

2011 JSRAE Annual Conference, Presentation Program

1. The available time for presentation is 15 minutes + 5 minutes discussion for general speech, and is 25 minutes + 5 minutes discussion for keynote speech.
2. In the case of multiple authors from 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.
3. Asterisks * show speakers.

Day one : September 14 , 2011 , Wednesday

Room A

Organized Session OS-8

"Desiccant, Humidity Control and Open Cycle"

Organizers: HAMAMOTO Yoshinori (Kyushu Univ.), KODAMA Akio (Kanazawa Univ.)

9:50 - 10:50 OS-8 (1) [Chairperson: HAMAMOTO Yoshinori (Kyushu Univ.)]

- A111 Field Performance Evaluation of Desiccant Air Conditioning Systems using Heat Pump
*TAKEMURA Kazuhisa (Kansai Electric Power Co.,Inc.), UENO Kiyotaka, NAGASAWA Kouji (Daikin Industries, LTD.), YABU Tomohiro, EGUCHI Akihiro
- A112 Improvement of Gas Engine Driven Heat Pump using Water Spray and Dry Air out of Desiccant Unit regenerated by Engine Exhaust Heat
*WAKABAYASHI Tsutomu (Osaka Univ.), HISAZUMI Yoshinori, HORI Tsukasa, KISHIMOTO Akira (Osaka Gas)

11:10 - 12:30 OS-8 (2) [Chairperson: OKANO Hiroshi (Seibu Giken Co., Ltd.)]

- A121 Practical use study of desiccant air-conditioning unit using desiccant block
Characteristic of desiccant block and test plan of desiccant air-conditioning unit
*SHINOHARA Masaaki (KUBOTA Corp), SUZUKI Shunsuke, UTSUNOMIYA Shuji, TOYA Saburo (AT Tokyo Corp)
- A122 Practical use study of desiccant air-conditioning unit using desiccant block
Performance and control stability test of desiccant air-conditioning unit
SHINOHARA Masaaki (KUBOTA Corp), *SUZUKI Shunsuke, UTSUNOMIYA Shuji, TOYA Saburo (AT Tokyo Corp)
- A123 Development of Desiccant Air Conditioning System using Wakkanai Siliceous Shale
Part 7 Development of Desiccant System Combined with Household Heat Pump System
*TOGAWA Junya (Wakkanai Green Factory), FUKUSHIMA Hiroki (Hokkaido Univ), NABESHIMA Yuki, NAKAMURA Makoto, NAGANO Katsunori, NIKI Kohsuke (Sunpot)
- A124 Feasibility Study on the Desiccant Air Conditioning System Using Wakkanai Siliceous Shale
Part 8 - Demonstration experiment of an Integrated System Combined with Heat Pump System
*NABESHIMA Yuki (Hokkaido Univ), NAGANO Katsunori, NAKAMURA Makoto, TOGAWA Junya (Wakkanai Green Factory Co., Ltd), KUROKAWA Asami, NIKI Kohsuke (Sunpot Co., Ltd)

13:30 - 14:50 OS-8 (3) [Chairperson: TOYA Saburo (AT Tokyo Corp)]

- A131 Numerical Simulation in a Desiccant Rotor for Dry Air Generator
Part1:Verification of Desiccant Simulation model in Dry Air Generation Condition
*AYAME Hisao (SHIN NIPPON AIR TECHNOLOGIES), KIMURA Takashi, GODO Masazumi
- A132 Development and performance examination of a low dew point highly efficient desiccant rotor
*KITAJIMA Daiki (SEIBU GIKEN CO.,LTD.), JIN Weili, OKANO Hiroshi
- A133 Development of low-temperature regeneration high-performance dehumidifier for low dew point dry room
*JIN Weili (Seibu Giken Co., Ltd.), OKANO Hiroshi
- A134 Development of a compact dry-room with CO₂ removal
*NISIKOKUBARU Hitomi (SEIBU GIKEN CO.,LTD.), INOUE Koji, OKANO Hiroshi

15:10 - 16:30 OS-8 (4) [Chairperson: KODAMA Akio (Kanazawa Univ.)]

- A141 The research of the next generation desiccant air conditioning (3)
*OKANO Hiroshi (Seibu giken), UMEZAKI Tetsuharu, HIROSE Tsutomu
- A142 Experiment of promotion of moisture adsorption by the sound wave in tube
*KUMADA Shinya (Tokyo University of Agriculture and Technology), UEDA Yuki, AKISAWA Atsushi
- A143 Heat Transfer Behavior of Desorption Process with Microwave Heating in Zeolite Packed Bed
*ITO Seiya (AIT), WATANABE Fujio, HUANG Hongyu, HASATANI Masanobu, KOBAYASHI Noriyuki (Nagoya Univ.)
- A144 A Model of Absorbed Energy Distribution and Numerical Simulation of Dehumidifying Performance in a Desiccant Rotor Regenerated by Concentrated Solar Irradiance
*HAMAMOTO Yoshinori (Kyushu Univ.), MORI Hideo

Room B

Organized Session OS-13

"Low Temperature Technology for Food and Biology"

Organizers: ARAKI Tetsuya (The Univ. of Tokyo), OKAZAKI Emiko (Tokyo Univ. of Marine Science and Technology)

9:50 - 10:50 OS-13 (1) [Chairperson: ARAKI Tetsuya (The Univ. of Tokyo)]

- B111 Application of Cryocoating Method to Observation on Ice Crystal Morphology in Frozen Food
*KOMINAMI Yuri (Tokyo Univ. of Marine Science and Technology), WATANABE Manabu, SUZUKI Toru
- B112 Observation of Ice Crystal Shapes in Ice Cream by Changes of Preservation Temperature
*ANDO Hiroko (Tokyo Univ. of Technology), KATO Toyomi, KAJIWARA Kazuhito, SUZUKI Toru (Tokyo Univ. of Marine Science and Technology)
- B113 Research on Food Preservation of "Vacuum Chilled" 2
*FUNAYAMA Atsuko (Hitachi Appliances, Inc.), TAKASAKI Toshie, ARAKI Kuninari, OHSHIMA Toshiaki (Tokyo Univ. of Marine Science and Technology)

11:10 - 12:30 OS-13 (2) [Chairperson: ANDO Hiroko (Tokyo Univ. of Technology)]

- B121 Phase transition of aqueous solutions under high magnetic field
*KIMIZUKA Norihito (Miyagi Univ.), TAKAHASHI Kohki (Tohoku Univ.), MOGI Iwao
- B122 Effect of supercooling for quality of frozen foods
MOGAMI Yukari (Tokyo Univ. of Marine Science and Technology), *KANESAKA Naohiro, HORIKOSHI Chie, WATANABE Manabu, SUZUKI Toru
- B123 Drip and Specific Heat Capacity of Ambient Gas in Super-Cooling Freezing
*KINO Masato (Mitsuya Corp.), SHIMIZU Akio (Soka Univ.)
- B124 Numerical Simulation of Heat and Mass Transfer in Frozen Tissues
*OKU Yuichiro (Kyushu Inst. Tech.), TANIGAWA Hirofumi, TSURUTA Takaharu

13:30 - 14:50 OS-13 (3) [Chairperson: SUZUKI Toru (Tokyo Univ. of Marine Science and Technology)]

- B131 Inhibition of Ice Nucleation by Antifreeze Proteins
*INADA Takaaki (AIST), KOYAMA Toshie, UEDAIRA Mie, GOTO Fumitoshi (Kanazawa Univ.), SETO Takafumi
- B132 Non-Freezing Storage in Ice-Capsul
*KINO Masato (Mitsuya Corp.), SHIMIZU Akio (Soka Univ.)
- B133 Measurement of Drip in Freezing and Thawing, Using Agar and Dried Tofu
*KINO Masato (Mitsuya Corp.), SHIMIZU Akio (Soka Univ.)
- B134 The Optimum Preservation Conditions for Frozen Cooked Rice Based on Measured Ice Crystal and Sensory Evaluation.
*KONO Shinji (Mayekawa MFG.CO.,LTD), KAWAMURA Izumi, YAMAGAMI Shinichi, SAGARA Yasuyuki (Food-Kansei Communications)

15:10 - 16:30 OS-13 (4) [Chairperson: KIMIZUKA Norihito (Miyagi Univ.)]

- B141 A study of freezing reservation techniques for strawberry tissue using an osmotic dehydrofreezing technique.
*HATA Ryuichi (Tokyo Univ. of Technology), ANDO Hiroko, KAJIWARA Kazuhito
- B142 Improvement techniques for the texture change in strawberry tissue due to freeze-thawing
*ITAKURA Tomomi (Tokyo Univ. of Marine Science and Technology), SUZUKI Toru, WATANABE Manabu, SHIRAIISHI Masato, ANDO Hiroko (Tokyo Univ. of Technology)
- B143 Freezing Preservation of Plant Cell by Using Formation Control of Xenon Hydrate
*WANG Lei (The Univ. of Tokyo), ANDO Hiroko (Tokyo Univ. of Technology), KAWAGOE Yoshinori (The Univ. of Tokyo), MAKINO Yoshio, OSHITA Seichi

Room C

Organized Session OS-9

"Cycle Performance and Thermophysical Properties of Novel Refrigerants"

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

9:50 - 10:50 OS-9 (1) [Chairperson: KAYUKAWA Yohei (AIST)]

- C111 Study of application Low GWP Refrigerant to centrifugal chiller
Evaluation of performance for centrifugal chiller with HFO-1234ze(E)
UEDA Kenji (Mitsubishi Heavy Industries, LTD.), WAJIMA Kazuki, *YOKOYAMA Akimasa, SHIMIZU Akifumi
- C112 Helmholtz Energy Equation of State for HFE-143m
*AKASAKA Ryo (Kyushu Sangyo University), KAYUKAWA Yohei (AIST)
- C113 Influence of Tube Diameter on Condensation Heat Transfer Characteristics of HFO-1234yf Refrigerant
KATSUTA Masafumi (Waseda Univ.), OHNO Yohei, TANINAKA Katsutoshi, *YAMASHITA Akira

11:10 - 12:30 OS-9 (2) [Chairperson: MIYAMOTO Yasuyuki (Toyama Prefectural Univ.)]

- C121 Rationalized evaluation of refrigerants including hydrofluorolefins by using closed circulation system
*SUZUKI Takashi (Gunma Prefectural Industrial Technology Center), KOMATSU Shunji (Waseda University), BAE Sangchul, KATSUTA Masafumi
- C122 Experimental Study on the Performances of the Blended Refrigerants with HFO in the Deep Freezers
*MORI Toru (SANYO Electric Co.,Ltd.), IITAKA Seishi, IMAI Satoshi, TAMURA Toshiyuki, SAKAMOTO Naoki, YUZAWA Jiro, TAKEMASA Kazuo (Takemasa Technical Office)

- C123 Performance evaluation of ejector cooling system driven by solar energy
Performance analysis of an ejector in a variety of refrigerants
*NAKANO Takahiro (Waseda University), SAITO Kiyoshi, YOKOYAMA Keizo (Hibiya Engineering, Ltd.), NAKANO Susumu, HAYAKAWA Yoshikazu, TAGO Takuya
- C124 The correlation and the measurement of PvTx properties for new binary mixtures including HFO system refrigerants
*KOBAYASHI Keizo (MAYEKAWA MFG.CO.,LTD.), OGIYA Shun (Graduate school of Iwaki Meisei Univ.), TANAKA Katsuyuki (Nihon Univ.), HIGASHI Yukihiko (Iwaki Meisei Univ.)

13:30 - 14:50 OS-9 (3) [Chairperson: AKASAKA Ryo (Kyushu Sangyo Univ.)]

- C131 The performance of heat pump cycle using refrigerant mixtures of R1234ze(E) and R32
*FUKUDA Sho (Kyushu Univ), KOBAYASHI Takuto, TAKATA Nobuo, KOYAMA Shigeru
- C132 Experimental performance evaluation of the heat pump system using CO₂ based refrigerant mixture
*TAKATA Nobuo (Kyushu Univ.), KOYAMA Shigeru, HIROSE Jun, YOSHITAKE Daisuke
- C133 Coefficients of viscosity for R 1234ze(E) by using a crystal oscillation viscometer
*IEHISA Natsuki (National Defence Academy), YAMAYA Kenichi, MATSUGUCHI Atsushi, KAGAWA Noboru
- C134 PVTx property measurements for the low GWP refrigerant, R1234yf and its mixture
*KAYUKAWA Yohei (AIST)

General Session GS-1

15:10 - 16:30 GS-1 [Chairperson: SAITO Kiyoshi (Waseda Univ.)]

- C141 Developing household heat pump water heaters with R744 and R410A
YU P.Y. (ITRI), CHAO L.Y., NIAN S.H.
- C142 Lineup Investigation of the Hybrid Hot Water Unit
-2nd Report: Refrigerant Characteristics Investigation of Hybrid Hot Water Unit
*YAMADA Takeshi (Rinnai Corporation), IMAI Seishi, NAKASHIMA Chuji
- C143 Development of an air-cooled type condensing unit with an inverter-driven two-stage single screw compressor and inverter-driven condenser fans.
*MATSUO Mitsuo (Mitsubishi Electric Corporation), MIENO Jyun, ISHIHARA Nobuya, SAITO Makoto, MORISAKI Emi (Mitsubishi Electric Engineering Company Limited), SUMIDA Yoshihiro (Mitsubishi Electric Corporation)
- C144 Verification test and the simulation of foreign-made solar heat panels
*OGINO Daisuke (Waseda Univ), KUWABARA Takeki, YOSHIMURA Gen, NAGATA Katsuya, ONODA Hiroshi (Waseda Environmental Institute)

Room D

Organized Session OS-4

"Heat and Mass Transport Phenomena with Solid-Liquid Phase Change"

Organizers: MATSUMOTO Koji (Chuo Univ.), KUMANO Hiroyuki (Shinshu Univ.)

9:50 - 10:40 OS-4 (1) [Chairperson: MATSUMOTO Koji (Chuo Univ.)]

- D111 [Keynote Lecture] Technological Applications of Antifreeze Proteins and Antifreeze Synthetic Polymers
INADA Takaaki (AIST)
- D112 A discrimination method for a pierced position by detecting a Pre-signal in a bubble measurement via a Single-Tip Optical fiber Probe
*FURUICHI Hajime (Shizuoka Univ.), MIZUSHIMA Yuki, SAITO Takayuki

11:10 - 12:10 OS-4 (2) [Chairperson: TERAOKA Yoshikazu (Kanazawa Univ.)]

- D121 Simulation of Ice Crystal Growth on Solid Surface Using Phase Field Model
*YAMAMOTO Yuji (Shinshu Univ.), IZUMI Yasuyuki (Fujitsu General), KUMANO Hiroyuki (Shinshu Univ.), HIRATA Tetsuo
- D122 Study on ice slurry for local cooling of biological body
Application of Numerical Simulation
*FUMOTO Koji (Hiroshima Univ.), TAKEDA Yoshimasa (Okayama Univ.), HASHIMOTO Hiroshi (Daiken Medical Co. Ltd.), KAWANAMI Tsuyoshi (Koube Univ.)
- D123 Study of Bridging Time and Freezing Phenomenon around Two Horizontal Tubes Immersed in Water
Influence of Tube Array and Tube shape
*SASAKI Osamu (Iwate Univ.), HIROSE Koichi, JIDAISHO Masayuki (Ulvac Tohoku Inc.), FUJITA Naotake (Iwate Univ.), SUGIYAMA Ryo

13:30 - 14:50 OS-4 (3) [Chairperson: KUMANO Hiroyuki (Shinshu Univ.)]

- D131 Investigation of New Continuous Ice Making System
*KATO Ryosuke (Chuo Univ.), TERAOKA Yoshikazu (Kanazawa Univ.), MATSUMOTO Koji (Chuo Univ.)
- D132 Device to Induce Solidification of Cold Box using Membrane
*OKAWA Seiji (Tokyo Tech), KAKU Kenka (Mitsubishi Kakoki Kaisha), YAMADA Yuta (Tokyo Tech)
- D133 Evaluation of efficiency with PCM thermal storage
SHIMOMURA Nobuo (Niihama N.C.T), *MINATO Yoshitaka

- D134 Heat transfer characteristic of ice slurries in various coils
HORIBE Akihiko (Okayama Univ.), HARUKI Naoto, *MOURI Masahiro

General Session GS-2

15:10 - 16:30 GS-2 [Chairperson: HARUKI Naoto (Okayama Univ.)]

- D141 Improvement of Drinking Water Cooling System for Chicken Coop
*ASAOKA Tatsunori (Aoyama Gakuin Univ.), IGUSHI Daijiro, OKADA Masashi, YOSHIDA Yutaka (Yoshida L'sys)
- D142 Study of Installation Method of Wells Using a Pile Driver and Its Application for Air Conditioning Systems
Development of Installation Method of Wells Using a Pile Driver of Pre-Boring Method
*MIYAMOTO Shigenobu (Fukui Univ.), HASHIZUME Yoshimitu (Mitani Sekisan Co.Ltd), NISHIGAKI Mamoko (Okayama Univ.), YAMAZAKI Michiro (Fukui Prefec.)
- D143 Study of Installation Method of Wells Using a Pile Driver and Its Application to Air Conditioning Systems
(No.2) Study of Aquifer Thermal Energy Storage
*MIYAMOTO Shigenobu (Fukui Univ.), NISHIGAKI Mamoko (Okayama Univ.), YAMAZAKI Michiro (Fukui Prefec.), HASHIZUME Yoshimitu (Mitani Sekisan Co.Ltd), TAKEUCHI Masanori (Fukui Univ.)
- D144 Development of U-tube Heat Exchanger Piles Using a Pile Driver of Pre-Boring Method and Its Ability
HASHIZUME Yoshimitu (Mitani Sekisan Co.Ltd), *MIYAMOTO Shigenobu (Fukui Univ.), TAKEUCHI Masanori, KAJIMURA Syuhei (Fukui Prefec.), YAMAZAKI Michiro, NAGANO Kastunori (Hokkido Univ.)

Room E

General Session GS-3

11:10 - 12:30 GS-3 [Chairperson: SHIKAZONO Naoki (The Univ. of Tokyo)]

- E111 Experimental Study on Closed Aquifer Thermal Energy Storage Systems (ATES) in Urban Area
(Part1) Measurement of Thermal Energy Storage Efficiency on Open Aquifer
*SASAKI Kenta (Osaka City Univ.), NAKASO Yasuhisa (Kansai Electric Power Co.Inc.), ITOU Takayuki (Osaka City Univ.), NAKAO Masaki, NISHIOKA Masatoshi, NABESHIMA Minako
- E112 Experimental Study on Closed Aquifer Thermal Energy Storage Systems (ATES) in Urban Area
(Part2) Parameter Identification and Estimation of Enclosure Effect
*ITO Takayuki (Osaka City Univ.), NAKASO Yasuhisa (Kansai Electric Power Co.Inc.), SASAKI Kenta (Osaka City Univ.), NAKAO Masaki, NISHIOKA Masatoshi, NABESHIMA Minako
- E113 Experimental Study on Enclosed Aquifer Thermal Energy Storage Systems (ATES) in Urban Area
(Part3) Compliance of Underground Heat Transfer Analysis Model to Target Multiple Wells
*NAKASO Yasuhisa (Kansai Electric Power Co.Inc.), ITO Takayuki (Osaka City Univ.), SASAKI Kenta, NAKASO Masaki, NISHIOKA Masatoshi, NABESHIMA Minako
- E114 Research and Development on a Power Generation and Heat Supply System Using Waste Heat
Examination of Brayton Engine Generator and Application System
SEKIYA Hiroshi (Waseda Univ. Graduate School), *HARADA Yusaku, TERADA Fusao (TERRTEC Co., Ltd.)

Workshop WS-1

**"Trends and Examples in Technological Development of Heat Exchangers"
Moderators: KOYAMA Shigeru (Kyushu Univ.), MIYARA Akio (Saga Univ.)**

13:30 - 14:50 WS-1 (1) [Chairperson: KOYAMA Shigeru (Kyushu Univ.)]

- E121 Vision of Heat Exchanger for Environment and Energy conservation
OHARA Toshio (Denso Corporation)
- E122 Visualization of Nucleate Boiling of Refrigerant HCFC123 in a Mini-Tube
MURATA Keiji (Kinki Univ. Technical College), ARAGA Koichi, ETOH Takeharu (Kinki Univ.), TAKEHARA Kohsei
- E123 Study on Visualization of Liquid Flow for Falling Film Type Absorption Heat Transfer Tubes
TAKAHASHI Hiroyuki (Kobelco & Materials Copper Tube, LTD)

15:10 - 16:50 WS-1 (2) [Chairperson: MIYARA Akio (Saga Univ.)]

- E131 Development of the Direct Cooling Device for the PCU installed on new Prius
KATO Naoki (Toyota Industries Co.), MORI Shogo, TOH Keiji, YANAGIMOTO Shigeru (Showa Denko K.K.), Yuichi FURUKAWA
- E132 Experimental Study on Evaporation of Freon Refrigerants, Ammonia and Ammonia-Water Mixture Flowing inside an Horizontally Spirally Grooved Steel Tube
MOMOKI Satoru (Nagasaki Univ.), SHIGECHI Toru
- E134 High-Performance Heat-Transfer Tubes for CO₂ Heat Pump Water Heater
HORIGUCHI Ken (Hitachi Cable, Ltd.), HOUFUKU Mamoru, HONMA Kazuhiko
- E135 The Development of High Performance Inner Grooved Tubes
KAKIYAMA Shiro (Sumitomo Light Metal Ind. Ltd.)

Day two: September 15, 2011, Thursday

Room A

Organized Session OS-8

"Desiccant, Humidity Control and Open Cycle"

Organizers: HAMAMOTO Yoshinori (Kyushu Univ.), KODAMA Akio (Kanazawa Univ.)

9:30 - 10:50 OS-8 (5) [Chairperson: HORIBE Akihiko (Okayama Univ.)]

- A211 Numerical and Experimental Performance Analysis of Desiccant Wheel
Effect of outside air temperature and humidity
*FUJITA Yusuke (WASEDA Univ.), YAMAGUCHI Seiichi, SAITO Kiyoshi
- A212 Numerical and Experimental Performance Analysis of Desiccant Wheel
Effect of Regeneration Temperature and Flow Rate Under Indoor Air Circulation
*YASUDA Naofumi (WASEDA Univ.), YAMAGUCHI Seiichi, SAITO Kiyoshi
- A213 Study on the simple model using local mass transfer coefficient for predicting performance of rotary desiccant
*OSAKA Yugo (Kanazawa Univ.), KODAMA Akio
- A214 A Desiccant Rotor Unit enlarged Transfer Rates
*KURODA Masao (Yamato Co.Ltd. Yamato Environmental Engineering Laboratory), KIMURA Kazuya, KOMORI Masato

11:10 - 12:30 OS-8 (6) [Chairperson: MIYAZAKI Takahiko (Kyushu Univ.)]

- A221 Effect of the Parameter for Sorption Characteristics of Rectangular Sorption Block
HORIBE Akihiko (Okayama Univ.), HARUKI Naoto, *INABA Wataru
- A222 Dehumidification Behavior of an Organic Sorbent Desiccant Rotor with a Heat Pump by Double Ventilation
HORIBE Akihiko (Okayama Univ.), HARUKI Naoto, *MIYAUCHI Hiroaki
- A223 Heat and mass transfer in packed bed absorber for liquid desiccant system
*YASUDA Naofumi (WASEDA Univ.), YAMAGUCHI Seiichi, SAITO Kiyoshi, MIYAUCHI Hikoo (Dyna-Air Co.,Ltd.), HARADA Masatoshi
- A224 Performance analysis of liquid desiccant air conditioning system using heat pump with Maisotsenko cycle evaporative cooling
*MASATO Takaku (TUAT), MIYAZAKI Takahiko (Kyushu Univ.), ISAO Nikai (NIK technical office), YUKI Ueda (TUAT), ATSUSHI Akisawa

Workshop WS-4

"Electrical and Electronic Technology for Refrigeration and Air-Conditioning"

Moderators : KANNON Tatsumi (Mitsubishi Heavy Industries, Ltd.), KOYAMA Kazuki (SHIN NIPPON AIR TECHNOLOGIES)

13:30 - 14:50 WS-4 [Chairperson: KANNON Tatsumi (Mitsubishi Heavy Industries, Ltd.)]

- A231 Inverter Technology and the Latest Control Methods in the Field of Refrigeration and Air Conditioner
KUSUBE Shinsaku (Mitsubishi Electric Corporation), MORIMOTO Junji
- A232 Inverter Control of VRF System and the Approach to Energy Saving
MATSUSE Tatsuya (Daikin Industries, Ltd.)
- A233 Optimum Control and Communication for Centrifugal Chiller using an Inverter
MIURA Takaaki (Mitsubishi Heavy Industries, Ltd.), UEDA Kenji
- A234 Wireless Sensor Network for Visualization of Field Data
SHIMURA Takanori (Hitachi, Ltd.), HANYU Hiroshi, FUKUI Takuya

Workshop WS-3

"Global Development in Refrigeration and Air-Conditioning"

Moderators : KUBOTA Jun (Hitachi, Ltd.), MATSUOKA Fumio (The Univ. of Tokyo)

15:10 - 16:40 WS-3 [Chairperson: MATSUOKA Fumio (The Univ. of Tokyo)]

- A241 Refrigerant Management System for Mitigating the Global Warming
KATAKURA Momoki (Japan Society of Refrigerating and Air Conditioning Engineers), IHARA Teruyoshi, YOKOYAMA Hiroyuki, FURUKAWA Hiromasa, TATEYAMA Ryotaro
- A242 Global Development of Air Conditioning Market
NAKANO Hiromichi (Daikin Industries)
- A243 Air Source Heat Pump for Domestic Wet Heating System in Europe
INOUE Seiji (Mitsubishi Electric Corporation)
- A244 Refrigerant Natural Circulation Cooling System in Europe
NAKANISHI Masato (Hitachi, Ltd.), KOYANO Kouichi, KOMATSU Tomohiro (Hitachi Europe Ltd.), SHIMOKAWA Ryouji (Hitachi Plant Technologies)

Special Lecture SL

16:55 - 17:55

- A251 Academic Disciplines —Material/Bio Science and Technology— Crossing the Frontiers
Consider the Source of Creativity
WADA Akiyoshi (Research Advisor, RIKEN, Emeritus Professor, The Univ. of Tokyo)

Room B

Organized Session OS-13

"Low Temperature Technology for Food and Biology"

Organizers: ARAKI Tetsuya (The Univ. of Tokyo), OKAZAKI Emiko (Tokyo Univ. of Marine Science and Technology)

9:30 - 10:50 OS-13 (5) [Chairperson: FUKUDA Yutaka (National Fisheries Univ.)]

- B211 Structural Simulation of Tuna Myoglobin under Frozen Conditions
*OCHIAI Yoshihiro (Tokai Univ., Marine Sci. Tech.)
- B212 Promotive effect of metmyoglobin formation on freeze concentration process
*SUZUKI Tomoki (Tokyo Univ. of Marine Science and Technology), UENO Syo, WATANABE Manabu, SHIRAISHI Masato, SUZUKI Toru
- B213 Exploring simulation study for best thawing condition of Frozen tuna block
*UENO Sho (Tokyo Univ. of Marine Science and Technology), SUZUKI Tomoki, WATANABE Manabu, SUZUKI Toru
- B214 Effect of freezing speed on drip amount of tuna meat block
*KOBAYASHI Rika (Tokyo Univ. of Marine Science and Technology), TAMURA Tomoaki, WATANABE Manabu, SUZUKI Toru

11:10 - 12:30 OS-13 (6) [Chairperson: OKAZAKI Emiko (Tokyo Univ. of Marine Science and Technology)]

- B221 The relationship between the drip loss amount after thawing of frozen tuna meat and the denaturation of meat protein during thawing process
*TAMURA Tomoaki (Tokyo Univ. of Marine Science and Technology), TANAKA Reina, KOBAYASHI Rika, ABE Shuji, WATANABE Manabu, SUZUKI Toru
- B222 Effect of freshness on the quality of frozen tuna meat
*NAKAZAWA Naho (National Fisheries Univ.), WADA Ritsuko, KAKIMOTO Masato, FUKUSHIMA Hideto, TANAKA Ryusuke, YOSHIMURA Mari, OHISO Takuya, KATO Yui, HIRUMA Naoya (MAYEKAWA MFG.CO.,LTD), YAMAGAMI Shinichi, KOUNO Shinji, FUKUDA Yutaka (National Fisheries Univ.)
- B223 Effect of Freezing Rate on the Muscle Cell after Thawing of Tuna Meat
NAKAZAWA Naho (National Fisheries Univ.), OISO Takuya, NAMOTO Aoi, WADA Ritsuko, FUKUSHIMA Hideto, *FUKUDA Yutaka (National Fisheries University)
- B224 Effect of sucrose on the biochemical properties of fish muscle proteins during freezing and frozen storage
YUAN Chunhong (Kagoshima Univ.), YU Kefeng (Shanghai Ocean Univ.), CHEN Shunsheng, CHENG Yudong, WANG Xichang, *FUKUDA Yutaka (Fisheries Univ.)

13:30 - 15:10 OS-13 (7) [Chairperson: OCHIAI Yoshihiro (Tokai Univ.)]

- B231 The quality improvement of frozen whale meat by use of biological metabolism under freezing temperatures
*FUKUSHIMA Hideto (Nat. Fish. Univ.), TAKESHIMA Yohei, FUNAHASHI Hitoshi (Kyodo Senpaku Co.), OGIHARA Mitsuhiro, NAKAZAWA Naho (Nat. Fish. Univ.), WADA Ritsuko, FUKUDA Yutaka
- B232 Influence of cryoprotective agent on freezing preservation of biomechanical materials
*KONISHI Mayu (Nihon Univ.), DO Gabsoo, BAE Yeonghwan (Suncheon National Univ.), SATO Kahei (Nihon Univ.), KAWANISHI Hirobumi, ARAKI Tetsuya (The Univ. of Tokyo)
- B233 Effects of plasticizer type on properties of edible film from frozen squid meat
Effects of plasticizer on edible film from squid
*LEERAHAWONG Akasith (Tokyo Univ. of Marine Science and Technology), TANAKA Munehiko (Kokugakuin Tochigi Junior College), OKAZAKI Emiko (Tokyo Univ. of Marine Science and Technology), OSAKO Kazufumi
- B234 Study on frozen storing of casing boiled fish paste of *Acropoma japonicum*.
Study on frozen storing of boiled fish paste.
*HIRAOKA Yoshinobu (Ehime Institute of Industrial Technology), YAMANAKA Fumika, NISHIO Toshihumi, ISHIMARU Takashi
- B235 Effect of organic acid solution on the gelation of non-heated gel prepared from frozen surimi
Effect of organic acid on the gelation of surimi
*ABE Shuji (Tokyo Univ. of Marine Science and Technology), IGARASHI Yuki (Toshin Seafoods Co.,Ltd), TANAKA Munehiko (Kokugakuin Tochigi Junior College), OKAZAKI Emiko (Tokyo Univ. of Marine Science and Technology), OSAKO Kazufumi

Room C

Special Session SS

"Special Session on the Great East Japan Earthquake"

9:30 - 11:00 SS [Chairperson: NONAKA Masayuki (Hitachi, Ltd.)]

- C211 Supply and Demand of Electricity after the Great East Japan Earthquake and Future Measures

- ASANO Hiroshi (Central Research Institute of Electric Power Industry, The Univ. of Tokyo)
- C212 Restoration of the Gas Infrastructure and Gas Air-Conditioning in the Future
YOSHIOKA Tomoyuki (The Japan Gas Association), KAWAKITA Hiroshi, WAKAMATSU Masaki
- C213 The Correspondence Situation Report of Revival Support for East Japan District after Unprecedented Disaster
TAKAMATSU Kunio (Japan Society of Refrigerating and Air Conditioning Engineers)
- C214 Simultaneous achievement of electric-load leveling and energy saving utilizing heat pump thermal storage system
HANAZAKI Hirotaka (Heat Pump & Thermal Storage Technology Center of Japan)
- C215 Refrigeration and Air Conditioning Systems Outlook after the Tohoku Earthquake
HIHARA Eiji (The Univ. of Tokyo)

Organized Session OS-5

"Technological Development in Heat Exchangers"

Organizers: MIYARA Akio (Saga Univ.), ASANO Hitoshi (Kobe Univ.), INOUE Norihoro (Tokyo Univ. of Marine Science and Technology)

11:10 - 12:40 OS-5 (1) [Chairperson: MIYARA Akio (Saga Univ.)]

- C221 [Keynote Lecture] Experiments on heat transfer with phase change in nanofluids
*OKAWA Tomio (Osaka Univ.), TAKAMURA Masahiro, NAGANO Kenta
- C222 Flow Visualization of Forced Convective Boiling of Ammonia on Plate Evaporator
*MISHIMA Fumiya (Saga Univ.), ARIMA Hirofumi (IOES), KOYAMA Kohei, IKEGAMI Yasuyuki
- C223 Study of Heat Transfer and Flow Characteristics of Gas-Liquid Two-Phase Flow in Plate-Fin Heat Exchanger
*TOMINAGA Yuki (Kobe Univ.), ASANO Hitoshi, SHIKICHI Kazuaki (KEPCO inc.)
- C224 Development of High Performance Heat Exchanger for CO₂ Heat Pump Water Heater
*MORIMOTO Masakazu (Denso), KITAGAWA Shinya, MATSUOKA Akio, IKEDA Takao

13:30 - 14:50 OS-5 (2) [Chairperson: SHIKAZONO Naoki (The Univ. of Tokyo)]

- C231 Flow distribution characteristics of two-phase water-air flow
The consideration of flow shape and entrance inflow condition for flowing quantity distribution reproduction of refrigerant
*SEKINE Masato (Waseda Univ.), KATSUTA Masafumi, FUKAI Kazuto
- C232 Flow Characteristics of Decompression Boiling Two-Phase Flow in Capillary Tube
Effect of tube configuration
*ASANO Hitoshi (Kobe Univ.), TANAKA Mitsuharu, KOBAYASHI Kenta, TAKIGUCHI Koji (Fuji Electric Retail Systems), TSUCHIYA Toshiaki, OKAMOTO Motohide, ISHIDA Shin, KITAIDE Yujiro, MARUYAMA Naoki (Mie Univ.), HIROTA Masafumi, SUZUKI Toshio, OGAWA Sho, IIKURA Hiroshi (JAEA)
- C233 Development of Evaporator for CO₂ Heat Pump Water
*HOSONO Takafumi (DENSO CORPORATION), OKINOTANI Takeshi, BANNO Yoshio
- C234 Development of Finned Tube Heat Exchanger with Small Diameter Tube Used as Evaporator of CO₂ Heat Pump Water Heaters
*WATANABE Michiharu (Hitachi, Ltd.), KUSUMOTO Hiroshi, KITAMURA Tetsuya (Hitachi Appliances, Inc.), SAKAMOTO Koichi, WATANABE Kotaro

15:10 - 16:30 OS-5 (3) [Chairperson: SHIKIJI Chiaki (KEPCO)]

- C241 Study on Heat Exchange Characteristics of Oblique Wavy Fin
*SHIKAZONO Naoki (The Univ. of Tokyo), INOUE Mitsuru, WAKE Tsunehito (Waki Factory Inc.), WAKE Yasuhito, IKUTA Shiro
- C242 Heat Transfer Performance of Symmetric Airfoil-shaped Tube Heat Exchanger
*ONISHI Hajime (Kanazawa Univ.), YONEKURA Haruka (Hokuriku Electric Power Company), KIKUCHI Hajime (Kanazawa Univ.), TADA Yukio, TAKIMOTO Akira
- C243 Development of Parallel flow heat exchanger for Air Conditioner
Study of improvement in performance of evaporator which applied micro channel
*HAYASE Gaku (Samsung Electronics), CHO Honggi, SEO Kangtae
- C244 Development of Aluminum heat exchanger for Air Conditioner
Study of fin & tube heat exchanger which applied an aluminum pipe in stead of a copper pipe
*HAYASE Gaku (Samsung Electronics), CHOI Yonghwa, CHO Honggi, SEO Kangtae

Room D

Organized Session OS-11

"Air Conditioning and Refrigeration Systems about Heat Island Problem"

Organizers: NISHIMURA Nobuya (Osaka City Univ.), WATANABE Choyu (Central Research Institute of Electric Power Industry), KAMETANI Shigeki (Tokyo Univ. of Marine Science and Technology)

9:30 - 10:50 OS-11 (1) [Chairperson: WATANABE Choyu (Central Research Institute of Electric Power Industry)]

- D211 Study on Energy Consumption of Distributed Air-Conditioning System
Performance of GHP Equipped with Electric Generator
*MIZUTANI Shuhei (Mie University), HIROTA Masafumi, MARUYAMA Naoki, NISHIMURA Akira, MIYAOKA Yoichi (Chubu Electric Power)
- D213 Development of a Simple Measuring Method of Actual Performances of Room Air Conditioner
Influence of the airconditioning dehumidification

*MIYOSHI Naoya (Osaka City Univ.), NISHIMURA Nobuya, IYOTA Hiroyuki

D214 Partial load performance improvement of VRF system under automatic control operation

*FUJIMOTO Isao (The Kansai Electric Power Co.,Inc), TAKEMURA Kazuhisa, SAITO Kiyoshi (Waseda Univ.), OHNO Keisuke, MURATA Hiromichi (P.T.Morimura & Associates,Ltd.), NAKAMURA Hokuto

Organized Session OS-1

"Present Status and Future Development of Compressors"

Organizers: FUKUTA Mitsuhiro (Shizuoka Univ.), ITO Hidetaka (Mitsubishi Heavy Industries, Ltd.)

11:10 - 12:30 OS-1 (1) [Chairperson: FURUSHO Kazuhiro (Daikin Industries, Ltd.)]

D221 Analysis of Contact Force between Wraps of Scroll Compressor

*NOBA Kesiuke (Shizuoka Univ.), FUKUTA Mitsuhiro, HIWATA Akira (Panasonic Corporation), YANAGISAWA Tadashi (Shizuoka Univ.)

D222 Characteristics of CO₂ Refrigeration Cycle with Compressor/Expander Unit

*TERAWAKI Hiroyuki (Graduate School of Shizuoka University), FUKUTA Mitsuhiro (Shizuoka Univ.)

D223 Development of CO₂ Two Stage Compressor for Commercial Heat Pump Water Heater

*SATO Hajime (Mitsubishi Heavy Industries, Ltd.), KIMATA Yoshiyuki, HOTTA Yohei, GOTO Toshiyuki, KOBAYASHI Hiroyuki, MIZUNO Hisao

D224 Study of Mechanical Loss Reduction on Thrust Bearing for Scroll Compressor Using CO₂ Refrigerant

*SASAKI Tatsuya (Mitsubishi Electric Corp), YANO Kenji, SATO Katsunori (Mitsubishi Electric Engineering Company Limited)

Seminar SN-1

Seminar on Compressor Technology

Coordinators: TOJO Kenji (Hitachi Appliances, Inc.), FURUSHO Kazuhiro (Daikin Industries)

13:30 - 15:10 SN-1 [Chairpersons: TOJO Kenji (Hitachi Appliances, Inc.), FURUSHO Kazuhiro (Daikin Industries)]

D231 History of Car Airconditioning Compressors

TAKAI Kazuhiko (Sanden Co. Ltd.)

D232 Gasoline Vapor Liquefaction Recovery Unit

SUGIMOTO Takeshi (Mitsubishi Electric Corporation), TANIMURA Yasuhiro, MORIMOTO Hiroyuki, SEKIYA Katsuhiko (Tatsuno Corporation), AI Yuta

D233 CO₂ Heat Pump Water Heater

OHYA Naohiro (Denso Corporation), TAKATSU Masahiro, KATO Hiroyasu, YOSHII Keiichi, MORIMOTO Masakazu

D235 Instruction for Measurement Method of Physical Quantities in Compressors for Air-Conditioners

ITOH Takahide (JSRAE Compressor Technical Sectional Meeting)

Room E

Organized Session OS-2

"Various Phenomena and Applied Technology of Frost, Snow and Ice"

Organizers: HORII Katsunori (Panasonic), HAMADA Mamoru (Mitsubishi Electric Corporation)

9:30 - 10:50 OS-2 (1) [Chairperson: HAMADA Mamoru (Mitsubishi Electric Corporation)]

E211 [Keynote Lecture] Development Study of Cryogenic Heat Exchanger for Flight Test of Hypersonic Turbojet Engines and Its Frost Formation Problem

*FUKIBA Katsuyoshi (Shizuoka Univ.), HARADA Kenya (JAXA), TAGUCHI Hideyuki, KOBAYASHI Hiroaki, SATO Tetsuya (Waseda Univ.), OKUBO Hidetoshi (Tamagawa Univ.)

E212 Pressure Drop Reduction of Cryogenic Two-Phase Slush Flow in a Corrugated Bellows

2nd Report: Effect of Corrugation Shapes

*OHIRA Katsuhide (Tohoku Univ.)

E213 Study on frosting phenomena at fin in heat exchanger

*KATAOKA Isao (Osaka Univ.), YOSHIDA Kenji, NISHIGUCHI Hiroshi (Kansai Electric Co.Ltd.), TANIGAWA Takuma (Osaka Univ.)

E214 Characteristics of frost formation on fin-tube heat exchanger

*RYUOKU Hiroki (Kansai Univ.), MATSUMOTO Ryosuke, YOSHIMURA Tomoya, UMEKAWA Hisashi, AMI Takeyuki

11:10 ~ 12:30 OS-2 (2) [Chairperson: SHIMOMURA Nobuo (Niihama National College of Technology)]

E221 Reduction of Frost formation under Natural convection

*IKEMOTO Shun (Tamagawa Univ.), OHKUBO Hidetoshi, INOUE Sho

E222 Reduction of Frost formation under Forced Convection

*INOUE Sho (Tamagawa Univ.), OHKUBO Hidetoshi, IKEMOTO Shun, OTA Yosuke (KOBE STEEL, LTD.), YAJIMA Takeshi (Tokyo Electric Power Company)

E223 Simulations of Distribution of Frost Thickness on Flat Plate

*YAMASHITA Koji (Mitsubishi Electric Corporation)

E224 Effects of cold surface temperature on the frost growth

*TASHIRO Yusuke (Mitsubishi Electric Corporation), HAMADA Mamoru

Organized Session OS-3

"Cooling and Air-Conditioning in Data Center"

Organizers: YANAGIHARA Takashi (The Univ. of Tokyo), UEKUSA Tsuneo (NTT West)

13:30 - 15:10 OS-3 (1) [Chairperson: YANAGIHARA Takashi (The Univ. of Tokyo)]

- E231 Cooling System for Data Center
Trend and Strategies of Data Center
*IZUKA Hiroshi (NIKKEN SEKKEI)
- E232 Facility standard of the datacenter
Introduction of the facility standards
*KOHSEI Ichikawa (KAJIMA Corporation)
- E233 Design of Modular Data Center and Energy Save
*GO Masaaki (Shimizu Corporation)
- E234 Cooling facility for data center configured by multiple air conditioners with high reliability and energy efficiency
*FUKUMITSU Wataru (NTT GP-ECO communication, Inc.)
- E235 Development of Highly Efficient Local Area Air Cooling Unit with Refrigerant Natural Circulation System
*KOYANO Koichi (Hitachi, Ltd.), NAKANISHI Masato, KASHIRAJIMA Yasuhiro (Hitachi Plant Technologies, Ltd.), MIKAMI Teruo

15:15 - 16:55 OS-3 (2) [Chairperson: UEKUSA Tsuneo (NTT West)]

- E241 Energy Efficiency and Environmental Considerations for the Data Center
"Service Provider Perspective"
*KARAKI Makoto (ITOCHU Techno-Solutions Corporation)
- E242 Characteristic analysis of heat transport using CO₂ for data center
*NAKAJIMA Kohmei (Waseda Univ.), JEONG Jongsoo, SAITO Kiyoshi
- E243 Module Data Center Using Outside-air Cooling Units
*MURAYAMA Dai (Toshiba Corporation), MORIMOTO Hiroshi, OOTANI Hideyoshi, KINOSHITA Tomoyuki, TAKAGI Yasuo
- E244 Advanced technology of cooling and power saving for high density server
*UMEZAWA Kazuhiko (NEC Corporation), YOSHIKAWA Minoru
- E245 Development of the energy saving servers using thermosyphon for CPU cooling
*TOYODA Hiroyuki (Hitach, Ltd. Hitachi Reserch Lab.), KONDO Yoshihiro, SATO Shigemasa (Hitach, Ltd. Enterprise Server Div.), TSUBAKI Shigeyasu

Room F

Seminar SN-2

Seminar for Refrigeration Engineers

Coordinators: TOMITA Ken (Mitsubishi Electric Air-Conditioning and Refrigeration Systems CO., LTD.), OISHI Satoshi (Nichireifoods INC.)

13:30 - 15:30 SN-2 [Chairperson: TOMITA Ken (Mitsubishi Electric Air-Conditioning and Refrigeration Systems Co., Ltd.)]

- F211 Effect of freezing rate, frozen storage temperature, and thawing condition on the quality of fish meat
FUKUDA Yutaka (National Fisheries Univ.)
- F212 Introduction of Air Refrigeration System
MACHIDA Akito (Mayekawa MFG Co. Ltd.)
- F213 Thawing Systems by Superheated Steam in Low Temperature Air
FURUKAWA Hirokazu (Furukawa Professional Engineer Office)

Day three: September 16, 2011, Friday

Room A

Organized Session OS-5

"Technological Development in Heat Exchangers"

Organizers: MIYARA Akio (Saga Univ.), ASANO Hitoshi (Kobe Univ.), INOUE Norihoro (Tokyo Univ. of Marine Science and Technology)

9:30 - 10:50 OS-5 (4) [Chairperson: NISHIDA Kosaku (Mayekawa MFG Co. Ltd.)]

- A311 Pressure drop and heat transfer inside coiled flow channel of internally grooved tubes
*YU Chenyi (Tokyo Univ. Of Marine Science and Technology), INOUE Norihoro
- A312 Cooling heat transfer characteristics of CO₂ inside a micro-fin tube at supercritical pressure
GAO Lei (Fukuoka Univ.), *MAEMA Yoshinari, NAKAMURA Ayumu, HONDA Tomohiro
- A313 The effect of inner grooved tubes on the heat transfer performance of air-cooled heat exchangers for CO₂ heat pump system
2nd report: the effect of geometries of inner grooved tubes
*KAJI Ryuhei (Daikin Industries), YOSHIOKA Shun, FUJINO Hirokazu
- A314 Heat Transfer Characteristics of High-Low Height Inner Grooved Tube
*LEE Sang-mu (Living Environment Systems Laboratory, Mitsubishi Electric Corporation), ISHIBASHI Akira, MATSUDA Takuya

11:10 - 12:30 OS-5 (5) [Chairperson: ASANO Hitoshi (Kobe Univ.)]

- A321 Effect of Miscible Oil on Evaporating Heat Transfer of Ammonia
KATSUTA Masafumi (Waseda Univ.), NISHIDA Kosaku (Mayekawa Mfg. Co.,Ltd.), NELSON Mugabi, HIROSE Susumu (Waseda Univ.), MORIBAYASHI Toshiaki, *MIYAMOTO Yoshinori
- A322 Flow boiling heat transfer characteristics of CO₂ and CO₂-oil mixtures in the smooth and micro-fin tube
GAO Lei (Fukuoka Univ.), *GOTO Takuya, HAMADA Wataru, HONDA Tomohiro, AKAGI Fujio, YAMAGUCHI Sumio
- A323 Effect of Lubricant Oil on Boiling Heat Transfer of Low GWP R-1234yf in A Horizontal Small-diameter Tube
*SAITOH Shizuo (The Univ. of Tokyo), DANG Chao-bin, HIHARA Eiji
- A324 Flow boiling heat transfer characteristics of ammonia in horizontal small diameter tubes
*TAKABAYASHI Satoshi (Waseda Univ.), SAITO Kiyoshi, KADOWAKI Kimitaka (Mayekawa Mfg. Co.,Ltd.), KATO Masashi

13:30 - 14:50 OS-5 (6) [Chairperson: INOUE Norihoro (Tokyo University Of Marine Science and Technology)]

- A331 Study on Condensation of Pure Refrigerants in Horizontal Rectangular Mini-Channels
Proposal of Pressure Drop and Heat Transfer Correlations
*JIGE Daisuke (Kyushu Univ.), KOYAMA Shigeru
- A332 Boiling heat transfer and pressure drop of a refrigerant flowing horizontally in a small circular tube
*ENOKI Koji (Kyushu University), MORI Hideo, MIYATA Kazushi (Tohoku University), TASHIRO Masahiro (Kyushu University), KARIYA Keishi, HAMAMOTO Yoshinori
- A333 An Experiment on Evaporation Characteristics of Low-GWP Refrigerants in a Horizontal Micro-fin Tube
*BABA Daisuke (Kyushu Univ.), NAKAGAWA Takafumi, KOYAMA Shigeru
- A334 Boiling Heat transfer and Pressure Drop of Refrigerant in Multi-port Extruded Tube
*TANAKA Chitose (The Univ. of Tokyo), DANG Chao-bin, HIHARA Eiji

15:10 - 16:30 OS-5 (7) [Chairperson: GAO Lei (Fukuoka Univ.)]

- A341 Condensation and evaporation heat transfer of HFO-1234ze(E) in horizontal smooth tube
*ONAKA Yoji (Saga Univ.), HOSSAIN Md. Anwar, MIYARA Akio
- A342 Experimental study on condensation heat transfer of Low GWP refrigerant HFO1234yf in a horizontal tube
*WANG Linlin (The Univ. of Tokyo), DANG Chaobin, HIHARA Eiji
- A343 An Experiment on Condensation Characteristics of an Alternative Refrigerant R1234ze(E) in a Horizontal Micro-fin Tube
BABA Daisuke (Kyushu Univ.), *NAKAHATA Hitoshi, KOYAMA Shigeru
- A344 Flow boiling heat transfer of binary refrigerant mixture HFO and R32 in horizontal tubes
*LI Minxia (Tianjin Univ.), DANG Chaobin (The Univ. of Tokyo), HIHARA Eiji

Room B

Organized Session OS-12

"Absorption Refrigerator, Heat Pump"

Organizers: SAITO Kiyoshi (Waseda Univ.), NISHIMURA Nobuya (Osaka City Univ.)

9:30 - 10:50 OS-12 (1) [Chairperson: NISHIMURA Nobuya (Osaka City Univ.)]

- B311 Study on Noise Reduction of Heat Pump Water Heating System
*HIRONAKA Yasuo (Mitsubishi Electric Corp.), YAEGASHI Naoki, TACHIBANA Hiroyuki, TSUMURA Shoko, HATTORI Naotaka (Mitsubishi Electric Engineering Corp.)
- B312 A field test of solar cooling system using solar absorption chiller heater - The first report -
Achievement of optimal operation using solar heat by absorption chiller heater
*HIRAI Akira (Kawasaki Thermal Engineering CO.,Ltd.)
- B313 Measurement of mass flow and mass fraction using solution transportation type absorption chiller
*TOMITA Toru (Tokyo Univ. of Agriculture and Technology), AKISAWA Atsushi, UEDA Yuki, ARAKI Kazumichi, TAKEI Toshitaka (Environment systems)
- B314 The most optimum Absorption Chiller-Heater for replacement
*YAMAMOTO Kazunori (Kawasaki Thermal Eng.), NOZOE Tetsushi, KAWASE Keiichiro

11:10 - 12:30 OS-12 (2) [Chairperson: AKISAWA Atsushi (Tokyo Univ. of Agriculture and Technology)]

- B321 An analytical study on the atomization process of solution and the absorption performance inside an adiabatic absorber
*OKAMOTO Hiroaki (The Univ. of Tokyo), DANG Chaobin, HIHARA Eiji
- B322 Development of Double Output Absorption Heat Pump Chiller with Auxiliary Waste Heat Recovery
*NORIYUKI Nishiyama (Tokyo Gas Co., Ltd.), SHUICHIRO Uchida (Hitachi Appliances, Inc.), YOSHITAKA Sakano
- B323 Intermittent driving simulation of double effect absorption type refrigerator
*OHNO Keisuke (Waseda Univ.), NISHIYAMA Noriyuki (Tokyo Gas), SAITO Kiyoshi (Waseda Univ.)
- B324 Simulation of triple lift absorption heat transformer
*TANO Hideaki (Waseda Univ.), SAITO Kiyoshi, INOUE Naoyuki, FUKUSUMI Yukihiko (Ebara Refrigeration Equipment & Systems Co., Ltd)

13:30 - 14:50 OS-12 (3) [Chairperson: SAITO Kiyoshi (Waseda Univ.)]

- B331 Development and Demonstration of Solar Air Conditioning System
*KAJIYAMA Keisuke (Tokyo Gas Co., Ltd.), KOSHIMIZU Daisuke
- B332 Thermal analysis of a solar-assisted absorption air-conditioning system
Characteristics of the air conditioning load
*ITEYA Tomoki (Osaka City Univ.), NISHIMURA Nobuya, IYOTA Hiroyuki, MATSUBARA Tametoshi (Osaka Gas, Co.)
- B333 Thermal analysis of a solar-assisted absorption air-conditioning system
Investigation of a hybrid system with the low temperature waste heat
*NISHIMURA Nobuya (Osaka City Univ.), ITEYA Tomoki, MATSUBARA Tametoshi (Osaka Gas Co.)
- B334 Simulation of Absorption Chiller Assisted by Solar Thermal Energy
*ITO Makoto (The Univ. of Tokyo), HIHARA Eiji

General Session GS-4

15:10 - 16:30 GS-4 [Chairperson: NISHIMURA Nobuya (Osaka City Univ.)]

- B341 Performance Evaluation of Air Conditioning Systems using Simplified Compressor Curve Method
*TAKEMURA Kazuhisa (Kansai Electric Power Co.,Inc.), UENO Kiyotaka, MATUMOTO Kuniyasu, SAITO Kiyoshi (Waseda Univ.), OHNO Keisuke
- B342 Performance Evaluation of Air Conditioning Systems using Refrigerant Enthalpy Method in Field
*TAKEMURA Kazuhisa (Kansai Electric Power Co.,Inc.), FUJIMOTO Isao, SAITO Kiyoshi (Waseda Univ.), OHNO Keisuke
- B343 Study on calculation method for the annual performance of compression type air conditioner
*SAITO Kiyoshi (Waseda Univ.)

Room C

Organized Session OS-10

"Simulation Techniques for Refrigeration and Air-Conditioning Systems"

Organizers: SAITO Kiyoshi (Waseda Univ.), NONAKA Masayuki (Hitachi, Ltd.)

9:30 - 10:50 OS-10 (1) [Chairperson: HIRAO Toyotaka (Mitsubishi Heavy Industries, Ltd.)]

- C311 Performance Analysis of a Multi-split Type Air-Conditioning System for Buildings by Numerical Simulation
Impact Analysis of Refrigerant Charge Quantity on System Performance
WAKUI Tetsuya (Osaka Prefecture Univ.), *WADA Naohiro, YOKOYAMA Ryohei, NAKAGAWA Nobuhiro (Samsung Yokohama Research Institute), KANEKO Takashi
- C312 Steady state simulation of variable refrigerant flow system
*KIMURA Takeru (Waseda Univ.), OHNO Keisuke, SAITO Kiyoshi, NAKAMURA Hokuto (P.T.Morimura and Associates), MURATA Hiromichi, UENO Kiyotaka (KEPCO), MATSUMOTO Kuniyasu, NAKASO Yasuhisa
- C313 Unsteady state simulation of thermal environment and compression type heat pump
Establishment of an optimal control method
OGATA Shinya (P.T. Morimura and Associates), NAKAMURA Hokuto, MURATA Hiromichi, *EGUCHI Hirokazu (Waseda Univ.), OHNO Keisuke, SAITO Kiyoshi, UENO Kiyotaka (KEPCO), MATSUMOTO Kuniyasu
- C314 Development of General-purpose energy system analysis software -ENEGY FLOW+M
Static analysis of variable refrigerant flow system
*EGUCHI Hirokazu (Waseda Univ.), OHNO Keisuke, SAITO Kiyoshi, NAKAMURA Hokuto (P.T. Morimura and Associates), MURATA Hiromichi, UENO Kiyotaka (KEPCO), MATSUMOTO Kuniyasu, NAKASO Yasuhisa

11:10 - 12:30 OS-10 (2) [Chairperson: SAITO Kiyoshi (Waseda Univ.)]

- C321 The effect of a horizontal buoyant jet to the thermal distribution inside a hot water storage tank.
*TOYOSHIMA Masaki (Mitsubishi Electric Corporation), OKAWA Seiji (Tokyo Institute of Technology)
- C322 Analysis of Temperature Distribution in a Hot Water Storage Tank of a CO₂ Heat Pump Water Heating System
Analysis During Reheating Bathwater
WAKUI Tetsuya (Osaka Prefecture Univ.), *KATO Ryosuke, YOKOYAMA Ryohei, TAIRA Shigeharu (Daikin Industries co. Ltd), ANDOU Takeharu
- C324 Prediction of Distribution in Refrigerant Distributor with Gas-liquid Flow Simulation
*YOSHIMURA Kazuki (Hitachi, Ltd.), ISHII Eiji, MURAKAMI Masato (Hitachi Appliances, Inc.), ICHITSUBO Masaru

13:30 - 15:10 OS-10 (3) [Chairperson: NONAKA Masayuki (Hitachi, Ltd.)]

- C331 Evaluation of the air-conditioners by changing refrigerant paths at evaporators and condensers
*MATSUMOTO Kuniyasu (Kansai Electric Power Co., Inc.), UENO Kiyotaka, SAITO Kiyoshi (Waseda Univ.), OHNO Keisuke
- C332 Integrated development simulator of next generation heat pump system
*NAKAJIMA Kohmei (Waseda Univ.), SAITO Kiyoshi, MATHIDA Akinori (Maekawa Seisakusyo), ITOU Kazutoshi, SEKINE Kentaro (Taisei Kensetsu), SATO Taiki
- C333 Study on global simulation model of compression type heat pump
*WATANABE Toshiro (Waseda Univ.), KIKUCHI Mugito, OHNO Keisuke, NAKAMURA Hiroo, SAITO Kiyoshi, TAKAFUJI Ryoichi (Hitachi appliances)

- C334 Performance prediction and simulation of absorption type refrigerator
*MATSUNAMI Youki (Waseda Univ.), OHNO Keisuke (Waseda Univ.), SAITO Matsunami, NISHIYAMA Noriyuki (Tokyo Gas), KURIHARA Hideaki (Energy Advance)
- C335 Parameter study of desiccant wheel with a high precision simulator
*YAMAGUCHI Seiichi (WASEDA Univ.), SAITO Kiyoshi

General Session GS-5

15:10 - 16:30 GS-5 [Chairperson: NAKAMURA Hiroo (Waseda Univ.)]

- C341 Measurement result of the annual energy consumption in the repair architecture aiming at zero energy building
*NISHIZAWA Makoto (Sanken Setsubi Kogyo Co., Ltd.), YUKI Ryosuke, TOMURO Yasuhiro, KUWAHARA Ryouichi
- C342 Performance Evaluation of Small Capacity Heat Pump Floor Heating System
*YAMAMOTO Keiichi (Kansai Electric Power Co., Inc.), UENO Kiyotaka, OUE Haruki, KATAOKA Hidehiko (Daikin Industries, Ltd.), CHIKAMI Hideo
- C343 Energy monitoring and energy conservation in the proposed commercial
*SUN Yang (Waseda Univ.), MINAMI Yuki, NAGATA Katuya, ONODA Hiroshi (Waseda Univ. Environmental Research Institute)

Room D

Organized Session OS-1

"Present Status and Future Development of Compressors"

Organizers: FUKUTA Mitsuhiro (Shizuoka Univ.), ITO Hidetaka (Mitsubishi Heavy Industries, Ltd.)

9:30 - 10:50 OS-1 (2) [Chairperson: ITO Hidetaka (Mitsubishi Heavy Industries, Ltd.)]

- D311 Analysis of Dynamic Behavior of Suction Valve Using Strain Gauge in Reciprocating Compressor
*NAGATA Shuhei (Hitachi Ltd.), NOZAKI Tsutomu, AKIZAWA Takehiro (Hitachi Appliances, Inc.)
- D312 Lubrication characteristics between swashplate and shoe in swashplate compressor
*TANABASHI Naoya (Graduate school of Shizuoka Univ.), FUKUTA Mitsuhiro (Shizuoka Univ.), OGI Yasuhiro, SUZUKI Hisashi (SANDEN), HAN Seungcheol (Yeungnam Univ.)
- D313 Study on oil droplet behavior in rotary compressor shell
*ENDO Takeshi (Shizuoka Univ.), FUKUTA Mitsuhiro, OGI Yasuhiro
- D314 Research in centrifugal force type oil separator by internal behavior observation
*TSUYOSHI Yamamoto (Nichirei Industries Co., Ltd.), HIROSHI Iwata, KOUJI Shida, RYOHEI Sakamoto, YOUKO Yamashita, NAOKI Shikazono (The Univ. of Tokyo), HAN Youngbae

11:10 - 12:30 OS-1 (3) [Chairperson: TOJO Kenji (Hitachi Appliances, Inc.)]

- D321 Evaluation of characteristics of PAG Lubricants for Air Conditioner with HFO1234yf
*KANEKO Masato (Idemitsu Kosan Co., Ltd.), MATSUMOTO Tomoya, TOKIAI Takeo, SUTO Hideki, SHIMOZAKI Hideki
- D322 Properties of refrigerant/oil mixtures for low GWP refrigerants
*OTA Ryo (Hitachi Lab.)
- D324 Evaluation of electrical properties of Lubricants and Refrigerants with measurement of ohm-ammeter and high pressure mini-cell
*MATSUMOTO Tomoya (Idemitsu Kosan Co., Ltd.), KANEKO Masato

Organized Session OS-7

"Adsorption Refrigerator/HP and Chemical Heat Pump"

Organizers: AKISAWA Atsushi (Tokyo Univ. of Agriculture and Technology), KOBAYASHI Noriyuki (Nagoya Univ.)

13:30 - 14:50 OS-7 (1) [Chairperson: AKISAWA Atsushi (Tokyo Univ. of Agriculture and Technology)]

- D331 Performance of adsorption chiller using new AQSOA adsorbent
*MASAHIRO Suzuki (Mitsubishi Plastic Inc.), HIROYUKI Saiki, SEIICHI Kubokawa
- D332 Output characteristics evaluation of hydration chemical heat pump in continuous heat storage and upgrading operation
*KITO Tsuyoshi (Nagoya Univ.), KOBAYASHI Noriyuki
- D333 Measurement of adsorption equilibrium of ethanol and water azeotropic mixture on activated carbon fiber and performance prediction of its adsorption refrigeration system
*OUCHI Takafumi (Graduate school of Kyushu Univ.), KARIYA Keishi (Kyushu Univ.), ETOH Atsuroh, MORI Hideo, SAHA Bidyut Baran, HAMAMOTO Yoshinori
- D334 Study on adsorbent-adsorbate pairs for the dual evaporator type adsorption chiller by static analysis
*MIYAZAKI Takahiko (Kyushu Univ.), TERAU Yutaro, MAKIMOTO Naoya, SAHA Bidyut Baran, KOYAMA Shigeru
- D335 Static analysis on cascading of mechanical vapor and thermal compression cycles using low GWP refrigerants
*TERAU Yutaro (Kyushu Univ.), MIYAZAKI Takahiko, KOYAMA Shigeru

General Session GS-6

15:10 - 16:30 GS-6 [Chairperson: DAIGUJI Hirofumi (The Univ. of Tokyo)]

- D341 Study on the improvement of CFD prediction of the heat transfer characteristics of a thermal manikin
Part 2 Effect of the turbulence model and mesh resolution on prediction of convective heat transfer
*YABUUCHI Hiroyuki (Tokyo City Univ.), MIYAMOTO Ikuto, NAGANO Hideaki, KOHRI Itsuhei, MATSUNAGA Kazuhiko (ISUZU Motors Ltd.)
- D342 Study on the improvement of CFD prediction of the heat transfer characteristics of a thermal manikin
Part 1 Effect of the reflection characteristics on prediction of radiation heat transfer
*MIYAMOTO Ikuto (Tokyo city Univ.), YABUUCHI Hiroyuki, NAGANO Hideaki, KOHRI Itsuhei, MATSUNAGA Kazuhiko (ISUZU Motors Ltd.)
- D343 The influences of LED Lights for air-conditioning systems in a office room
*SUZUKI Mayu (KAIT), YADA Naoyuki, ENDO Haruka, MITSUI Mika

Room E

Organized Session OS-6

"Next Generation Refrigeration System"

Organizer: JSRAE Next Generation Refrigeration System Technical Sectional Meeting

9:30 - 10:50 OS-6 (1) [Chairperson: DAIGUJI Hirofumi (The Univ. of Tokyo)]

- E311 Research on the mist cooling of air-cooled outdoor units
Measuring the amount of mist evaporation and measurement accuracy in forced convection
*YAMAGUCHI Koji (Osaka City Univ.), FARNHAM Craig, NAKAO Masaki, NISHIOKA Masatoshi, NABESHIMA Minako, YOKOYAMA Keizo (Hibiya Engineering, Ltd.), TAKAHASHI Shinichi, KOMIYA Masashi
- E312 Research on Mist Cooling of Air-Cooled Outdoor Units
(Part 2) Comparison of CFD and Experimental Results and System Optimization
*FARNHAM Craig (Osaka City University), YAMAGUCHI Koji, NAKAO Masaki, NISHIOKA Masatoshi, NABESHIMA Minako, TAKAHASHI Shinichi (Hibiya Engineering, Ltd.), YOKOYAMA Keizo, KOMIYA Masashi
- E313 Intermittent driving simulation of compression type heat pump
*OHNO Keisuke (Waseda Univ.), SAITO Kiyoshi, NAKAMURA Hokuto (PTM associates), MURATA Hiromichi, UENO Kiyotaka (KEPCO), FUJIMOTO Isao, NAKASO Yasuhisa
- E314 Experimental research on intermittent driving of compression type heat pump
*KIMURA Takeru (Waseda Univ.), OHNO Keisuke, SAITO Kiyoshi, NAKAMURA Hokuto (P.T.Morimura and Associates), MURATA Hiromichi, UENO Kiyotaka (KEPCO), FUJIMOTO Isao, NAKASO Yasuhisa

11:10 - 12:30 OS-6 (2) [Chairperson: NAKAMURA Hiroo (Waseda Univ.)]

- E321 Performance evaluation of a room temperature magnetic heat pump system with continuously-magnet-rotation
*SHIMOJI Takashi (Tokyo Institute of Technology Univ.), MAKINO Hiroto, OKAMURA Tetsuji, HIRANO Naoki (Chubu Electric Power Co.), NAGAYA Shigeo, ITO Kouji (Zaouseiki Co.)
- E322 Molecular simulation of water adsorbed on mesoporous silica
*YAMASHITA Kyohei (The Univ. of Tokyo), DAIGUJI Hirofumi
- E323 Water adsorption properties of two-dimensional hexagonal mesoporous silica around freezing point
*DAIGUJI Hirofumi (The Univ. of Tokyo), YAMASHITA Kyohei, MATSUOKA Fumio, HIHARA Eiji, ENDO Akira (AIST)
- E324 Calibration service of He standard leaks in NMIJ/AIST
*ARAI Kenta (AIST), YOSHIDA Hajime, HIRATA Masahiro, AKIMICHI Hitoshi, KOBATA Tokihiko

Workshop WS-2

"Smart Energy and Refrigerating and Air-Conditioning"

Moderators : HASHIMOTO Masahide (Mitsubishi Mitsubishi Electric Corporation), MATSUOKA Fumio (The Univ. of Tokyo)

13:30 - 15:10 WS-2 [Chairpersons: HASHIMOTO Masahide (Mitsubishi Mitsubishi Electric Corporation), MATSUOKA Fumio (The Univ. of Tokyo)]

- E331 Eco Air Conditioning System Using Lukewarm Water
NISHIBATA Kosuke (Takenaka Corporation, Takenaka Research & Development Institute), KASUYA Atsushi, WADA Kazuki
- E332 Experimental Smart House connected with Smart Grid Overviews of the house and Key technologies
KUSHIRO Noriyuki (Mitsubishi Electric Corporation), ITO Yoshiaki
- E333 Consideration on Energy-Saving Performance of the CO₂ Refrigeration System for Showcase
ITSUKI Hiroyuki (SANYO Electric Co., Ltd.), SAKAMOTO Naoki, ISHII Takeshi, MIHARA Kazuhiko
- E334 Demand Side Smart Energy Management System
TAKAGI Yasuo (Toshiba Corporation), IINO Yuataka
- E335 Development of commissioning technology of multi-split air-conditioning system
SHIOCHI Sumio (DAIKIN AIR-CONDITIONING, LTD)

Workshop WS-5

"Research and Development Culture in Room- and Car- Air Conditioners"

Moderators : SEKIYA Sachio (Hitachi, Ltd.), MATSUOKA Fumio (The Univ. of Tokyo), HIRAO Toyotaka (Mitsubishi Heavy Industries, Ltd.)

15:30 - 16:50 WS-5 [Chairpersons: MATSUOKA Fumio (The Univ. of Tokyo), HIRAO Toyotaka (Mitsubishi Heavy Industries, Ltd.), KITAZUME

Sachio (Sanden Co. Ltd.)]

- E341 Trend of Automotive Air Conditioning Systems with Heat Pump Technology
MATSUDA Kenji (The Japan Refrigeration and Conditioning Industry Association)
- E342 Conservation of Energy of the Packaged Air Conditioner with a Thermopile Sensor
EDAYOSHI Atsushi (Mitsubishi Electric Corporation)
- E343 Evaluation of Refrigerant Oil for Car Air-conditioning Compressor using HFO-1234yf as Refrigerant
MATSUZAKI Tomoaki (Sanden Co. Ltd.), KAMISHIMA Hiromitsu, KAWAI Toshiyuki
- E344 Transition of Refrigerant and Refrigeration Oil for Air Conditioner and Mobile Air Conditioner
SAITO Rei (Japan Sun Oil), TANAKA Shuichiro, TANABE Yota