

Keynote Lecture 4

Low GWP refrigerant and heat pump/refrigeration technology development

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Education:

B.S. 1991-1995 Mechanical Engineering, Seoul National University

M.S. 1995-1997 Mechanical Engineering, Seoul National University

Ph.D. 1997-2002 Mechanical Engineering, Seoul National University

Work Experience:

Korea Institute of Machinery & Materials, Principal Researcher Sep. 2007 – Present

- Development of Core Technologies for Low GWP Refrigeration System
- Development of 350 kW vapor compression refrigeration system using natural refrigerant
- Development and demonstration of smart design platform technology for thermal energy-intensive industrial facilities
- Development of Unit Systems Applied to Thermal Energy Network for Building/Industrial Application
- Development of Commercial Air to Water Heat Pumps

LG Electronics Digital Appliance Research Center, Project Leader Jan. 2002 – Aug. 2007

- Heat Pump & Air-Conditioning (split, 4 way cassette, single package, ducted, wall mounted, unitary, etc.)
- Thermal cycle design

Korea Institute of Energy Technology Evaluation and Planning Mar. 2011 – Mar. 2012

- Project Management

Kyoto University, Heat Transfer Lab., Exchange Student

Feb. 1999 – Feb. 2000

Professional Associations:

General Secretary, The Society of Air-Conditioning and Refrigerating Engineers of Korea(SAREK)

Member, The Korean society of Mechanical Engineers(KSME)

Vice President, Daejeon-Sejong-Chungcheong Branch of SAREK

Honors and Awards:

Best Paper Award, Winter Conference, SAREK, 2020

Participation award, KSME-SEMES Open Innovation Challenge, 2019

Chairman Prize, Presidential Council on Intellectual Property, 2017

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ABSTRACT

This presentation will cover low GWP refrigerants and heat pump/refrigeration system using them.

The development of heat pump and refrigeration system has always paid much attention to the selection of refrigerants. It is because the direction of research and development depends a lot on the refrigerant. This presentation contains information on F-gas emission status and refrigerant regulation measures. From this, I would like to explore the current status of research on the application of low GWP refrigerants and the development status of heat pump/refrigeration system around the world. It is also hoped that this will serve as an opportunity to discuss the future direction of refrigeration system development.