香港空調及冷凍商會有限公司
The Hong Kong Air Conditioning and Refrigeration Association Limited

ASHRAE Hong Kong Chapter

# Half Day Joint Seminar on Update on Refrigerants and Refrigeration System Design and Pipe-work Calculation

**Date :** March 23rd, 2017 (Thursday)

**Time:** 2:15pm to 5:30pm (registration start at 2:00pm)

**Venue:** Theatre 3, 1/F., HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong

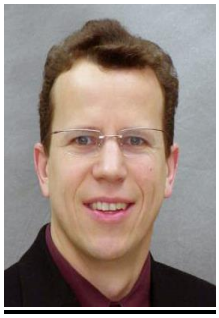
## Update on Refrigerants: Past, Present and Future

## Abstract:

In recent decades, the refrigeration and air conditioning sciences have been in a state of flux primarily because of the phase-out of ozone-depleting CFC and HCFC refrigerants, and secondarily because of environmental concerns related to the direct global warming impacts of some of the replacement refrigerants. Due to these concerns, there is significant worldwide interest in using substances that are naturally occurring in the biosphere as refrigerants, which are considered benign to the environment and are termed "natural working fluids". Surprisingly, many of these substances were already used as refrigerants at the dawn of the refrigeration technology in the late 1800's. Thus, when looking at the refrigerants of the future, it is essential to understand which substances have been used in past.

This presentation provides a detailed review of the past and present refrigerants, and proposes refrigerants and their respective technologies that could be used in the future. An assessment of their characteristics related to choice of one versus another, and an identification of trends set by these choices will be made.

## Honorable Speaker:



**Eckhard A. Groll, Dr. Eng.**

Reilly Professor of Mechanical Engineering, Director of the Office of Professional Practice
Purdue University

Dr. Eckhard A. Groll is the Reilly Professor of Mechanical Engineering and also serves as the Director of the Office of Professional Practice at Purdue University. He joined Purdue University as an Assistant Professor in 1994 and was promoted to Associate Professor in 2000, to Full Professor in 2005, and to the Reilly Professorship in 2013. He received his Diploma in Mechanical Engineering from the University of the Ruhr in Bochum, Germany, in 1989 and a Doctorate in Mechanical Engineering from the University of Hannover, Germany, in 1994.

Professor Groll teaches Thermodynamics and his research focuses on the fundamental thermal sciences as applied to advanced thermal systems, components, and their working fluids. He has advised over hundreds of students and project with approximately $10.3 million in research and educational grants. Dr. Groll has authored or co-authored two hundreds archival journal articles, conference papers and conference proceedings. He has given almost hundred invited lectures / seminars / keynote lectures and serves as the Regional Editor for the Americas for the International Journal of Refrigeration and is a Fellow of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE).

Professor Groll has been recognized for his academic leadership in higher education. He is a 2010-2011 Fellow of the American Council on Education (ACE) and 2009-2010 Fellow of the Academic Leadership Program of the Committee on Institutional Collaboration (CIC-ALP). He has received numerous awards for his research and teaching excellence including the 2010 E. K. Campbell Award from ASHRAE, his induction into the Book of Great Teachers at Purdue University in 2008, and the 2007 Purdue University Faculty Scholar Award.

## Refrigeration System Design and Pipe-work Calculation for DX Air-conditioning and Heat Pump System

## Abstract:

Refrigeration direct expansion air conditioning systems have been used in most commercial and residential buildings in which centralized system may not feasible due to scale or location of the areas served. In applications of DX system, normally an outdoor unit is installed for heat rejection and an indoor unit is responsible for cooling/heating of space, there require refrigerant pipe to connect both units such that the heat transfer can be take place continuously. The performance of this system is highly relied on the refrigerant pipe design which has low frictional loss but at the same time allow proper flow of lubrication oil that is essential for the operation of compressor.

This presentation provides a detailed review of the major components of a split type DX unit and the consideration of oil return in design of refrigerant pipe routing and pipe sizing method.

## Honorable Speaker:

Dr. TUNG Dennis is the Director of Sustainable Energy Ltd. He has over 30 years of experience in Air-conditioning system design, installation and commissioning. In the recent ten years, Dr. Tung has mainly involved in manufacturing of air-conditioning split type units and heat pump units. He received his Higher Diploma in Mechanical Engineering from Hong Kong Polytechnic in 1985, Master Degree in Mechanical Engineering from the Hong Kong Polytechnic University in 1996 and a Doctorate degree from the Hong Kong Polytechnic University in 2010.

Dr. TUNG Dennis is the President of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Hong Kong Chapter in year 2016-17. Chartered Engineer, RPE and REA in Hong Kong.

**Dr. Ir. Dennis Tung**

Chartered Engineer
RPE

REA in Hong Kong

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**Instruction Media:** English

**Fee:** HK$500 for members of ACRA & ASHRAE
(3.5 hours CPD certificate will be provided.)

**Application:**

Registration is opened to ALL and Members of ACRA & ASHRAE will be given priority. Please complete and return the application form by e-mail to <seminar_23_Mar_2017@yahoo.com >.and return it with a crossed cheque payable to "ASHRAE Hong Kong Chapter" to the P.O. Box 35612, King's Road Post Office, North Point, Hong Kong before 16 Mar 2017 (Thur). Number of participants is limited to 100. Places will be allocated on a first-come-first-served basis. Successful applicants will be informed individually by e-mail on or before 20 Mar 2017 (Mon).

## Application Form

## Half Day Half Day Joint Seminar on Update on Refrigerants and Refrigeration System Design and Pipe-work Calculation

Name (Dr./Ir/Mr./Mrs./Ms.): (Surname)_____

(Given Name)_____

Membership No (if any) :
_____

Company :
_____

Contact Tel. No. : (Mobile)_____

(Office)_____

E-mail Address :
_____

Enquiry: Please contact Ms. Aris Chiu at 25980101 (ACRA) & Mr. Peter Lam at 92196323 (ASHRAE – HKC). Email enquiries can be sent to <seminar_23_Mar_2017@yahoo.com >.

Registration: Please send the filled application form before 16 Mar 2017 (Thur). The applicant may email the above information to < seminar_23_Mar_2017@yahoo.com > for place reservation and return it with a crossed cheque payable to "ASHRAE Hong Kong Chapter" to the P.O. Box 35612, King's Road Post Office, North Point, Hong Kong before 16 Mar 2017 (Thur). Successful applicants will be notified by email on or before 20 Mar 2017 (Mon).