



37th UIT Heat Transfer Conference



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

Symposium Refrigerants: heat transfer and applications

University of Padua, Italy
Wednesday, 26 June 2019

Centro Linguistico di Ateneo
Via Venezia, 16 - Padova

PROGRAM

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| 8:15-9:00 | Registration |
| 9:00-9:15 | Opening |
| 9:15-10:00 | Keynote lecture
<i>State-of-the-art on Refrigerants</i>
Alberto Cavallini - Università degli Studi di Padova, Italy |
| 10:00-10:35 | Invited lecture
<i>Refrigeration - the Road to the future, somewhat rocky, somewhat promising</i>
Srinivas Garimella - Georgia Institute of Technology, USA |
| 10:35-10:55 | Coffee break |
| 10:55-11:30 | Invited lecture
<i>Low charge ammonia systems</i>
Pega Hrnjak - University of Illinois at Urbana-Champaign, USA |
| 11:30-12:05 | Invited lecture
<i>Hydrocarbon systems designed for low charge</i>
Bjorn Palm - KTH Royal Institute of Technology, Sweden |
| 12:05-12:40 | Invited lecture
<i>Milestones on the path of CO₂ becoming the natural refrigerant choice</i>
Petter Neksa - Norwegian University of Science and Technology, Norway |
| 12:40-13:15 | Invited lecture
<i>Refrigerant maldistribution in BPHE evaporators</i>
Jose Miguel Corberan - Universidad Politecnica de Valencia, Spain |
| 13:15-14:20 | Lunch |

14:20-16:40 **REFRIGERANTS: HEAT TRANSFER**

Experimental investigation of R513A flow boiling inside smooth tube and microfin tube
A. DIANI, E. SAVIO, L. ROSSETTO

Condensation and vaporization heat transfer of low-GWP mixtures
S. BORTOLIN, M. AZZOLIN, A. BERTO, C. GUZZARDI, D. DEL COL

Effect of refrigerant properties estimation on the prediction capabilities of well established two phase heat transfer and pressure drop models for new refrigerants
G. RIGHETTI, R. AKASAKA, S. BOBBO, J.S. BROWN, L. FEDELE, Y. HIGASHI, G.A. LONGO, S. MANCIN, C. ZILIO

Flow boiling of azeotropic and non-azeotropic mixtures. Effect of the glide temperature difference on the nucleate boiling contribution: assessment of methods
R. MASTRULLO, A.W. MAURO, G. NAPOLI, F. PELELLA, L. VISCITO

Characteristics of propane evaporation in a microfinned tube with internal diameter of 4.47 mm
E. ALLYMEHR, T.M. EIKEVIK, A. HAFNER

A new experimental correlation for the design of a H₂O/LiBr falling film absorber with a horizontal tube bundle
F. LONARDI, M. OLBRICHT, A. LUKE

Study of an evaporator with integrated latent heat storage for a compressed air dryer
A. BERTO, M. AZZOLIN, F. SIMIONATO, E. STEVANIN, A. VILLA, D. DEL COL

14:20-16:40 **REFRIGERANTS: APPLICATIONS**

Analysis of risk assessment for the use of A2L refrigerants
S. BORTOLIN, F. MANCINI, L. MARTIN, D. DEL COL

First experimental results of the use of R1234yf and R1234ze(E) as drop-in substitutes of R134a in a water-to-water heat pump
L. MOLINAROLI, A. LUCCHINI, L.P.M. COLOMBO, F. BOCCHINFUSO

Experimental and numerical activity on a prototype ejector chiller
J. MAHMOUDIAN, F. MAZZELLI, A. MILAZZO, A. ROCCHETTI

Impact of PWM Valve Unsteadiness on the performance of a Commercial Display Cabinet Evaporator
P. ARTUSO, A. ROSSETTI, S. MINETTO, S. MARINETTI, F. FERRARI

An integrated CO₂ unit for heating, cooling and DHW installed in a hotel. Data from the field
G. TOSATO, S. GIROTTO, S. MINETTO, A. ROSSETTI, S. MARINETTI

Energy analysis of transcritical CO₂ booster systems for commercial refrigeration
S. DUGARIA, M. AZZOLIN, L. CALABRESE, S. MINETTO, D. DEL COL

Increased efficiency of combined heat and power plants by utilizing waste heat for resorption chillers and their combination with hydrocarbon chillers
O. ZIEGLER, U. HESSE, C. THOMAS

16:40-17:00 Coffee break

17:00-17:50 Panel discussion

17:50 Closing ceremony

This program is preliminary and may undergo variation