

The International Symposium on New Refrigerants and Environmental Technology 2025
October 23- 24, 2025

Program

October 23, 2025	
9:00 ~ 9:06	Opening Address1 Katsuyuki SAWAI (Chairman of the board, JRAIA) Opening Address2 Coming soon
9:06 ~ 9:36	Keynote ○ Tetsuji OKADA (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))
9:40 ~ 11:20	Session1:Environment Moderator: Akira HIWATA, Panasonic Corporation/ Toru YASUDA, The Japan Refrigeration and Air Conditioning Industry Association Japan's Policy Measures for Phasing-down HFCs ○ Kohei YAMAMOTO (Ministry of Economy, Trade and Industry) European Union Policy and Regulatory Developments impacting the RACHP industry A quick guide to understanding where Europe is at! ○ Russell M Patten (EPEE) The Path to Sustainability in Uncertain Times ○ Stephen R Yurek (AHRI) Refrigerant Transition in China' R&AC industry: Policy Drivers, Industry Progress ○ Ruonan Wang (China Refrigeration and Air-conditioning Industry Association(CRAA)) PFAS restricting regulatory trend Update EU, US and Japan ○ Junichi ISHIKAWA (Conference of Fluoro-Chemical Product Japan) Scenario analysis of the effect of reducing HFC emissions for residential air conditioners ○ Takashi HONMA, Keigo AKIMOTO (Research Institute of Innovative Technology for the Earth (RITE)), Fumiaki YAKUSHIJI (Daikin Industries, Ltd.)
11:25 ~ 11:45	Poster Session Presentation Moderator: Akira HIWATA, Panasonic Corporation
13:00 ~ 14:40	Session2:Technology for equipment using new refrigerants Moderator: Shigeharu TAIRA, Daikin Industries,Ltd./ Yoshihiro SUMIDA, Mitsubishi Electric Corporation High-Efficiency Centrifugal Chillers "JHT-Y Series" Using Low GWP Refrigerant HFO-1234yf Noriyuki MATSUKURA, Naoya MIYOSHI, ○ Kazuma FUKASAWA, Makoto SHIMOKAWA (Mitsubishi Heavy Industries Thermal Systems, LTD) Study of Scroll Condensing Unit for Green Refrigerant R474B ○ Nobuyoshi KAWASE, Masahiro NISHIDE, Koji NAITO, Shinji TAKESUE (Hitachi-Johnson Controls Air Conditioning, Inc.) Development of commercial multi-split air conditioners using natural refrigerants ○ Fumiya TANAHASHI, Yoshiki YAMANOI, Takeru MIYAZAKI, Yusuke OKA, Kazuya SAWATARI (Daikin Industries, LTD.) Development of Hot Water Heat Pump Using A3 Refrigerant R290 ○ Shunya GYOTOKU, Yusuke TASHIRO, Tomoyoshi OBAYASHI, Takahito HIKONE, Masao OKU (Mitsubishi Electric Corporation) Development of air to water heat pump using refrigerant R290 Teruo NISHIDA, Takashi ONO, ○ Yukio MATSUSAKA (Daikin Industries, LTD) Performance Evaluations of a Residential Air Conditioner using HFO-1132(E) mixed Refrigerants ○ Seiya INADA, Masanori SATO, Ryuichi NAGATA, Takuya MATSUDA (Mitsubishi Electric Corporation)
14:50 ~ 16:00	Session3:Compressor / Lubricant 1 Moderator: Yoshiaki MIYAMOTO, Mitsubishi Heavy Industries Thermal Systems, Ltd./ Souichiro KONNO, ENEOS Corporation Development of large capacity two stage compressor for CO2 refrigerators ○ Masakazu ISHITOBI, Yohei HOTTA (Mitsubishi Heavy Industries Thermal Systems, Ltd.), Kentaro KISHI, Takashi WATANABE (Mitsubishi Heavy Industries, Ltd.) Development of a piston and vane connected assembled vane compressor ○ Hiroaki NAKAI, Mamoru NISHIBU, Jun HASEBE, Akihiro HAYASHI (Panasonic Corporation) Innovative VE SRB type Compressor Development compatible with R454B refrigerant ○ Takuma TSUKAMOTO (Mitsubishi Electric Corporation) Examination on Solubility and Volume Change of POE/R454C Mixture ○ Wannarat Rakpakdee, Takuma KOARASHI, Mitsuhiro FUKUTA, Masaaki MOTOZAWA (Shizuoka University)
16:00 ~ 17:35	Session4:Refrigerant safety / Refrigerant life cycle management 1 Moderator: Hiroichi YAMAGUCHI, Carrier Japan Corporation/ Takahiro HASHIMOTO, Sharp Corporation Development of Refrigeration and Air-Conditioning Technologies for Practical Use of Next-Generation Low-GWP Refrigerants ○ Eiji HIHARA (National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE)), Tomokazu MORI (New Energy and Industrial Technology Development Organization (NEDO)) Development of Evaluation Method for Self-Decomposition Reactions of Next-Generation Refrigerants ○ Tomohiro HIGASHI , Makoto ITO, Katsumi HASHIMOTO, Masashi KOTARI (Central Research Institute of Electric Power Industry ENIC Division Grid Innovation Research Laboratory (CRIEPI)), Eiji HIHARA (National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE)) Evaluation for self-decomposition of R-1132(E) mixed refrigerants ○ Takashi USUI, Tomoyuki GOTO, Yasufu YAMADA, Tomohito INOUE (Daikin Industries, LTD) Development of an Ignition Method for the Disproportionation of HFO Refrigerants ○ Zhihua Zhang, Hidekazu OKAMOTO (AGC Inc.) Arc Discharge Energy Generated by an Electrical Short in the Coil Winding of a Compressor in a Room Air Conditioner Powered by an Inverter Power Source ○ Tomohiko IMAMURA (Suwa University of Science), Masato TAKAGI (Graduate School, Suwa University of Science), Ryosei HIRANO (Suwa University of Science), Jun-ichi SUEMATSU (Graduate School, Suwa University of Science)

October 24, 2025	
9:00 ~ 10:25	<p>Session5:New refrigerants and characteristics 1 Moderator: Masami TANIGUCHI, Denso Corporation/ Shuntaro ITO, Fujitsu General Laboratories Limited.</p> <p>Environmental Modeling of TFA from HFO-1234yf River Basins in USA and Europe ○ Krish Vijayaraghavan, Kun Zhao (Ramboll), Jiaqi Zhou, Geert Boeije, Dimitrios Papanastasiou (Honeywell)</p> <p>Low GWP Refrigerants for Electric Vehicle Heat Pumps ○ Ankit Sethi (SK Enmove), Bongho Kang, Jiseong Noh, Jaemin Lee, Hyeri Kim (SK Innovation)</p> <p>New Low GWP Refrigerants for Air-Conditioning, Heat Pumps, and Refrigeration Applications ○ Sarah Kim, Robert Low (Orbia F&EM (Koural))</p> <p>Impact on Decarbonization by Employing Ultra Low GWP (<10) for Unitary Products ○ Steve A Kujak, Michael Petersen (Trane Technologies)</p> <p>Enabling Next Generation Data Centers with Two Phase Immersion Cooling ○ SAMER SAAB (The Chemours Company FC, LLC)</p>
10:35 ~ 12:15	<p>Session6:Energy saving technology / Energy management Moderator: Masayuki NONAKA, Hitachi-Johnson Controls Air Conditioning,Inc./ Shuji FUKANO, Mayekawa Mfg Co., Ltd.</p> <p>Development of an industrial steam generation heat pump using a Low GWP refrigerant ○ Kenta SASAKI, Akito MACHIDA, Hirokazu YONEDA, Hiroyasu OHIRA, Shouta KUROYANAGI, Morinosuke ANDO (Mayekawa Mfg Co., Ltd.)</p> <p>Low GWP refrigerant options for high temperature heat pump applications for industrial decarbonization ○ Michael Petersen, Steve Kujak (Trane Technologies)</p> <p>Understanding the actual usage of residential air conditioners for LCCP evaluation ○ Tsutomu SHIMIZU (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA)), Shigeharu TAIRA (Daikin Industries, LTD), Seishi IITAKA (Panasonic Corporation), Ryoichi TAKAFUJI (Johnson Controls-Hitachi Air Conditioning), Keisuke MITOMA (Mitsubishi Heavy Industries Thermal Systems, Ltd.), Kohei MARUKO (Carrier Japan Corporation), Hideaki Maeyama (Mitsubishi Electric Corporation), Itaru Nagata (Sharp Corporation), Shunji ITAKURA (FUJITSU GENERAL LIMITED), Yoshiaki YAMANOI (Daikin Industries, LTD.)</p> <p>Development of an AI/IoT-Based Air Conditioning Management System ○ Hayato MORI (FUJITSU GENERAL LABORATORIES LIMITED), Rinto KOZONO, Yusuke KAWASAKI, Yuto KIMOTO, Ryo TAKADA (FUJITSU GENERAL LIMITED)</p> <p>Development of fault diagnosis for home air conditioners using IoT data ○ Keita KIKUCHI (Panasonic Corporation)</p> <p>Feed-forward compensation for enhanced reproducibility of emulator-type load-based tests ○ Niccolo GIANNETTI, Yoichi MIYAOKA, Kiyoshi SAITO (Waseda University)</p>
13:15 ~ 14:25	<p>Session7:Refrigerant safety / Refrigerant life cycle management 2 Moderator: Hiroichi YAMAGUCHI, Carrier Japan Corporation/ Takahiro HASHIMOTO, Sharp Corporation</p> <p>Study on safety application using refrigerants having possibility of self-decomposition Refrigerants and equipment specifications that are thought to prevent self-decomposition reactions ○ Hideaki MAEYAMA (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))</p> <p>An Update on the US Industry Low GWP Refrigerants Research to Support Refrigerant Transition ○ Xudong Wang (Air-Conditioning, Heating and Refrigeration Institute)</p> <p>Reimagining Heat Exchangers for Next Generation Environmental Systems ○ Vikrant C Aute, James Tancabel (University of Maryland)</p> <p>Research on improving safety of using R290 refrigerant in future xEVs ○ Kunihiro HAYASHI, Yoshiaki MIYAZATO (Toyota Motor Corporation), Tomoki SHIMIZU (SOKEN Inc.)</p>
14:35 ~ 16:00	<p>Session8:Compressor / Lubricant 2 Moderator: Yoshiaki MIYAMOTO, Mitsubishi Heavy Industries Thermal Systems, Ltd./ Souichiro KONNO, ENEOS Corporation</p> <p>Characteristics of Lubricants for Low GWP Refrigerants and ENEOS's Fundamental Research ○ Tomohiro TAKAKI, Takefumi KIMURA, Masaki KAWAGUCHI, Yuya MIZUTANI (ENEOS Corporation)</p> <p>Performance Evaluation of Refrigeration Lubricants Containing Fluorescent Dye for Refrigerant Leak Detection. ○ Jumpei HIROSE, Tomoya MATSUMOTO, Shota KITA (Idemitsu Kosan Co., Ltd)</p> <p>Compatible Refrigeration Oils for various Next-Generation Refrigerants Rei SAITO, Yoshinori SUZUKI, ○ Ryoichi NAKANO (Japan Sun Oil Company, Ltd.)</p> <p>Lubricant Performance and Compatibility for New Low GWP HFO Refrigerant Blends ○ Kelsey Carter, Vivian Wang, Bridgett Rakestraw, Tatsuya KANNO (The Lubrizol Corporation)</p> <p>Lubricant Direction for Comfort Cooling and Heat Pump Applications ○ Joe Karnaz (Shrieve Chemical Products, LLC)</p>
15:10 ~ 17:35	<p>Session9:New refrigerants and characteristics 2 Moderator: Masami TANIGUCHI, Denso Corporation/ Shuntaro ITO, Fujitsu General Laboratories Limited.</p> <p>Characterizing the Minimum Ignition Energy of Refrigerants in a 20 L Vessel ○ Chad V Mashuga (Texas A&M University), Jessica C DeMott, Damien Rodowski (Arkema)</p> <p>Prediction of Burning Velocity for New Refrigerants by Developing Reaction Models Based on Graph Network Analysis ○ Kenji TOYODA, Nobuaki NAGAO, Takahiro OOGOE (Panasonic Cooperation), Hikaru MURAKAMI, Takahiko HASHIMOTO, Akira HIWATA (Panasonic Corporation)</p> <p>Development of R-1132(E) mixed refrigerants ○ Tomoyuki GOTO, Yasufu YAMADA, Takashi USUI, Kaito SANTA, Tatsumi TSUCHIYA (Daikin Industries, Ltd.)</p> <p>Development of Thermodynamic Property Models for Refrigerant Mixtures ○ Ryo AKASAKA (Kyushu Sangyo University), Yukihiro HIGASHI (Kyushu University)</p> <p>Measurement and Modeling of Transport Properties of Low-GWP Refrigerant Mixtures ○ Akio MIYARA, Monjur Morshed (Saga University), Md. Jahangir Alam (Jashore University of Science and Technology), Atiqur R. Tuhin (Saga University), Sudirman Silvia (UIN Sultan Syarif Kasim Riau)</p>
17:35 ~ 17:40	Closing Speech

	Poster Session	
Status of Risk Assessment and Safety Measures for Room Air Conditioners using an A3 Refrigerant R290 (Propane)		
○ Hiroshi Nakamura, Shigeharu Taira, Madoka Ueno, Kento Okuzawa, Atsushi Baba, Yuya Yamada, Yoshiharu Tsukada, Shunji Itakura, Hiroshi Kambara, Kazuhide YAMAMOTO (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))		
A3 Chiller risk assessment		
○ Takahiro AKIZUKI, Shuji FUKANO, Kazuto OKADA, Kazutaka HORI, Tomonari ASAKURA, Akira HIWATA, Masaya IWAMOTO, Takuya OKADA (The Japan Refrigeration and Air Conditioning Industry Association)		
Methodology for risk assessment of higher or lower flammability refrigerants		
○ Koji YAMASHITA (Air-Conditioning & Refrigeration Engineering Laboratory)		
A3 Refrigerant Measuring and Charging Device		
○ Naofumi MIWA (Higashi-Nippon Iwatani Gas Corporation), Shigeru SUWA (Pro-step co.,Ltd)		
Service Tools for Natural Refrigerants		
In preparation for commercialization of service tools for natural refrigerants such as HC, CO2, and ammonia		
○ Motoki MASUDA (Asada Corporation)		
Introducing Next Generation Refrigerant Service Tools and System Parts		
○ Hideki TAKEYAMA (ICHINEN TASCO CO., LTD.)		
Regenerative circulation type pipe cleaning unit for using environmentally friendly refrigerant HCFO-1224yd		
High boiling point solvent regeneration circulation system with new mechanism.		
○ Takashi KITSUWA (Pro-step co.,Ltd)		
New mechanism 4-port ball valve manifold gauge		
2-valve 4-port manifold gauge combining rotary ball valve manifold		
○ Shigeru SUWA (Pro-step co.,Ltd)		
"Helium gas recovery and reuse device" for airtightness inspection		
Helium gas reuse equipment for energy saving purposes		
○ Shuji GYOKUSEN (Nichiden Kogyo Co.,LTD.)		
3R machine with tablet PC and scanning tool for car maintenance business.		
○ Issei HIGAMI, Kenji YAMASAKI (DENGEN CO.,LTD.), Naoaki WATANABE (DENGEN CO., LTD.)		
R32 VRF air conditioners		
○ Masatomo NAKAKITA (Daikin industries, LTD.)		
Development of compressor for multi air conditioning system using CO2 refrigerant		
○ Keisuke NOBA (Daikin industries, LTD.)		
Development of Technology for Rapid On-Site Detection of R32 Refrigerant Leaks: Second Follow-Up Study		
○ Tomoatsu MINAMIDA, Tomoyuki HAIKAWA, Kazuyuki SATOH (Daikin industries, LTD.), Tsuyoshi HARA (Tokyo Gas Engineering Solutions Corporation)		
The leakage detecting system of fluorinated gases by continuous monitoring		
Guideline for commercial refrigerating and air conditioning appliances		
○ Yukio KITADE (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))		
ASSISNET SERVICE		
Assisting air conditioner management with IoT technology		
○ Yukio KITADE (Daikin industries, LTD.)		
Development of refrigerant leak detection technology for mechanical transport refrigeration units using IoT technology		
○ Takehiro KURATA, Masafumi AWA (Denso Corp.)		
Development trend of gas sensor modules for R32,R454B,R290 refrigerant leak detection		
○ Keita YOSHIMOTO, Yoshihiro UMENO (Figaro Engineering Inc.)		
Research project activities of JSRAE		
Advanced Heat Pumps Lead to a New Era in the Thermal Field		
○ Hiromasa FURUKAWA, Choiku YOSHIKAWA (The Japan Society of Refrigerating and Air Conditioning Engineers (JSRAE))		
Performance evaluation of commercial air conditioning systems using natural refrigerants		
○ Jongsoo JEONG, Yoichi MIYAOKA, Niccolo Giannetti, Kiyoshi SAITO (Waseda University)		
Target values and target fiscal years for the designated products system under the Fluorocarbons Emissions Reduction Act		
List of products designated under the Fluorocarbons Emissions Control Law for which environmental impact target values and target fiscal years have been set		
○ Shunji SASAKI, Toru YASUDA, Kazuhiro HASEGAWA (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))		