke (Tokyo University of Marine Science and Technology) , INOUE Norihiro
- A332 Flow Pattern of R32 in Small Square Channels
◎KIKUCHI Shogo (School of Marine

- Electronics and Mechanical Engineering, Tokyo University of Marine Science and Technology) , EDA Hikaru (Graduate School of Marine Science and Technology, Tokyo University of Marine Science and Technology) , JIGE Daisuke (Tokyo University of Marine Science and Technology) , INOUE Norihiro
- A333 Evaporation Characteristics of R1234ze(E) Upward Two-phase Flow in Narrow Rectangular Channel
 ◎MIYATA Hiromasa (Tokyo University of Marine Science and Technology) , CHO Hoheum, TAKAHASHI Yuki, JIGE Daisuke, INOUE Norihiro
- A334 Boiling heat transfer and pressure drop of R1234ze(E) in a small-diameter microfin tube
 ◎IIZUKA Syota (Tokyo University of Marine Science and Technology) , SAGAWA Kentaro, JIGE Daisuke, INOUE Norihiro
- 15:10~16:10 OS-1(7) [Session chair:DANG Chaobin (Tokyo Univ.)]**
- A341 Effect of Heated Cylindrical Pipe with Slit on Natural Convection Heat Transfer from Horizontal Heated Surface
 ○SHIMOYAMA Rikio (Okayama pref.) , HORIBE Akihiko (Okayama Univ.) , YAMADA Yutaka, YAMAMOTO Ryoma
- A342 Effect of Bridge on Heat Transfer Characteristics of Airfoil-shaped Tube with Extended Section Heat Exchanger
 ◎ITO Tsubasa (Kanazawa Univ.) , ONISHI Hajime, HARUKI Masashi, TADA Yukio
- A343 Development of an Aluminium Flat-Tube Heat Exchanger for Packaged Air Conditioner
 ◎ NAKAMURA Shin (Mitsubishi Electric Corporation) , ISHIBASHI Akira, KATO Yohei, TANDA Tsubasa
- Room B**
- OS-14 Deployment of Technology in Energy Storage, Energy Conservation, and Energy Creation**
- 09:20 ~ 10:40 OS-14(1) [Session chair: HOKAMURA Taku(Mitsubishi Heavy Industries Air-Conditioning & Thermal Systems Corporation)]**
- B311 Development of Hydroponic Cultivation System and Energy Conservation Greenhouse for Fruit vegetables
 HAYASHI Daisuke (Daico Thermotec Co.,Ltd.) , ○SEKI Mitsuo (NATOMICS Corp.) , OHKUBO Hidetoshi (Tamagawa Univ.) , SEKI Toshio (Machida Chamber of Commerce and Industry)
- B312 Development of the Air Flow System

- Suitable for Plant Factory
- Measurement of distribution of temperature-humidity and the wind velocity in the one unit plant cultivation rack-
- SUMITANI Daisaku (Seiken Co., Ltd.) , MORIUCHI Koji, UEDA Yasushi
- B313 Study of method to shorten cultivation period in plant factory based on the growth prediction of the vegetables.
○MORIUCHI Koji (Seiken Co., Ltd.) , UEDA Yasushi, YOSHIDA Atsumasa (Osaka Prefecture University) , KINOSHITA Shinichi
- B314 Effects of equipment characteristics on Energy Conservation control system for heat source water supply network
◎ADACHI Saki (Tokyo Univ.(Tokyo University of Science)) , ONO Eikichi (Kajima Technical Research Institute) , NAGAI Tatsuo (Faculty of Engineering, Tokyo University of Science, Dr. Eng.)
- 11:00 ~ 12:20 OS-14(2) [Session chair: OGAWA Takahiro(Shinryo Corporation)]**
- B321 A Study on a method for Low Temperature Steam Reforming of Methane
◎KITAGAWA Sho (Tamagawa Univ.) , TAKAHASHI Katsumi, AIHARA Takeshi, OHKUBO Hidetoshi, OBARA Hiroyuki
- B322 Thermodynamic Analysis on High Temperature Heat Pump Cycles for Heat recovery
◎ FUKUDA Sho (Kyushu univ.) , TAKATA Nobuo, MIYAZAKI Takahiko, KOYAMA Shigeru
- B323 Developement of Air Conditioning Systems by using Water Source Heat Pump Units Applied
○MASAKI Hatakeyama (Nippon PMAC Co.,Ltd) , TOSHIAKI Saitou, MASAO Masuda (Takasago Thermal Engineering Co.,Ltd) , MASAYUKI Tanino
- B324 Development of complete non-CFC an air refrigeration system using XY separate crank mechanism (1st report)
○TAKUMI Yoshizawa (Z mechanism Technology Institute Co., Ltd.) , YUTAKA Yoshizawa, SATOSHI Yoshizawa, YASUO Yoshizawa
- 13:30 ~ 14:50 OS-14(3) [Session chair:MAN'O Tatsunori (Takasago Thermal Engineering Co.,Ltd.)]**
- B331 The Investigation of the 4th Generation Hybrid Hot Water Unit
-The Primary Energy Performance Progress of The Hybrid Hot Water Unit-
○MURAMATSU Yasuhito (Rinnai Corporation) , MORI Keisuke, JINNO Hideyuki, SUGIMOTO Takamasa,

NAGATA Hidenori, IMAI Seishi,
SOBUE Tsutomu

B332 Study on Energy Consumption of the
Food Retail Store

-Part2. Appreciation of cooling load of
refrigerate display case-

◎ CHEN Wen (Yokohama National
University) , YOSHIDA Keisuke,
FUJITA Miwako (Chubu Electric Power
Company) , MIYAMA Toshimasa,
NARUMI Daisuke (Yokohama National
University)

B333 Study on Energy Consumption of the
Food Retail Store

-Part3. Appreciation of cold air leakage
using PIV and CFD-

◎ YOSHIDA Keisuke (Yokohama
National University) , FUJITA Miwako
(Chubu Electric Power Company) ,
MIYAMA Toshimasa, NARUMI
Daisuke (Yokohama National University)

B334 Trial production of slim and translucent
vacuum insulation panels and discussion
on the insulation performance

◎ AIHARA Masahiro (Hokkaido Univ),
KATSURA Takao, YANG Zhang,
NAKAMURA Makoto, NAGANO
Katsunori

Room C

**OS-7 Performance Evaluation of Air-
conditioners, Chillers and Heat Pump**

Water Heaters

**09:20~10:40 OS-7(1) [Session chair:WAKUI
Tetsuya (OsakaPrefecture Univ.)]**

C311 Development of ceramic plate burner for
downsizing of absorption refrigerating
machine

◎ OKADA Kunio (Kawasaki Heavy
Industries, Ltd.) , HORIKAWA Atsushi,
KOGA Kazuki, YAMAGUCHI Masato,
KAZARI Masahide, KANAMURA
Yoshihiko (Kawasaki Thermal
Engineering Co, Ltd.)

C312 Study on Integrated Hybrid Air-
conditioning System

-1st Report: Verification of the effect by
optimum operation control system in
commercial facility-

◎ TAHARA Hiroyuki (TOKYO GAS
CO.,LTD.) , FURUHASHI Yuma

C313 Study on Evaluation of Annual Energy
Consumption of Package type EHP Air-
conditioner for Buildings

-5th Report:Evaluation of energy-saving
performance for new type light
commercial air-conditioner-

○ NAKAYAMA Hiroshi (Chubu Electric
Power Co.Inc) , NAMIWO Takashi,
TAKEYA Nobuyuki (Toshiba Carrier
Corporation) , KIGUCHI Yukio,
HIROTA Masafumi (Mie University) ,
KABASHIMA Yasutaka

C314 Performance evaluation of the newest high efficiency GHP(XAIRII) air conditioner
-Evaluation of heating mode-
©NISHIOKA Rikito (Tokyo Univ of Marine Science and Technology) ,
KAMETANI Shigeki

OS-12 Supercooling Phenomenon from Fundamentals to Applications

11:00 ~ 12:20 OS-12(2) [Session chair : WATANABE Choyu (Chubu Electric Power Co.,Inc.)]

C321 Performance Evaluation of Air-Conditioner Using R452B in Wide Cooling Load Range
TAIRA Shigeharu (Daikin Industries, LTD.) , ○MINAMIDA Tomoatsu,
HAIKAWA Tomoyuki

C322 Performance Monitoring and Diagnostics of Multi-Split Type Air-Conditioning System by Support Vector Machine
-Detection of Performance Deterioration Under Steady-state Operation-
○WAKUI Tetsuya (Osaka Prefecture University) , YOKOYAMA Ryohei

C323 Annual Performance Evaluation of Refrigerated Display Cabinets
© REDO Mark Anthony (Waseda University) , GIANNETTI Niccolo,
OHNO Keisuke, YAMAGUCHI Seiichi,

SAITO Kiyoshi

C324 Development of a Simple Measuring Method of Actual Performances of Room Air Conditioner
-Indirect Measurements of local refrigerant pressure profile at heat exchangers-
©TODO Hiroki (Osaka city Univ.) ,
YAMAMOTO Shintaro, NISHIMURA Nobuya

13:30 ~ 14:30 OS-7(3) [Session chair:NISHIMURA Nobuya(Osaka City Univ.)]

C331 A study on partial load characteristic of heat pump system with frost on heat exchanger
©IWASAKI Nobuaki (Waseda Univ.) ,
OHNO Keisuke, YAMAGUCHI Seiichi,
SAITO Kiyoshi, NAKAYAMA Hiroshi
(CHUBU Electric Power Co.)

C332 Study of Lower GWP Refrigerants for Refrigeration systems
© ARIMOTO Hitomi (DAIKIN INDUSTRIES, LTD.) , OHKUBO Shun

C333 Evaluation of performance of VRF air conditioning systems using low GWP Refrigerants
○IWATA Ikuhiro (DAIKIN Industries,LTD.) , KUMAKURA Eiji,
FURUSHO Kazuhiro

Room D

- OS-4 Phenomena and Application Technology on Frost, Snow and Ice**
- 11:00 ~ 12:20 OS-4(3) [Session chair: MATSUMOTO Ryouyusuke (Kansai Univ.)]**
- 09:20~10:40 OS-4(2) [Session chair: KATO Masashi (MAYEKAWA MFG. CO., LTD.)]**
- D311 Frosting phenomenon of corrugated louver fins under forced convection
-Grasping basic characteristics and influence of surface texture of Concave and Convex-Patterned Flat Plates-
©TERAKADO Yuki (WASEDA Univ.), KATSUTA Masafumi, YASUI Kenzo
- D312 Reduction of Frost Formation using Micro-Machined Groove Shape on Surface
©AGUI Haruka (Tamagawa Univ.) , OHKUBO Hidetoshi
- D313 Effect of irradiation angle of focused ultrasound on defrosting cooling surface defrosting
©INOUE Sho (National Institute of Technology, Ichinoseki College) , HOSHI Takayuki (The University of Tokyo)
- D314 Reduction of frost formation using phase change at boundary layer
OHKUBO Hidetoshi (Tamagawa Univ.), © SUZUKI Tomohisa, NAKAZIMA Shun
- D321 Development of frost / ice control technology by natural substance-derived ice crystal control material
○HIDEHISA Kawahara (Kansai Univ.), AKIRA Kagiya, TAKEHIRO Fuji, YOSHIYUKI Matsuda
- D322 Experimental Study of Delaying Frost Formation on Surfaces of Pre-cooler Tubes Using Ultrahydrophobicity Tube by Anodic Oxidation Method
©TOKAWA Satoru (Waseda Univ.) , MORIYA Atsuki, KINOSHITA Yoshiaki, SATO Tetsuya
- D323 Fundamental Investigation on Frost Formation Characteristics of Adsorbent Coated Heat Exchanger
○ONISHI Hajime (Kanazawa Univ.) , NAKANO Kosuke, HARUKI Masashi, TADA Yukio
- 13:30 ~ 14:50 OS-4(4) [Session chair : ONISHI Hajime (Kanazawa Univ.)]**
- D331 Fundamental study on pressure loss of heat exchangers under frosting conditions
©SUN Han (Shizuoka Univ.) , FUKIBA Katsuyoshi, TAKACHI Syuu

- D332 Study of two-dimensional frost modeling under forced convection
 ◎ KINOSHITA Yoshiaki (Waseda Univ.) , SATO Tetsuya, TOKAWA Satoru, KURATA Takumi, OSUMI Ryuma
 Aomori Prefectural Industrial Technology Research Center) , SAITO Masato, IMAI Teruki
- D333 Evaluation of frost density profile by X-ray radiography
 ◎NAGASAWA Yoshiki (Kansai Univ.), MATSUMOTO Ryosuke, UECHI Takuma, ITO Daisuke (Kyoto Univ.) , SAITO Yasushi
 E312 Development of Energy-Saving Dehumidification System for Dry Room and Evaluating Energy Saving Performance
 ◎ NAGASAWA Masatoshi (Shinryo Corp.) , MIKAMI Hideto, SAWARA Makoto, OGATA Hajime, OSAKA Tetsuya (Waseda Univ.) , YOKOSHIMA Tokihiko
- D334 Changes in Three-dimensional Microstructure with Frost Layer Growth
 ○UECHI Takuma (Kansai Univ.) , MATSUMOTO Ryosuke, NAGASAWA Yoshiki
 E313 Development of the super-energy-saving low dew point dehumidifier for which heat pump exhaust heat is used
 ○JIN Weili (Seibu Giken Co., LTD.) , OKANO Hiroshi
- Room E**
- OS-8 Desiccant/Humidity Control/Open Cycle Air Conditioning**
- 09:00 ~ 10:40 OS-8(1) [Seeion chair : TSUJIGUCHI Takuya (Kanazawa Univ.)]**
- E311 Investigation of Air-Conditioning System Potential in Plant Factory Suitable for Snowy Region
 ○AKAHIRA Akira (Industrial Research Institute, Aomori Prefectural Industrial Technology Research Center) , ITO Atsushi (Agriculture Research Institute,
 E314 Moisture-permeable membrane type liquid desiccant air conditioner
 -Prototype of liquid desiccant air conditioner using moisture permeable membrane for humidifier-
 ○MIZURTANI Kunio (Tokyo Polytechnic Univ.) , SUZUKI Takuma, SATO Hideki (Sanken Setsubi Kogyo) , SHIOYA Masaki
- E315 Wetting characteristics of falling films on a fin-tube contactor
 ◎INUI Hanako (Waseda University) , GIANNETTI Niccolo, YAMAGUCHI Seiichi, SAITO Kiyoshi

**11:00 ~ 12:20 OS-8(2) [Session chair:
YAMAGUCHI Seichi (Waseda
Univ.)]**

- E321 Moisture transport behavior of circulating fluidized bed using organic sorbent particles
HORIBE Akihiko (Okayama Univ.) ,
YAMADA Yutaka, HARUKI Naoto
(Okayama Pref. Univ.) , ◎
YAMASHITA Keisuke (Okayama Univ.)
- E322 Thermal comfort improvement effect of the WSS desiccant system
NABESHIMA Yuki (Toyohashi Univ. of Technology) , ◯DOI Takashi, NAGANO Katsunori (Hokkaido Univ.) , TOGAWA Jun-ya (Nihon Netsugen Systems CO.,LTD.)
- E323 Effect of the operating condition on the adsorption-desorption behavior in the adsorbent-coated heat exchanger and its heat flow analysis
◯TSUJIGUCHI Takuya (Kanazawa Univ.) , OSAKA Yugo, KUMITA Mikio, KODAMA Akio
- E324 Response of desiccant rotor to a change of regeneration heat amount and minimization of fluctuation of dehumidifying performance
KODAMA Akio (Kanazawa Univ.) , ◎
SAITO Keigo, TSUJIGUCHI Takuya, OSAKA Yugo, MASUDA Soichiro (Toho Gas) , KISHI Hideyuki

Room F

OS-3 Refrigeration systems : The International Extension based on Diversity & Inclusion

**09:40 ~ 10:40 OS-3(1) [Session chair :
SAITO Rei (Japan Sun Oil
Company, Ltd.)]**

- F311 Development of the energy saving R744 drink vending machine which utilized heat storage materials
◯SHIMODA Hiroyuki (SANDEN ADVANCED TECHNOLOGY CORPORATION) , KASUYA Junichirou, FUJII Hidetoshi
- F312 Compatibility of Low-GWP refrigerant HCFO-1224yd(Z)
◎SOGA Tamaki (AGC Chemicals) , FUKUSHIMA Masato, HAYAMIZU Hiroki
- F313 The Generation Behavior of Flammability Area and Leak Rate of Low GWP Refrigerants
◯KAWASHIMA Mitsuru (Mitsubishi electric) , MAEDA Akira

11:00 ~ 12:00 OS-3(2) [Session chair :MATSUOKA Fumio (Heat Pump Inc.)]

- F321 Study of Heat Pump Performance on a

- Demand Response Program in the United Kingdom
-Second Report: Summary of Smart Community Demonstration Project in Manchester, UK - The Outcome-
○MASUDA Ryoh (Daikin Industries, Ltd.) , NAKAGAWA Koichi
- F322 A study on quality measurement in refrigeration cycle
◎MORISHITA Shota(Shizuoka Univ.), FUKUTA Mitsuhiro, MOTOZAWA Masaaki
- F323 Development of multilayer distributor for a flat tube heat exchanger
◎ MATSUI Shigeyoshi (Mitsubishi Electric Corporation) , HIGASHIUE Shinya, KATO Yohei, TANDA Tsubasa
- WS-2 Frontier of heat pump system**
- 13:30~14:50 WS-2(1) [Session chair : Sekiya Sachio(Hitachi, Ltd., Research & Development Group.)]**
- F331 Smart Grid and Future Energy Management System for Building Packaged-air-conditioners
○NINAGAWA Chuzo (Dept. of Electrical and Electronic Engineering, Gifu University) , OTAKE Hiroyuki (Mitsubishi Heavy Industries Thermal Systems, Ltd.)
- F332 Humidity Control using Nanospace
- Materials
○DAIGUJI Hirofumi (Univ. of Tokyo)
- F333 Bio-inspired Robot and a future of IoT Technologies
○NIIYAMA Ryuma (Graduate School of Information Science and Technology, The University of Tokyo)
- 15:10 ~ 16:30 WS-2(2) [Session chair : DAIGUJI Hirofumi (Univ. of Tokyo)]**
- F341 Connected Industries & JSRAE
○HASEGAWA Hiroshi (Ministry of Economy, Trade and Industry) , WAKABAYASHI Kiwamu
- F342 Secureing IoT System Security
-Basic knowledge to practice IoT security-
○ITO Kosuke (Connected Consumer Device Security Council)
- F343 Challenge for Realization of Happiness Society
○SATO Nobuo (Research & Development Group, Hitachi, Ltd.)