2022 JSRAE Annual Conference, Presentation Program

(1) Each general presentation has 20 minutes including 5 minutes for discussion. Keynote presentations has 40 minutes including 10 minutes for discussion.

(2) Symbols ○/◎ show speakers. ◎ is the candidates for the best presentation awards.

(3) The authors whose affiliation are not mentioned belong to the same institute as the preceding author.

――――― Day 1 ―――

Room A <Sep. 7>

Workshop WS-2

"Safety, Physical Properties, Heat Transfer, Cycle Performance Evaluations of Next Generation low-GWP Refrigerants"

Moderator: Research Committee on Next Generation Refrigerants

09:00 ～ 10:40 WS-2 (1)

Chairperson: HIGASHI Yukihiro (Kyushu Univ.)

A111 NEDO projects related fluorocarbon countermeasures
○ MORI Tomokazu (NEDO)

A112 Measurement and prediction of viscosity of CF3I
◎ TUHIN Rahman Atiqur (Saga Univ), MORSHED Monjur, KARIYA Keishi, MIYARA Akio

A113 Vaper-liquid equilibrium measurement of ternary systems containing CF3I
◎ ISHIMARU Hiroaki (Kyushu Univ.), KITABATAKE Kentaro, HIGASHI Yukihiro, SAKODA Naoya

A114 Measurements of the critical parameters for R455A, R465A, and R466A
○ HIGASHI Yukihiro (Kyushu Univ), MIYANE Kozue

11:00 ～ 12:40 WS-2 (2)

Chairperson: HIHARA Eiji (NIAD-QE)

A121 Risk assessment of built-in refrigerated display cabinet using flammable refrigerants
comparison of A3 refrigerant and A2L refrigerant when the leak height is near the floor
○ YAMASHITA Koji (JRAIA), KATO Toshimasa, IKEDA Shinji, SAKAE Satoshi, ISHIHARA Shigeki, KOBAYASHI Akira, KAINUMA Hidekazu, HASEGAWA Takaharu, DENO Hiroshi, NAGAI Hiroshi, HOSAKA Keiko

A122 Experimental evaluation of ignitability for R290 with various ignition sources
○ IMAMURA Tomohiko (Suwa University of Science), TOMITA Natsuru (Graduate School, Suwa University of Science), ITO Yukito, SATO Motoya (Suwa University of Science), MOCHIZUKI Kaito

A123 Behavior of highly flammable refrigerant leak from reach-in display cabinets
○ ITO Makoto (University of Tokyo), DANG Chaobin (University of Fukui), CHEN Yu (University of Tokyo), HIHARA Eiji (NIAD-QE)

A124 Flammability of the low-GWP mixed refrigerant based on HFO-1123
◎ ZHANG Zhihua (The University of Tokyo), ITO Makoto, DANG Chaobin (University of Fukui), CHEN Yu (The University of Tokyo), HIHARA Eiji (National Institution for Academic Degrees and Quality Enhancement of Higher Education)

A125 Numerical simulation of combustion characteristics of mildly flammable refrigerant R32 using a detailed chemical reaction model
○ DANG Chaobin (University of Fukui), ITO Makoto (The University of Tokyo), HIHARA Eiji (NIAD-QE)

13:40 ～ 15:20 WS-2 (3)

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

A131 Recent trends in regulations, standards and development for next-generation refrigerants
KISHIMOTO Tetsuo (NPO Environment and Energy Network), KATAOKA Osami (JSRAE), MIYATA Masato (National Institute for Land and Infrastructure Management), TOJO Kenji (TOJO R&D Office/Waseda University), MATSUMOTO Kazuya (The High Pressure Gas Safety Institute of Japan), KOUNO Kyoji (JSRAE), NISHIGUCHI Akira, ○ UEMURA Shigehiro

A132 Suppression of diesel explosion using compressor oil additive for air conditioners
○ SAITOH Shizuo (Univ. Tokyo), ITO Makoto, DANG Chaobin (Univ. Fukui), HIHARA Eiji (NIAD-OE)

A133 Suppression of disproportionation reaction of HFO-1123 adding R290
◎ ZHANG Zhihua (The University of Tokyo), ITO Makoto, DANG Chaobin (University of Fukui), CHEN Yu (The University of Tokyo), HIHARA Eiji (National Institution for Academic Degrees and Quality Enhancement of Higher Education)

A134 Void fraction measurement of R454C refrigerant in smooth circular tube

○ KIM Moojoong (WISE), UEMURA Yuya (Waseda University), JEONG Jongsoo (WISE), SAITO kiyoshi (Waseda university)

15:40 ～ 17:20 WS-2 (4)
Chairperson: SAITOU Kiyoshi (Waseda Univ.)

A141 Experiment on evaporation heat transfer of binary mixture refrigerant R32/CF3I in a multiport tube
◎ NOBUNAGA Maika (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

A142 Condensation and evaporation heat transfer characteristics of near-azeotropic refrigerant mixture R1123/R32 inside horizonal smooth and micro-fin tubes
○ LIU Yufei (Nagasaki University), KONDOU Chieko

A143 Performance evaluation of a heat pump cycle using R-455A for low-temperature applications
○ KAWAGITA Kanta (Kyushu University), NAKATSU Hideaki, TAKATA Nobuo, FRANTISEK Miksik, THU Kyaw, MIYAZAKI Takahiko, HIGASHI Yukihiro

A144 Drop-in performance tests of low GWP refrigerant to room air conditioners
○ MIYAOKA Yoichi (Waseda University), MORI Ryohei, GIANNETTI Niccolo (Waseda university), JEONG Jongsoo, SAITO kiyoshi

A145 Load test method of split air conditioners
○ ITO Makoto (University of Tokyo), SAITOH Shizuo, CHANG Shika, CHEN Yu, HIHARA Eiji (NIAD-QE)

Room B <Sep. 7>

Organized Session OS-9

"Phenomena and Application Technology on Frost, Snow and Ice"

Organizer: OHNISHI Hajime (Kanazawa Univ.), TSUNODA Isao (Shizuoka Univ.)

09:40 ～ 10:40 OS-9 (1)
Chairperson: TSUNODA Isao (Shizuoka Univ.)

B111 Freezing evaluation of anti-freezing paint
◎ OGAWA Riku (FUJIELECTRIC), MIZUSAWA Tatsuya, ASADA Tadashi, TAKIGUCHI Kouji, OKAMOTO Taichi (KANSAI UNIVERSITY), HIRANO Yoshiaki

B112 Research on the frost suppression effect by facilitating mist generation with aerosol particles
◎ HATTORI Akihiro (Waseda University), TOKAWA Satoru, UEDA Akihiro, YOSHIDA Mikio, SATO Tetsuya

B113 W/O emulsion formation behavior for using as a cold storage material
○ MATSUZAKI Shun (Okayama University), HORIBE Akihiko, YAMADA Yutaka, ISOBE Kazuma

11:00 ～ 12:20 OS-9 (2)
Chairperson: OHNISHI Hajime (Kanazawa Univ.)

B121 Study on freezing characteristics of supercooled droplets on cold solid surface
○ AGUI Haruka (Waseda Univ.), GIANNETTI Niccolo, JEONG Jongsoo, SAITO Kiyoshi, SAKAI Yuta

B122 Construction of a measurement system capable of quantitative evaluation of heat balance characteristics during defrost operation of room air conditioners and verification of its usefulness
◎ YASUDA Shohei (電中研), UENO Tsuyoshi

B123 Verification of frosting tendency on heat exchanger in heat pumps for electric vehicles
○ TSUNODA Isao (Shizuoka University)

B124 Frost formation on automobile heat exchanger
◎ KURODA Rikuto (Kansai Univ.), MATSUMOTO Ryosuke, ODA Yutaka, FUKAI Ao, KIDA Kenta, IIKURA Hiroshi (JAEA), KURITA Keisuke

Organized Session OS-2

"Heat and Mass Transfer in Solid-Liquid Phase Change"

Organizer: TERAOKA Yoshikazu (Kanazawa Univ.), ASAOKA Tatsunori (Shinshu Univ.)

13:40 ～ 15:00 OS-2 (1)
Chairperson: ASAOKA Tatsunori (Shinshu Univ.)

B131 Growth characteristic of frost on anisotropic ice surface
◎ HIRAMATSU Taisei (Kanazawa University), ZHANG JHINGPENG, TERAOKA Yoshikazu

B132 Continuous generation of ice containing ozone micro bubbles using tap water
Concentration of released ozone gas from ice
◎ KIZUKA Soma (Chuo University), ANDO Kenta, NISHIMURA Kosuke, MATSUMOTO Koji

B133 Investigation on influence of voltage application to amphoteric surfactant mixtures in the anionic pH range on supercooling degree
○ MARUKO Isamu (Univ. Chuo), MORITSUKA Kento, NANBA Ryozaburo, MATSUMOTO Koji

B134 The effect of the temperature gradient of solid surface on the droplet freezing behavior
○ MAEKAWA Shinya (Okayama Univ.), YAMADA Yutaka, ISOBE Kazuma, HORIBE Akihiko

15:20 ～ 16:20 OS-2 (2)

Chairperson: TERAOKA Yoshikazu (Kanazawa Univ.)

B141 Effect of agglomeration of ice on flow pattern of ice slurry
◎ HARAZAKI Taiki (Shinshu Univ.), ASAOKA Tatsunori

B142 Study on the frozen layer growth of ice slurries flowing through a rectangular channel
◯ MORIMOTO Takashi (Aoyama Gakuin Univ.), KIMATA Hayato, KUMANO Hiroyuki

B143 Effect of concentration on expansion pressure generation during solidification process of aqueous solution
◎ NAKAMURA Taichi (Meiji Univ.), KAWANAMI Tsuyoshi, ICHIBA Motoyasu (Panasonic Corporation), HORII Katsunori

Room C <Sep. 7>

Organized Session OS-6

"Utilization Technology of Ground Source Heat"

Organizer: KATSURA Takao (Hokkaido Univ.), TANAKA Saburo (Nihon Univ.)

11:00 ～ 12:20 OS-6 (1)
Chairperson: TANAKA Saburo (Nihon Univ.)

C121 Forced convection heat transfer from a heated rectangular cylinder in a saturated porous medium
UTANOHARA Yoichi (Komatsu University), ◯ KIMURA Shigeo

C122 Air conditioning performance of geothermal heat pumps using residential steel pipe piles
◎ HOSHI Yukito (Univ. of Yamanashi), TAKEDA Tetsuaki

C123 Heat exchange performance of ground source heat pump using water well
◎ HORIGUCHI Kai (Univ.of Yamanashi), YAMADA Shingen, TAKEDA Tetsuaki

C124 Heating performance of ground source heat pump using a horizontal ground heat exchanger
◎ KOYAMA Hiromu (Univ.of Yamanashi), NUMATA Ryo, TAKEDA Tetsuaki

13:40 ～ 15:20 OS-6 (2)
Chairperson: TAKEDA Tetsuaki (Univ. of Yamanashi)

C131 Development of a simulation tool for ground source heat pump systems using horizontal unit type ground heat exchangers
◎ NIMURA Kohei (Hokkaido University), KATSURA Takao, SHOJI Yutaka, NAGANO Katsunori

C132 Low-cost ground source heat pump system installed to net zero energy house
◯ KATSURA Takao (Hokkaido University), NAGANO Katsunori

C133 Development of a simulation tool for double spiral ground heat exchangers and its application
◎ YANG Kunning (Hokkaido University), KATSURA Takao, NAGANO Katsunori

C134 Influence of factors on thermophysical properties in shallow ground
◯ TANAKA Saburo (Nihon Univ.), ABE Haruto, ARAI Takaya, MIYAOKA Futoshi, SASAKI Naoe

C135 Environmental design technique of reconstruction project of the former site of Lohas houses
◯ MIYAOKA Futoshi (Nihon Univ.), TANAKA Saburo, SASAKI Naoe

General Session GS-1

15:40 ～ 17:20 GS-1 (1)
Chairperson: HAMAMOTO Yoshinori (Kyushu Univ.)

C141 Study on flow characteristics of expansion valve for vapor compression heat pumps
◎ TOKURA Daiki (Waseda University), TAKAHASHI Ryota, KOBAYASHI Junichi, YAMAGUCHI Seiichi, SAITO Kiyoshi

C142 Performance evaluation of a magnetocaloric heat pump device with multiple active magnetic regenerators
◎ SUZUKI Ryotaro (Meiji Univ.), KAWANAMI Tsuyoshi

C143 Consideration of the performance of an ejector refrigeration cycle using a different working fluid of R245fa or R1224yd(Z)
◎ ITO Tamaki (Tokyo University of Marine Science and Technology), KUNIYOSHI Nao, TERASHIMA Kohei (Tokyo University of Science), KOJIMA Mitsuo (Tokyo University of Marine Science and Technology), SATO Haruki

C144 Numerical analysis of oscillating heat pipe
◎ SASAKI Kodai (University of Fukui), YANG Shaobo (The University of Tokyo), DANG Chaobin (University of Fukui)

C145 Measurement of slug flow behavior in low capillary region
◎ YAMADA Eita (Fukui University), YANG Shaobo (Tokyo University), DANG Chaobin (Fukui University)

Room D <Sep. 7>

Organized Session OS-10

"Low Temperature Application and Technology for Food and Biomaterials"

Organizer: ARAKI Tetsuya (The Univ. of Tokyo), KAWAI

Kiyoshi (Hiroshima Univ.), MASUDA Kazunori (Mayekawa Mfg. Co., Ltd.)

09:20 ～ 10:40 OS-10 (1)
Chairperson: ARAKI Tetsuya (The Univ. of Tokyo)

D111 Thawing of frozen tissue by utilizing high-frequency ultrasonic wave
(Effect of ultrasonic irradiation method)
◎ INUKAI Keito (Kanazawa Univ.), TADA Yukio, HARUKI Masashi, YOSHIOKA Hideaki (NIT, Ishikawa College)

D112 Prevention of deformation during microwave-vacuum drying of fruits and vegetables by introducing freezing and thawing process
◯ ANDO Yasumasa (NARO), NEI Daisuke

D113 Study on the quality evaluation of frozen durian and remaining challenges
◯ ARAKI Tetsuya (The University of Tokyo), UENO Shigeaki (Saitama University)

D114 Physicochemical properties and antimicrobial activity of edible coatings with tea tree essential oil
◎ TAKAHASHI Manaka (Kyushu University), HISAMATSU Kaito, TANAKA Fumina, TANAKA Fumihiko

11:00 ～ 12:20 OS-10 (2)
Chairperson: KAWAI Kiyoshi (Hiroshima University)

D121 Study on the precipitation of lactose crystals in ice cream during manufacturing process
◎ SHIBA Misaki (Tokyo University of Marine Science and Technology), TARUMI Yoshiki, TAKAHASHI Aito (Nihon University), LEE Younju (Tokyo University of Marine Science and Technology), SUZUKI Toru

D122 Effect of freezing and storage conditions of the ratio of metmyoglobin formation in tuna extract
◯ KIMIZUKA Norihito (Hirosaki University)

D123 Effect of low-temperature blanching on the qualities of frozen broccoli
◯ NISHIDA Namiko (NARO), ANDO Yasumasa

D124 Effect of freezing conditions on the color degradation of red bean paste
◎ MIYAMOTO Machi (Tokyo University of Marine Science and technology), LEE Younju, SUZUKI Toru

13:40 ～ 15:00 OS-10 (3)
Chairperson: MASUDA Kazunori (Mayekawa Mfg. Co., Ltd.)

D131 Improvement and guideline for operation of the dual temperature container for refrigeration and freezing of food using computational fluid dynamics
◎ KUNITA Yuki (Kyushu university), TANAKA Fumina, TANAKA Fumihiko

D132 The effect of freezing conditions of home freezing on Shirasu
◯ UEDA Saki (FUKUSHIMA GALILEI CO. LTD.), USUI Hikari (TAKAHASHI GALILEI CO. LTD.), SADANO Sumika, NAKANISHI Ryo, SUZUKI Toru (Tokyo University of Marine Science and Technology)

D133 Effect of magnetic field application during freezing on ice crystal formation inside food products
◎ BABA Hayato (Tokyo University of Marine Science and Technology), WATANABE Manabu, BOLIVAR Mark Anthony Redo

D134 Correlation between the temperature change in the refrigerator freezing room and how frost forms on food
◯ HOSHINO Hitoshi (Haier Asia R&D Co., Ltd.), TANAKA Masaaki, TATENO Takaya, YOSHIDA Yoshihiko, SHI Shingyoku, LEE Younju (Tokyo University of Marine Science and Technology), SUZUKI Toru

Organized Session OS-4
"Technological Development in Heat Exchangers"

Organizer: ENOKI Koji (The Univ. of Electro-Communications), ONISHI Hajime (Kanazawa Univ.), MIYATA Kazushi (Fukuoka Univ.)

15:40 ～ 17:20 OS-4 (1)
Chairperson: ASANO Hitoshi (Kobe University)

D141 Gas-liquid distributions of refrigerant flows in multi-pass channels with vertical headers
Influence of heating of branch tubes on liquid distribution characteristics
◎ ONODERA Ayumi (Toshiba Carrier), HATADA Takafumi, SAWAHARA Fuuka (Former Mie Univ.), MORI Kohei (Mie Univ.), HIROTA Masafumi, NISHIMURA Akira, MARUYAMA Naoki

D142 Withdrawal of the presentation

D143 Experiment on evaporation heat transfer characteristics of R32/R1234ze(E) mixture in multiple channels
◎ NUMATA Natsumi (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

D144 Flow pattern and average void fraction of adiabatic gas-liquid two-phase flow in a plate heat exchanger
◯ NAKATOMI Yusuke (Saga Univ), KARIYA Keishi (Saga Univ), MIYARA Akio (Saga Univ)

D145 Experimental study of condensation local heat transfer characteristics of R454B in a plate heat exchanger

◯ RAHMAN Mahbubur Md. (SAGA UNIVERSITY), TUN Thiha, KARIYA Keishi, MIYARA Akio

Room E <Sep. 7>

Organized Session OS-1

"Present Status and Future Development of Compressors"

Organizer: FUKUTA Mitsuhiro (Shizuoka Univ.), ANAMI Keiko (Osaka Electro-Communication Univ.)

09:20 ～ 10:40 OS-1 (1)

Chairperson: ANAMI Keiko (Osaka Electro-Communication Univ.)

E111 Nonlinear finite element method analysis of impact stresses on a ring valve of a large industrial reciprocating compressor
◯ KOBAYASHI Kei (MAYEKAWA MFG. CO., LTD), TSUJI Takuma, KOIKE Masato (Graduate School, Osaka Electro-Communication University), ANAMI Keiko (Osaka Electro-Communication University), OKU Tatsuya (MAYEKAWA MFG. CO., LTD)

E112 Calculation of internal flow in a compressor with the valve motion
◯ KAWABATA Shinichi (Daikin), DEGUCHI Ryohei, MATSUURA Hideki

E113 A sound reduction solution of rotary compressor by experimental source analysis
◎ ICHIHARA Masaya (TCC), CHINEN Takeshi, HIRAYAMA Takuya, KATO Hisataka

E114 Modeling of rotary compressor and comparison of cycle performance using low GWP refrigerants
◎ URASAKI Eriko (Waseda University), SANO Hana, RYU Tao, JEONG Jongsoo, TOJO Kenji, IKUMI Yonezou, NAKAMURA Hiroo, YAMAGUCHI Seiichi, SAITO Kiyoshi

11:00 ～ 12:20 OS-1 (2)

Chairperson: MATSUMOTO Tomoya (IDEMITSU KOSAN)

E121 Evaluation of gas leakage flow through blowhole in screw compressor
KAWAMATA Junya (OECU), ◎ KOIKE Masato, ANAMI Keiko, OKU Tatsuya (MAYEKAWA MFG. Co. Ltd.), YAMASHITA Hironori

E122 Effects of rotational transmission error on vibration for screw compressors
OHSHIMA Fumihiro (Saga university), IWASAWA Takahiro (Suzuki Motor Corporation), ◯ YAMASHITA Hironori (MAYEKAWA MFG. Co.,Ltd)

E123 Bearing clearance design for load sharing on auxiliary cranks for scroll compressors
◯ ANAMI Keiko (OECU), KOIKE Masato, KAWAMATA Junya

E124 Detection of refrigerant dissolution into oil in compression process
◎ WATANABE Kei (Graduate School of Integrated Science and Technology, Shizuoka University), REI Uno, FUKUTA Mitsuhiro (Department of Mechanical Engineering, Shizuoka University), MOTOZAWA Masaaki, ATOBE Shouhei (Toshiba Carrier Corporation)

13:40 ～ 15:00 OS-1 (3)

Chairperson: YAMASHITA Hironori (Mayekawa Mfg. Co., Ltd.)

E131 Characteristics of POE refrigeration oil for R290
◯ TAKAKI Tomohiro (ENEOS), KAWAGUCHI Masaki, ANDO Makoto, MIZUTANI Yuya, SHITARA Yuji

E132 Development of PVE refrigeration lubricants for refrigerant leakage detection
◯ MATSUMOTO Tomoya (IDEMITSU KOSAN), TAKAGISHI Naoya

E133 Influence of magnetic field on dielectric constant of magnetic nano-oil/ refrigerant mixture
◎ MORI Yamato (Shizuoka University, Department of Engineering), MOTOZAWA Masaaki, FUKUTA Mitsuhiro

E134 Evaluation of leakage and friction at sliding surface applied magnetic nano-oil
◎ KIKUCHI Takanobu (Shizuoka University, Graduate School of Integrated science and Technology), MOTOZAWA Masaaki (Shizuoka University, Department of Engineering), FUKUTA Mitsuhiro

"Seminar on Compressor Technology" SN-1

Moderator: TOJO Kenji (Tojo R&D design technology/Waseda Univ.)

15:20 ～ 17:20 SN-1 (1)

Chairperson: TOJO Kenji (Tojo R&D design technology/Waseda Univ.)

E141 Thermophysical properties of low GWP refrigerant blends
What is the difference between a single refrigerant and a refrigerant blend?
◯ HIGASHI Yukihiro (Kyushu Univ)

E142 Calculations of thermophysical properties for mixtures
◯ AKASAKA Ryo (KSU)

E143 2022 Purdue conference summary report
◯ TOJO Kenji (TOJO R&D Office / Waseda University)

E144 Multi air conditioning system for building "Super Multi u series"
Development of multi air conditioning system for building that realizes space saving and high efficiency
◯ MIURA Ken (Toshiba Carrier), SHIMIZU Kastsuhiro, YAMANE Hiromasa, AOKI Toshimasa, HIRANO Kouji

E145 Vertical built-in refrigerated display cabinets (SB,BC series) using R290 Refrigerant
YAMAMOTO Hiroaki (MELARS), ◯ HOSAKA Keiko, GOTO Hiroyuki, SATO Masanori (MELCO), TANAKA Chihiro

E146 Plugin hybrid transport refrigeration unit "TE20,30"
◯ WATANABE Yasushi (Mitsubishi Heavy Industries Thermal Systems,Ltd.), OSADA Kazumi, JINNO Hiroki, OHATA Yohei

――――― Day 2 ――――

Room A <Sep. 8>

Organized Session OS-7

"Application of Simulation Technology for Refrigeration, Air-conditioning and Water Heating"

Organizer: YAMAGUCHI Seiichi (Waseda Univ.), NONAKA Masayuki (Hitachi-Johnson Controls Air-Conditioning, Inc.), YAMASHITA Koji (Mitsubishi Electric Corp.), TAIRA Shigeharu (Daikin Industries, Ltd.)

09:20 ～ 10:40 OS-7 (1)
Chairperson: YAMASHITA Koji (Mitsubishi Electric Corp.)

A211 Economic and environmental assessment of integrated industrial heat pump simulator
◯ JEONG Jongsoo (Waseda university), MUTO Sou, MIYAOKA Yoichi, SAITO Kiyoshi

A212 Energy-saving and indoor comfort evaluations of vapor-compression type air-conditioning system using hierarchical control strategy
◯ WAKUI Tetsuya (Osaka Metropolitan University), MATSUMOTO Takuji (Osaka Prefecture University), YOKOYAMA Ryohei (Osaka Metropolitan University)

A213 Assessment of air-conditioners with dynamic performance testing method
◯ MORI Ryohei (Waseda university), MIYAOKA Yoichi, GIANNETTI Niccolo, JEONG Jongsoo, SAITO Kiyoshi

A214 Construction of refrigeration cycle system test equipment and cycle simulation model for air-conditioning
SEKIYA Hiroshi (Waseda University Graduate School), WANG Yi, ◯ DENZUMI Aoto

11:00 ～ 12:20 OS-7 (2)
Chairperson: YAMAGUCHI Seiichi (Waseda Univ.)

A221 Unified thermal energy system analysis theory based on circuit theory
◯ SAITO Kiyoshi (Waseda University)

A222 Withdrawal of the presentation

A223 Research on refrigeration cycle simulation and its application technology for realization of HILS
◯ SHIRAKI Takashi (FUJI ELECTRIC), TAJIMA Minato

A224 Process integration of industrial heat pumps
Conceptualization of heat pump selection method with pinch analysis
◯ KAIDA Takenobu (CRIEPI)

13:40 ～ 14:40 OS-7 (3)
Chairperson: YAMAGUCHI Seiichi (Waseda Univ.)

A231 Reduction of irregular temperature distribution for a pharmaceutical warehouse with the Dirivent system
Evaluating the effectiveness of the Dirivent system by CFD analysis
◯ SAITO Makoto (Takenaka), SERI Koichi, MOCHIDOME Takashi

A232 Combination effect of light emitting airflow sensor and cloud-based multi-point simultaneous sensing
Rapid airflow evaluation with light emitting airflow sensor
◯ TAKATSUKA Takeshi (SNK), AYAME Hisao, MORI Yuudai, KIMURA Takashi

A233 Reduction of refrigerant recovery time by cooling device for refrigerant recovery cylinder using latent heat
1st Report: Study on to speed up the airflow around the recovery tank
◯ NAKANISHI Akane (Mitsubishi Electric Corporation), OTA Koji (Mitsubishi Electric Building Solutions Corporation), DOHGAN Yoshihiro, OHUE Akihiro

15:00 ～ 16:00

Special Lecture
Presenter: KOUCHI Toshinori (Okayama Univ.)

16:00 ～ 16:30

Commendation Ceremony

Room B <Sep. 8>

Organized Session OS-8

"Technologies of Desiccant, Adsorption, Absorption and Chemical Reaction"

Organizer: TSUJIGUCHI Takuya (Kanazawa Univ.), KUBOTA Mitsuhiro (Nagoya Univ.), ESAKI Takehiro (Kyushu Univ.)

09:20 ～ 10:40 OS-8 (1)
Chairperson: TSUJIGUCHI Takuya (Kanazawa Univ.)

B211 Development of redox-type chemical heat storage materials using Cr-doped Cu-Mn complex oxides
◎ CHEN Xiaoyu (Nagoya U.), KUBOTA Mitsuhiro, KOBAYASHI Noriyuki, YAMASHITA Seiji, KITA Hideki

B212 Test manufacturing of small-scale heat storage worked by cobalt oxide redox reaction
◎ INAGUMA Daiki (Nagoya Univ.), KOBAYASHI Noriyuki, KUBOTA Mitsuhiro

B213 Candidates of adsorbents with suitable adsorption properties for double-effect adsorption refrigeration cycle with adsorption heat recovery
◎ YOSHIDA Takuto (TUAT), AKISAWA Atsushi

B214 Experimental sensitivity analysis of cycle time on the performance of double effect adsorption refrigeration cycle
◯ AKISAWA Atsushi (Tokyo University of Agriculture and Technology), KONO Masahiro, HONDA Takuya

Organized Session OS-8

"Technologies of Desiccant, Adsorption, Absorption and Chemical Reaction"

Workshop WS-4

"Applications and Demonstrations of Thermally Driven Technologies"

Joint Session

Organizer, moderator: TSUJIGUCHI Takuya (Kanazawa Univ.), KUBOTA Mitsuhiro (Nagoya Univ.), ESAKI Takehiro (Kyushu Univ.), Technical Committee on Desiccant, Adsorption, Absorption, Chemical Systems

11:00 ～ 12:20 OS-8 (2), WS-4 (1) Joint Session
Chairperson: MIYAZAKI Takahiko (Kyushu Univ.)

B221 Study on applicability of sensible/latent heat separation technology using desiccant to drying process
◎ HIGASHI Tomohiro (CRIEPI), KAIDA Takenobu, ZHANG Li

B222 Development of adsorption thermal storage system utilizing low-temperature wasteheat about 100℃
◯ KAWAKAMI Yoshiaki (Takasago Thermal Engineering Co., Ltd.), KAMATA Haruyuki, TANINO Masayuki

B223 Development of steam generation heat pump using chemical thermal storage
◯ KAKI Hirokazu (Nissin Electric), IWAKOKE Tsubasa, ICHINOSE Atsuhiro, KOBAYASHI Noriyuki (Nagoya Univ.)

B224 Development of a small absorption refrigerator that stores waste heat with an absorbent
◯ YAMAMOTO shoya (Aisin), TSUBOUCHI Osamu, DANG Chaobin (Univ. Fukui), TAKEMURA Fumio (AIST), INADA Takaaki (Tokyo Denki University)

13:40 ～ 14:40 OS-8 (3)
Chairperson: NABESHIMA Yuki (SIST)

B231 Study on surface wettability improvement of three-fluid gas-liquid contactors for humidity control air conditioners
◎ VARELA Richard Jayson (Waseda University), ISOGAI Hironori, BHOWMIK Mrinal, GIANNETTI Niccolo, JEONG Jongsoo, SAITO Kiyoshi

B232 Unsteady characteristics for control of liquid desiccant air-conditioning system
◎ TOYAMA Hiroki (Waseda University), NISHIGUCHI Tsubasa, YAMAGUCHI Seiichi

B233 Experimental evaluation of absorption/desorption rate with HFC-134a and [Bmim][Tf2N] pair in hybrid absorption refrigerator cycle
◎ ESAKI Takehiro (Kyushu University), SUGAI yuichi

Room C <Sep. 8>

Workshop WS-5

"Current Status on the Research and Development of Alternative Refrigerants to R23"

Moderator: AKASAKA Ryo (Kyushu Sangyo Univ.), KAYUKAWA Yohei (AIST)

09:20 ～ 10:40 WS-5 (1)
Chairperson: WATANABE Manabu (Tokyo Univ. of Marine Science and Technology)

C211 The background and effects of developing R508A for ultra low temperature applications
◯ TAKEMASA Kazuo (TTO)

C212 Measurements of the critical parameters for low GWP refrigerant R1132a
◯ HIGASHI Yukihiro (Kyushu Univ)

C213 Cycle performance of alternative refrigerants for R23

◯ KAYUKAWA Yohei (AIST), AKASAKA Ryo (Kyushu Sangyo University), SAKANIWA Shun (Graduate School of Science and Engineering, Waseda University), SAITO Kiyoshi

11:00 ～ 12:20 WS-5 (2)
Chairperson: AKASAKA Ryo (Kyushu Sangyo Univ.)

C221 Liquidus-point prediction of new ternary refrigerant mixture for low temperature applications
◎ ASOU R Seth (Nagasaki Univ), MIYOSHI Kohei, KAWAMURA Ryuzi, KONDOU Chieko

C222 R-23 alternative, next generation refrigerant R-473A
LOW E Robert (Koura), SEETON J Christopher, ◯ YAMAMOTO Tsuyoshi

C223 Introduction of case studies of ultra-low temperature/low GWP refrigerant R-469A
◯ SHIMOSAKA Koh (ETAC Engineering Co., Ltd), KUSUMOTO Ryota (Kusumoto Chemicals, Ltd. ETAC division)

C224 Mildly flammable characteristics and safety of low GWP refrigerants
◯ UNO Mitsuyo (NISSIN)

Organized Session OS-6

"Utilization Technology of Ground Source Heat"

Organizer: KATSURA Takao (Hokkaido Univ.), TANAKA Saburo (Nihon Univ.)

13:40 ～ 14:40 OS-6 (3)
Chairperson: KATSURA Takao (Hokkaido Univ.)

C231 On the energy efficient operation of ground source heat pumps in moderate climate regions
◯ KINDAICHI Sayaka (Hiroshima University)

C232 Field test of air conditioning system using both air and ground heat sources
◎ IKUNO Tatsuaki (Graduate School of Saga University), TAKATSUKA Kouya (Graduated from Saga University's Graduate School), KARIYA Keishi (Saga University), MIYARA Akio

Room D <Sep. 8>

Organized Session OS-4

"Technological Development in Heat Exchangers"

Organizer: ENOKI Koji (The Univ. of Electro-Communications), ONISHI Hajime (Kanazawa Univ.), MIYATA Kazushi (Fukuoka Univ.)

09:00 ～ 10:40 OS-4 (2)
Chairperson: KUROSE Kizuku (Tokyo Univ. of Science)

D211 Larger and longer non-powered heat transport technology – Loop heat pipe based on understanding of thermo-fluid behabior in porous media
◯ NAGANO Hosei (Nagoya Univ)

D212 Pool boiling enhancement on expanding channel heating surface via copper foam
◎ YANG Shaobo (The Univ. of Tokyo), HONG Sihui (The SYS Univ.), DANG Chaobin (Fukui Univ.), CHEN Yu (The Univ. of Tokyo)

D213 Optimization of refrigerant circuitry within finned-tube heat exchangers using thermo-genetic path-algorithm
◎ GIANNETTI Niccolo (Waseda university), GARCIA S John Carlo, VARELA J Richard, SEI Yuichi (The University of Electro-Communications), ENOKI Koji, JEONG Jongsoo (Waseda university), SAITO Kiyoshi

D214 Development of liquid hydrogen vaporizer
MURATA Hiroaki (OKAMURA), ◯ YABASE Hajime (Waseda University), INOUE Naoyuki, IKUMI Yonezou, TAKEDA Minoru (Kobe University), SAITO Kiyoshi (Waseda University)

11:00 ～ 12:20 OS-4 (3)
Chairperson: OHNISHI Hajime (Kanazawa Univ.)

D221 Visualization and void fraction measurement of refrigerant two-phase flow in cross-flow type mini-channel evaporator by neutron radiography
Effects of non-uniform heat flux
◎ KIYOHARA Keita (Kobe Univ.), INOUE Shunsuke, MURAKAWA Hideki, SUGIMOTO Katsumi, KUBO Yohei (Kobe Steel), KURITA Keisuke (JAEA), IIKURA Hiroshi, ASANO Hitoshi (Kobe Univ.)

D222 Experiments on condensation flow visualization of R1234ze(E) in microchannels
◎ GOTO Tatsuki (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, SAGAWA Kentaro (Fujitsu General Limited)

D223 Condensation heat transfer of HFC134a flowing in a horizontal rectangular mini-channel at low mass fluxes
◎ OOKURA Hirofumi (FUKUOKA UNIV.), MIYATA Kazushi, GAO Lei

D224 Attempt to simultaneously measure boiling behaviors and heat transfer fluctuations in a rectangular minichannel
◎ YOSHIDA Masaki (National Defense Academy), YAMADA Shunsuke, FUNAMI Yuki, NAKAMURA Hajime

13:40 ～ 14:40 OS-4 (4)
Chairperson: MIYATA Kazushi (Fukuoka Univ.)

D231 Flow structure and heat transfer characteristics of

falling film with nucleate boiling on an inclined plate
◯ UBARA Tsutomu (Kobe Univ.), SUGIMOTO Katsumi, ASANO Hitoshi

D232 Effect of operating pressure on heat transfer characteristics of falling film evaporation of HFO1233zd(E) on a horizontal cylinder
◎ SAWATARI Kazuya (Kobe Univ.), UBARA Tsutomu, SUGIMOTO Katsumi, ASANO Hitoshi

D233 Experimental study on falling film evaporation heat transfer of R245fa
Effect of surface roughness
◎ AKADA Ikuro (Graduate School of Marine Science and Technology, Tokyo University of Marine Science and Technology), FUKUOKA Naoya, JIGE Daisuke (Tokyo University of Marine Science and Technology), INOUE Norihiro

Room E <Sep. 8>

Workshop WS-3

"Renewable Energy and Heat Pump Systems"

Moderator: KASAHARA Shinichi (Daikin Industries, Ltd.), KANAI Hiroshi (Panasonic Corp.), DAIGUJI Hirofumi (The Univ. of Tokyo)

09:20 ～ 10:40 WS-3 (1)
Chairperson: KASAHARA Shinichi (Daikin Industries, Ltd.)

E211 Exploring the world of fundamental particles with quantum computers
◯ TERASHI Koji (Tokyo University)

E212 Energy saving innovation of factory air conditioning system by 700 kW scale aquifer heat storage system
◯ CUI Linri (Mitsubishi Heavy Industries Thermal System, LTD), SAKAI Masanobu, UEDA Kenji

E213 Outline of demand response demonstration using vending machines, air conditioning, and lighting
◯ FUJITA Miwako (CEPCO), NAKAYAMA Hiroshi, MURAKAWA Takayoshi, CHIBA Rie (TOENEC)

Organized Session OS-3

"Refrigeration System Technology of Next Generation"

Organizer: SAITO Rei (Japan Sun Oil Company, Ltd.), FAN Yunqing (Mitsubishi Electric Corporation), MATSUOKA Fumio (Heat Pump Laboratory)

11:00 ～ 12:20 OS-3 (1)
Chairperson: SAITO Rei (Japan Sun Oil Company, Ltd.)

E221 Research and development of remote refrigerant leak monitoring system for VRF systems
The 4th Report – Development of leak detection for heat recovery VRFs –
◯ KIMURA Shunsuke (Daikin Industries, Ltd.), YAMADA Shohei, YOSHIMI Manabu, HIKAWA Takeshi, KASAHARA Shinichi

E222 In situ measurement of circulation composition of refrigerant mixture in heat pump system with NIR absorption spectroscopy
◎ MIYAWAKI Kosuke (MELCO), IKEDA Soshi, HIRATSUKA Kengo, SHIKAZONO Naoki (UTokyo)

E223 Refrigerant leak detection of air conditioner by deep learning
◯ KOMURE Shinya (TCC), ISOBE Yasuyuki (TDSL), KIGUCHI Yukio (TCC), HIRAHARA Morio

E224 Development of superhydrophobic surfaces
Toward a delayed Cassie-Baxter to Wenzel transition
◎ TAKAHASHI Yukinari (Univ. Tokyo), SHAMIM A Jubair, SHAUKAT Nadeem (PIEAS), MOUTERDE Timothée (Univ. Tokyo), HSU Wei-Lun, CHOI Junho, DAIGUJI Hirofumi

13:40 ～ 14:40 OS-3 (2)
Chairperson: FAN Yunqing (Mitsubishi Electric Corporation)

E231 Development of equipment for inactivating airborne viruses
◯ MATSUMOTO Noboru (Fuji Electric), ASADA Tadashi, OHGURI Nobuaki, MATSUMOTO Masahiro, YU Zengqiang

E232 Study on consideration of direct expansion system for environmental laboratory
Part5, Refrigerant distribution method for evaporator
◯ NAGATA Junichiro (Sanki Engineering), SASAKI Masanori, SHIMMURA Koichi, FUKUMORI Kanta

E233 Study on miscibility for refrigerant and behavior on refrigeration cycle of refrigeration oil
◯ NAKANO Ryoichi (JAPAN SUN OIL), SAITO Rei, SUZUKI Yoshinori

――――― Day 3 ―――

Room A <Sep. 9>

Organized Session OS-7

"Application of Simulation Technology for Refrigeration, Air-conditioning and Water Heating"

Organizer: YAMAGUCHI Seiichi (Waseda Univ.), NONAKA Masayuki (Hitachi-Johnson Controls Air-Conditioning, Inc.), YAMASHITA Koji (Mitsubishi Electric Corp.), TAIRA Shigeharu (Daikin Industries, Ltd.)

09:40 ～ 10:40 OS-7 (4)
Chairperson: TAIRA Shigeharu (Daikin Industries, Ltd.)

A311 Study on control characteristics of air-conditioning system
◎ ARIGA Shintaro (Waseda University), TODATE Tatuhito, YAMAGUCHI Seiichi

A312 Exploring parameters for air-conditioning devices with Bayesian optimization
○ NAKANE Koki (MELCO), TAKEMURA Ryuichi, TANAKA Kosuke, SUGIHARA Kenya, MARIYAMA Toshisada

A313 Control method of room air conditioners during start-up operation
◎ ISHIZAKA Shigeki (Waseda University), VARELA Jayson Richard, JEONG Jongsoo, SAITO Kiyoshi

11:00 ～ 12:20 OS-7 (5)
Chairperson: NONAKA Masayuki (Hitachi-Johnson Controls Air-Conditioning, Inc.)

A321 A proposal of energy saving design method of heat exchanger in air conditioner
2nd Report : Application to refrigerant circuit design of indoor unit for room air conditioner considering uneven air velocity profile and mal-distribution of refrigerant
◎ HATTORI Hironori (Mitsubishi Electiric), TATSUTA Kosuke, NAKAGAWA Naoki, KANATANI Toshiki, KODAMA Takuya, KOBAYASHI Takashi

A322 A proposal of energy saving design method of heat exchanger in air conditioner
3rd Report, A robust refrigerant distributor considering drifted liquid flow from the upstream bending pipe
◎ TATSUTA Kosuke (Mitsubishi Electric), HATTORI Hironori, NAKAGAWA Naoki, KANATANI Toshiki, KODAMA Takuya, KOBAYASHI Takashi

A323 Numerical analysis on two phase flow at a branch of air conditioning system with multiple indoor units
◎ NISHIO Jun (Mitsubishi Electric), KUROSE Ryoichi (Kyoto University)

A324 Numerical study of the effect of channel aspect ratio on boiling heat transfer performance in rectangular microchannel heat exchangers using R32
○ BADHAN Pragun (Daikin Industries Ltd.), FUKUOKA Motohiko, YOKOSE Kiyonori

Room B <Sep. 9>

Organized Session OS-8

"Technologies of Desiccant, Adsorption, Absorption and Chemical Reaction"

Organizer: TSUJIGUCHI Takuya (Kanazawa Univ.), KUBOTA Mitsuhiro (Nagoya Univ.), ESAKI Takehiro (Kyushu Univ.)

09:00 ～ 10:40 OS-8 (4)
Chairperson: YAMAGUCHI Seiichi (Waseda Univ.)

B311 Temperature effect on water adsorption and desorption in mesoporous metal-organic framework MIL-101(Cr)
◎ FEI Shubo (Univ. Tokyo), GAO Jiao, MATSUDA Ryotaro (Nagoya Univ.), ENDO Akira (AIST), DELAUNAY Jean-Jacques (Univ. Tokyo), HSU Wei-Lun, DAIGUJI Hirofumi

B312 Towards the precision adsorbents via understanding molecular-level surface phenomena of noble gases and non-polar gases on common adsorbents: Part 1 - Monte Carlo approach
○ SAREN Sagar (Kyushu Univ.), CHEN Haonan, MIKSIK Frantisek, MIYAZAKI Takahiko, THU Kyaw

B313 Towards the precision adsorbents via understanding molecular-level surface phenomena of noble gases and non-polar gases on common adsorbents: Part 2 - Molecular Dynamics Method
○ CHEN Haonan (Kyushu University), SAREN Sagar, MIKSIK Frantisek, MIYAZAKI Takahiko, THU Kyaw

B314 Development and characterization of highly porous activated carbon from pine cone
The activated carbon with a high porous structure and water adsorption capacity
○ YU Hao (Kyushu University), MIKšíK František, THU Kyaw, MIYAZAKI Takahiko

B315 Adsorption characteristics of water vapor onto zeolite/Al composites for adsorption refrigeration
◎ CHUMNANWAT Suppanat (Kanazawa Univ.), KODAMA Akio, TAKIGUCHI Noboru, KUMITA Mikio

11:00 ～ 12:20 OS-8 (5)
Chairperson: KUBOTA Mitsuhiro (Nagoya Univ.)

B321 Research on adsorption heat pumps using natural mesoporous materials
15th Report: WSS adsorption characteristics of methanol for extracting cold heat below 0 ℃.
○ SHIINA Risa (hokkaido university), HE Fang, NAGANO Katsunori, TOGAWA Junya (Nippon Netugen system co.ltd)

B322 Research and development of low-cost adsorption heat pump using natural mesoporous material
14nd Report: Investigation of the heat recovery and the mass recovery processes based on the three-dimensional numerical calculation
○ HE Fang (Hokkaido University), NAGANO Katsunori, TOGAWA Junya (Nihon Netsugen System)

B323 Performance improvement by applying heat recovery and mass recovery on the adsorption heat pump using activated carbon-freon refrigerant pair

◯ SEO Sang won (Kyushu University), MAESHIRO Yuta, MIKSIK Frantisek, THU Kyaw, MIYAZAKI Takahiko

B324 Dynamic simulation of a temperature upgrading type adsorption heat pump cycle with heat recovery process
◯ ZHAO Junyu (Kyushu Univ.), HAMAMOTO Yoshinori

13:40 ～ 15:20 OS-8 (6)

Chairperson: ESAKI Takehiro (Kyushu Univ.)

B331 Observation of frost formation behavior on a polymer sorbent coated surface
◯ YUASA Koichi (Okayama University), HORIBE Akihiko, YAMADA Yutaka, ISOBE Kazuma

B332 Experimental study on condensation and evaporation on surface of chilled mirror for measurement of dew point temperature
◎ KONISHI Takehiro (Waseda University), HANEDA Naoki, KOGURE Sayaka, YAMAGUCHI Seiichi

B333 A crossflow desiccant dehumidifier incorporating direct hot water regeneration and evaporative cooling with residual water
◎ SUNHOR Seng (Kanazawa University), SAPUTRA ADI Dendi, TSUJIGUCHI Takuya, OSAKA Yugo, KODAMA Akio

B334 Study of visurising of the thermal and humidity gradations inside the rotating materials
NABESHIMA Yuki (SIST), KIMURA Ryushi (NITKC), OKABE Kumi (SIST), ◯ SUZUKI Nami

B335 Experimental investigation of desiccant dehumidifier using low-temperature heat sources
◎ YANG Zhaosheng (Interdisciplinary Graduate School of Engineering, Sciences, Kyushu University), YU Hao (nterdisciplinary Graduate School of Engineering, Sciences, Kyushu University), MIKŠÍK František (Interdisciplinary Graduate School of Engineering, Sciences, Kyushu University,International Institute of Carbon-Neutral Energy Research (I2CNER), Kyushu University), THU Kyaw, MIYAZAKI Takahiko, CHOON NG Kim (Water Desalination & Reuse Center (WDRC), King Abdullah University of Science & Technology)

Room C <Sep. 9>

Organized Session OS-5

"Thermophysical Properties of Refrigerants"

Organizer: AKASAKA Ryo (Kyushu Sangyo Univ.), MATSUDA Kenji (Mitsubishi Heavy Industries Thermal Systems), KAYUKAWA Yohei (AIST)

09:00 ～ 10:40 OS-5 (1)

Chairperson: MATSUDA Kenji (Mitsubishi Heavy Industries Thermal Systems)

C311 Liquid density measurement for R1233zd(E) and R1224yd(Z) with a vibrating tube densimeter
◎ UCHIKOSHI Ryuga (Fukuoka Univ.), NISHIYAMA Takashi, GAO Lei

C312 Surface tension measurement by a differential capillary-rise method for a ternary mixture R1123/R32 /CF3I (73/22/5 mass%)
◎ OTSUBO Yuma (Nagasaki University), KAWAHARA Takemasa, NONAKA Ryutaro, KONDOU Chieko

C313 Evaluation of application to hot water heating using CO2 refrigerant heat pump water heater
◯ KUROIWA Toru (MTH), OKADA Yuji, SASAYA Yugo

C314 Vapor liquid equilibrium system simulation by a molecular dynamic method for R1123/CF3I
◎ IMAI Tomoaki (Nagasaki university), MIURA Takehiro, HASHIMOTO Masato, KONDOU Chieko

C315 Ideal gas heat capacity estimation of R32 and R1123 based on molecular vibration analysis
◎ SAKANIWA Shun (Waseda University), KAYUKAWA Yohei (National Institute of Advanced Industrial Science and Technology), AKASAKA Ryo (Kyushu Sangyo University), JEONG Jongsoo (Waseda University), SAITO Kiyoshi

General Session GS-1

11:00 ～ 12:20 GS-1 (2)

Chairperson: HARUKI Naoto (Okayama Prefectural Univ.)

C321 Consideration of environmental impact of R410A refrigerant recovery and reclamation
◯ YAKUSHIJI Fumiaki (DAIKIN), FUIMOTO Satoru

C322 The evaporation behavior of droplet pair and the effect of the contact angle
◯ YAMADA Yutaka (Okayama Univ.), ISOBE Kazuma, HORIBE Akihiko

C323 Effect of lighting colors on changes in thermal sensation
◎ SAITO Mikoto (Meiji.Univ), KAWANAMI Tsuyoshi

C324 Study on insolation forecast based on LSTM model
◯ AN Haochen (Hokkaido University), NAGANO Katsunori, KATSURA Takao

Room D <Sep. 9>

Workshop WS-1

"Trends in Development of Heat Exchangers"

Moderator: SUZUKI Hideaki (Toshiba Carrier Corp.), HOUFUKU Mamoru (Hitachi-Johnson Controls Air Conditioning, Inc.), INOUE Norihiro (Tokyo Univ. of Marine Science and Technology)

09:00 ～ 10:40 WS-1 (1)
Chairperson: INOUE Norihiro (Tokyo Univ. of Marine Science and Technology)

D311 Report on refrigeration and air-conditioning technology roadmap 2050 (2020 Edition)
◯ MIYATA Kazushi (Fukuoka Univ.), JEONG Jongsoo (Waseda Univ.)

D312 Activity report of the research project "Advanced Heat Exchanger Technology for the Adjustment to Global Warming"
◯ HIROTA Masafumi (Mie Univ.)

D313 Investigation of the frost wash effect on ant nest corrosion resistance improvement
◎ LEE Myungchul (Johnson Controls – Hitachi Air Conditioning), HOUFUKU Mamoru, TAKAFUJI Ryoichi, YAMAMOTO Naoki

D314 Experiments on condensation heat transfer of HFC and HFO refrigerants outside the horizontal enhanced tube
◯ MATSUNO Tomonobu (KMCT), TAKAHASHI Hiroyuki

11:00 ～ 12:40 WS-1 (2)
Chairperson: HOUFUKU Mamoru (Hitachi-Johnson Controls Air Conditioning, Inc.)

D321 Flow distribution for boiling flow in parallel channels
◯ MIYARA Yuki (Graduate school of engineering, The Univ. of Tokyo), KATO Taito, HIMENO Takehiro (Graduate school of engineering and Faculty of engineering, The Univ. of Tokyo), ASAIDA Yasuhiro (Panasonic Holdings Corporation, Manufacturing Innovation div.), TAKAMI Fuminori, WATANABE Toshinori (Graduate school of engineering and Faculty of engineering, The Univ. of Tokyo)

D322 Effect of two layers separation of immiscible oil on heat transfer coefficient and pressure drop
◎ ONO Yusei (MITSUBISHI), ISHIYAMA Hiroki

D323 Study on drainage evaluation method of flat tube heat exchangers for heat pump air conditioners
◎ WAKAZUKI Ryoto (TOSHIBA Carrier Corporation), IOKA Kumiko (TOSHIBA Corporation), HATADA Takafumi (TOSHIBA Carrier Corporation), OKADA Masahiro

D324 Latest trends of the brazed plate heat exchanger
◯ MIYAHARA Satoshi (SWEP Japan)

D325 Introduction about plate heat exchanger which be adopted straight flow channels, used for evaporator and condenser
◯ SHIKATA Tomohiro (HISAKA WORKS,LTD.)

13:40 ～ 15:20 WS-1 (3)
Chairperson: SUZUKI Hideaki (Toshiba Carrier Corp.)

D331 New type of heat exchanger used in vehicles
◯ SATO Hideaki (DENSO CORPORATION), AKIYOSHI Goki

D332 Trend of R&D development by electrification technology moving forward to carbon neutral society
◯ MATSUMOTO Kuniyasu (KEPCO), SAIKI Kentaro

D333 Energy self-sufficient R&D center to realize reduction of environmental loads
Efforts of Takasago thermal engineering innovation center
◯ AOYAMA Takeshi (Takasago Thermal Engineering Co.,Ltd.), OSAKO Kosuke, SHIMIZU Akihiro, AIZAWA Naoki

D334 Total equivalent warming impact analysis of condensing units for expanded application of CO2 refrigerant
◎ YAMADA Hikaru (CRIEPI), KAIDA Takenobu, HASHIMOTO Katsumi, SAIKAWA Michiyuki

D335 Snowmelt performance evaluation in waste heat utilization snowmelt system
◯ NAKAYAMA Hiroshi (Chubu Electric Power), ONISHI Yoshimasa (Central Nippon Expressway), NISHIHARA Yoshiki (Central Nippon Highway Engineering Nagoya), TERASAKI Hiroaki (Fukui University)

Room E <Sep. 9>

Organized Session OS-3

"Refrigeration System Technology of Next Generation"

Organizer: SAITO Rei (Japan Sun Oil Company, Ltd.), FAN Yunqing (Mitsubishi Electric Corporation), MATSUOKA Fumio (Heat Pump Laboratory)

09:40 ～ 10:40 OS-3 (3)
Chairperson: MATSUOKA Fumio (Heat Pump Laboratory)

E311 Bubble seed generation inside solid state nanopores
◎ PAUL Soumyadeep (Univ. Tokyo), ITO Yusuke, HSU Wei-Lun, DAIGUJI Hirofumi

E312 Heat-pump type plugin hybrid transport refrigeration unit "TEJ35GAM"
◎ KIMURA Momoko (MTH), OSADA Kazumi, JINNO Hiroki, TAKAHASHI Wataru

E313 An innovative communications network concept for ductless air conditioning systems
◯ KOIZUMI Yoshiaki (Mitsubishi Electric

Corporation)

11:00 ～ 12:20 OS-3 (4)
Chairperson: KANAI Hiroshi (Panasonic Corp.)

E321 Saturation characteristics of new working liquid for absorption refrigerators that produce sub-zero cold energy
◯ MASANO Takayuki (HIT), NODA Hidehiko, ISOJIMA Shou, KATAYAMA Masatoshi, ORITA Hisayuki

E322 Evaporation characteristic of the working liquid LiBr-H2O / 1-propanol for absorption refrigerator to generate below-zero brine
◎ ISOJIMA Sho (HIT), NODA Hidehiko, ORITA Hisayuki, KATAYAMA Masatoshi, MASANO Takayuki

E323 Multilayered vertical duct-type ventilation system for heat exchange and air purification
Part 1 : Preliminary analysis of heat exchange efficiency and particle removal performance on prototype model
◎ WANG Xin (Mitsubishi Electric Co.), SOTOKAWA Hajime, CHUNG Juyeon (Fukuoka Women's University), YOO Sung-Jun (Kyushu University), ITO Kazuhide

E324 Effect of R474A on materials in the refrigerant circuit
◎ AJIOKA Shohei (Daikin Industries, Ltd.), GOBO Kenji, KARUBE Daisuke, NAKAUE Tsubasa, NEGISHI Yasutaka