



# The 13<sup>th</sup> International Energy Agency HEAT PUMP CONFERENCE

## Heat Pumps - Mission for the Green World

April 26 - 29, 2020

Ramada Plaza Jeju Hotel, Jeju, South Korea

### © Hybrid Transition of HPC2020

The 13th IEA Heat Pump Conference (HPC2020) will take place on April 26-29, 2021. The conference venue will be Ramada Plaza Hotel Jeju, Korea. However, due to COVID-19 outbreak, there will also be an online platform for those who cannot attend the conference physically. Thus, we are aiming for a hybrid conference.

Still, a number of changes along with the transition of the conference are under discussion. Detailed updates and changes will be announced promptly on the conference website <http://www.hpc2020.org>. Also you may access some information at HPT website [www.heatpumpingtechnologies.org](http://www.heatpumpingtechnologies.org).

Although the conference has changed several times, we appreciate your patience, understanding and strong support of the HPC 2020. We hope you stay safe and healthy, and we are looking forward to seeing you at the conference!

### © Organization – How it works

For the online participants, online conference platform will be provided. The conference program will be a generous online platform, which will give attendees the possibility to take part of the presentations over an extended amount of time.

The Conference will be organized to offer as much value as possible to on-site (physical) as well as online attendees. The presentations will be pre-recorded, broadcasted online and shown at the conference venue in accordance with the conference program. However, in order to make it possible for the conference attendees to select and take part in as many presentations as possible, it is recommended to watch the pre-recorded presentations on-demand before the conference start. The whole online conference plan in accordance with the scheme is shown in below.

When it comes to questions & answers, there will be two separate schemes for the attendees as well as for the authors. It will be possible for the conference attendees to pose their questions online during the whole pre-conference as well during the conference period. The author is responsible for answering the questions until 1st of May at the latest. During the offline program slot for the presentation, the authors will be encouraged to attend online via Zoom, or physically at the venue, to be able to answer questions from the

### © Conference Program

#### ● Plenary Speakers:

For the plenary speech, six invited speakers from all continents will give their vision on heat pump industry. The first three influential speakers will introduce global heat pump markets and policy followed by three eminent speakers providing excellent summaries on key technologies of heat pump systems.

	<p><b>“Heat Pumping Technologies in Clean Energy Transitions”</b></p> <p><b>Mechtild Worsdorfer</b> Director for Sustainability, Technology and Outlooks / IEA, France</p>
	<p><b>“The European Legal Framework is Well Set for a Massive Roll-out of Heat Pumps - but More Efforts are Needed!”</b></p> <p><b>Martin Forsen</b> President of EHPA (European Heat Pump Association), Switzerland</p>
	<p><b>“Korean policy for green world and heat pumping technologies”</b></p> <p><b>Min Soo Kim</b> NOC Chair, President of Society of Air-conditioning and Refrigerating Engineers of Korea, Korea</p>
	<p><b>“Heat Pump System Technology Trend”</b></p> <p><b>Saikee Oh</b> Vice President of LG Electronics, Korea</p>



### “Ensuring a Safe Refrigerant Transition”

**Xudong Wang**

Vice President of Air-Conditioning, Heating, and Refrigeration Institute, USA



### “Clean and Safe Air by HVAC systems – Laws and Advanced Technologies in Japan”

**Noboru Kagawa**

Professor of National Defense Academy, Japan

For more information on the HPC 2020 Plenary Speakers, please click [here](#)

- **Workshops:** On Monday 26th May the first day of the Conference a number of workshops will be held, organized together with other IEA TCP's and HPT Annex participants.

#### The topics are:

- "Annex 42/45 on HPs and Smart Grids, and Hybrid"
- "Heat Pumps for Low GWP Refrigerants (Annex 54)"
- "Heat Pump Water Heaters, a Challenging Future (Annex 46)"
- "Annex 55 on HPs and Energy Storage"
- "Heat Pumps in Multi-Family Buildings for Space Heating and DHW (Annex 50)"
- "Design and Integration of Heat Pumps for nZEB (Annex 49)"
- "Comfort and Climate Box Solutions for Warm and Humid Climates"
- "Large Demonstration Project for Flexibility by Heat Pumps"

✘ More detailed information will be uploaded on the website soon.

- **Keynote Speakers:** Scientific Committee selected high quality and issue-penetrating papers as keynote presentations based on the evaluation of reviewers and experts

#### Tuesday, April 27

- “The Influence of Different Water-injection Methods on Water Vapor High Temperature Heat Pump”, *Di Wu (Shanghai Jiao Tong University, China)*
- “Next Stop: The Mass Market! Heat Pumps on the Verge of Large Scale Deployment in Europe”, *Thomas Nowak (European Heat Pump Association AISBL, Belgium)*
- “The low-GWP Refrigerant Challenge”, *Didier Coulomb (International Institute of Refrigeration, France)*
- “Air-Conditioning and Cooling”, *J.B.V. Reddy (Government of India, India)*
- “Augmented Reality Acoustics of Air Heat Pumps - APP Development and Methods”, *Gerwin H.S. Drexler-Schmid (AIT - Austrian Institute of Technology, Austria)*
- “Numerical Analysis of the Vortex Tube Characteristics Used Within a High Temperature Heat Pump”, *Michael Lauer mann (Austrian Institute of Technology, Austria)*
- “Development and Implementation of Industrial High Temperature Heat Pumps for Waste Scrubbing Process”, *Gilbong Lee (Korea Institute of Energy Research, Korea)*
- “Design of a Grey Water Heat Recovery System in Order to Satisfy the Domestic Hot Water Demand of a Block of Dwellings”, *Emilio Navarro-Peris (Universidad Politecnica de Valencia, Spain)*
- “Test Results of a Rotation Heat Pump and Further Developments”, *Bernhard Adler (ecop Technologies GmbH, CEO, Austria)*

#### Wednesday, April 28

- “Residential Split Heat Pump Using Low GWP Refrigerants”, *Bo Shen (Oak Ridge National Lab, United States)*
- “Disproportionation Risk Study for HFO-1123 Compositions as Low-GWP Refrigerants”, *Hidekazu Okamoto (AGC Inc., Japan)*
- “Numerical Simulation of Two-phase Flow Distribution in a Vertically Installed Refrigerant Distributor”, *Jihwan Jeong (Pusan National University, Korea)*
- “Trends and Recent R&D Activities on Fuel Driven Sorption Heat Pumps”, *Peter Schossig (Fraunhofer Institute Solar Energy Systems ISE, Germany)*
- “Half-term Results from IEA HPT Annex 52 - Long-term Performance Monitoring of Large GSHP Systems”, *Signhild Gehlin (Swedish Geoenergi Center, Sweden)*
- “A Novel Geothermal Heat Pump System Integrated with Underground Thermal Storage for Shifting Building Electric Demands”, *Xiaobing Liu (Oak Ridge National Laboratory, United States)*
- “NEDO R&D Project for Innovative Thermal Management”, *Tetsusiro Iwatsubo (New Energy and Industrial Technology Development Organization, Japan)*
- “Evaluation of Solar Heat Source and Sink in Multi-functional Heat Pump Operation”, *Carsten Wemhoener (HSR University of Applied Sciences Rapperswil, Switzerland)*

- **"Seasonal Thermal Energy Storage for Large Scale District Heating"**, Carlos Infante Ferreira (Delft University of Technology, Netherlands)
- **"Impact of the Weather Forecast on a Predictive Controller Performance: Experimental Studies with a Residential Heat Pump for Space Cooling"**, Thibault Péan (IREC, UPC, Spain)
- **"Membrane-Based Air Dehumidification Using Organic Ionic Liquid Desiccant"**, Bamdad Bahar (Xergy Inc., United States)
- **"An Overview of Hydrogen Compressors for Heat Pump Systems"**, Bamdad Bahar (Xergy Inc., United States)
- **"Study on the Frosting Phenomena between Concavity and Convexity Plate under Forced Convection - The Prediction of Frost Layer Growth using the Observation from the Frost and Defrost Multi-cycle Experiment"**, Masafumi Katsuta (Waseda University, Japan)
- **"Environmentally Friendly Steam Generation Using VHTHPs at a Pharmaceutical Research Facility"**, Tor-Martin Tveit (Olvondo Technology AS, Norway)
- **"Experimental Analysis of a High Temperature Heat Pump Using Stored Heat from a Solar Thermal System"**, Miguel Ramirez Stefanou (Tecnalia, Spain)

#### Thursday, April 29

- **"Effect of Evaporator and Condenser in the Analysis of Adsorption Chiller"**, Woo Su Lee (Sejong University, Korea)
- **"Energy Performance Estimation and Verification of an Industrial Waste Heat Recovery Heat Pump"**, Toshihiko Okuno (Science Inc., Japan)
- **"Categorization of Industrial Heat Pump for Integrated Simulation Technology"**, Jongsoo Jeong (Waseda University, Japan)
- **"Dynamic Performance Tests of a Heat Pump Cycle Integrated Latent Heat Thermal Energy Storage for Optimized DHW Generation"**, Klemens Marx (AIT Austrian Institute of Technology, Austria)
- **"Impact of Variable Speed Components on the Seasonal Performance of a Residential Air-Source Heat Pump"**, Fatih Meral (Purdue University, Ray W. Herrick Laboratories, United States)
- **"Comparison on Vacuum Membrane Dehumidification Systems with Moisture Selective Dense Membrane"**, Jinwook Lee (Chung-Ang University, Korea)
- **"Working Fluid Selection of Organic Rankine Cycle for a Liquid Desiccant System"**, Hye-Won Dong (Hanyang University, Korea)
- **"Cost Optimized Design of Ground Probe Fields with Solar Regeneration"**, Carsten Wemhoener (HSR University of Applied Sciences Rapperswil, Switzerland)
- **"Seasonal Thermal Energy Storage for Large Scale District Heating"**, Carlos Infante Ferreira (Delft University of Technology, Netherlands)
- **"Refrigerant Circuitry Optimization of Heat Exchangers for Charge Reduction and Robust Performance in Reversible Heat Pump Application"**, Vikrant Aute (University of Maryland, United States)
- **"Deep learning-based Refrigerant Charge Fault Detection Method of Air-source Heat Pump System"**, Yong Hwan Eom (Seoul National University, Korea)
- **"From Smarties, Ice-cream and Flowers"**, Thomas Nowak (European Heat Pump Association AISBL, Belgium)
- **"Risk Assessment of Built-in Refrigerated Display Cabinet Using A3 Refrigerant"**, Koji Yamashita (the Japan Refrigeration and Air Conditioning Industry Association, Japan)

#### © Updates and Promotions

Visit the conference website ([www.hpc2020.org](http://www.hpc2020.org)) to take part of the interesting conference program!

After the conference, all conference attendees will get access to the conference proceedings with all the papers presented.

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	International Energy Agency Heat Pumping Technologies TCP		The Society of Air-conditioning & Refrigerating Engineers of Korea		Korea National Committee of IIR
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