



International  
Institute of Refrigeration

INTERNATIONAL CONFERENCE  
**Ammonia and CO2 Refrigeration Technologies**  
May 11-13, 2017, Ohrid, Republic of Macedonia



Faculty of Mechanical  
Engineering - Skopje

## FINAL PROGRAMME

### May 10, 2017 (Wednesday)

17:00 Registration  
20:00 Welcome drink

### May 11, 2017 (Thursday)

Time	Authors	Paper
9:30	Opening ceremony	
	Keynote lectures, Chairman: Andy Pearson	
10:00	Andy Pearson, Former President of IoR (UK)	Mega-trends in industrial refrigeration
10:30	Predrag Hrnjak, University of Illinois (USA)	Efficient very low charged ammonia refrigerating systems
11:00	Coffee break	
	Ammonia refrigeration, Chairman: Alexander Pachai	
11:20	Keynote lecture Robert Lamb, Star Refrigeration Ltd (UK)	Low charge packaged ammonia refrigeration systems
11:50	Stefan Jensen, Scantec Refrigeration Technologies, Australia	Energy performances of low charge NH3 systems in practice
12:10	J. Kristofersson, N. Vestergaard, M. Skovrup, Danfoss; L. Reinholdt, DTI, Denmark	Ammonia charge reduction potential in recirculating systems - Calculations
12:30	J. Kristofersson, N. Vestergaard, M. Skovrup, Danfoss; L. Reinholdt, DTI, Denmark	Ammonia charge reduction potential in recirculating systems - System benefits
12:50	Lunch break	
Hall 1	Ammonia refrigeration, Chairman: Rob Vandenboer	
13:50	M. Skovrup, J. Wronski, N. Vestergaard, J. Kristofersson, L. Reinholdt, A. Pachai, Denmark	Energy savings comparing pressure controlled and liquid drain controlled hot gas defrost
14:10	N. Vestergaard, J. Kristofersson, M. Skovrup, L. Reinholdt, J. Wronski, A. Pachai, Denmark	Design requirements for effective ammonia defrost systems
14:30	Dermot Cotter, Star Refrigeration, UK	Mechanical integrity inspection protocols for ammonia refrigeration systems
14:50	Anil Gulanikar, Dag-Tech Services, India	Improving energy efficiency & safety of cold storages in India
Hall 2	CO2 refrigeration, Chairman: Klaas Visser - Parallel session -	
13:50	M. Sokucu, M. Can Unal, A. Olcay, H. Onbasioğlu, Friterm, Turkey	Numerical investigation on two-phase fluid flow characteristics of evaporator distributor with R404a and R744 refrigerants
14:10	A. Rossetti, S. Marinetti, S. Minetto, CNR-CTI, Italy	Multi-physic simulation of CO2 gas cooler
14:30	I. Manescu, A. Hafner, N. Fidorra, S. Försterling, J. Köhler, Norway//Germany	A new approach for cold thermal energy storages in supermarket refrigeration systems
14:50	Manuel Alonso, L. Dixon, C. Seeton, J. Karnaz, Shrieve Products International Ltd, UK	The role of the lubricant chemistry in a R-744 refrigeration plant oil - return and lubricity. Comparison between two chemistries ...
15:10	Coffee break	
Hall 1	Heat pumps, Chairman: Zoran Stajic	
15:30	Hanne Kauko, S. Nordtvedt, P. Neksa and M. Bantle, SINTEF, Norway	High-temperature heat pumps based on natural working fluids to produce district heating from industrial waste heat
15:50	S. Christensen, B. Elmegaard, W. Markussen, C. Madsen, DTU, Denmark	Modeling of split condenser heat pump: optimization and exergy analysis
16:10	Maria Wersland, Karoline Kvalsvik, Michael Bantle, SINTEF, Norway	Off-design of high temperature compression-absorption heat pump
16:30	O. Bamigbetan, T. Eikevik, P. Neksa, M. Bantle, NTNU/SINTEF, Norway	Extending ammonia high temperature heat pump using butane in a cascade system
Hall 2	CO2 refrigeration, Chairman: Livio Perrotta - Parallel session -	
15:30	Angel Pardinias, Armin Hafner, Krzysztof Banasiak, NTNU/SINTEF, Norway	Integrated R744 ejector supported parallel compression racks for supermarkets. Concept & steady state simulations of configurations
15:50	Angel Pardinias, Armin Hafner, Krzysztof Banasiak, NTNU/SINTEF, Norway	Integrated R744 ejector supported parallel compression racks for supermarkets. Operation conditions.
16:10	A. Ozyurt, U. Sinar, D. Yilmaz, B. Yilmaz FrigoBlock/Marmara University/..., Turkey	Performance evaluation of CO2 transcritical booster & R290/R744 cascade refrigeration systems for different cities in Turkey
16:30	Trygve Eikevik, Jon-B. Dieseth, Ignat Tolstorebrov, NTNU, Norway	CO2 refrigeration system for ice production in snow making generators at ambient temperatures above 0°C
16:50	Coffee break	
17:10	Workshop EU project SuperSmart	SuperSmart is an EU-funded project aiming to achieve efficient heating and cooling solutions in the supermarkets across Europe.

**May 12, 2017 (Friday)**

Time	Authors	Paper
	Keynote lectures, Chairman: Niels Vestergaard	
9:00	Armin Hafner, Norwegian University of Science and Technology	Integrated CO2 system for refrigeration, air conditioning and sanitary hot water
9:30	Sergio Girotto, ENEX srl (Italy)	Improved transcritical CO2 refrigeration systems for warm climate
10:00	Alexander Pachai, JCI - Sabroe (Denmark)	Freezing systems for high ambient temperatures
10:30	Coffee break	
	Alternatives; CO2 refrigeration, Chairman: Adrian Muresan	
11:00	Lambert Kuijpers, A/genT Environmental Consultancy, Netherlands	HFC phase-down schedules under the "Kigali" Montreal Protocol; Which alternatives to choose now?
11:20	Klaas Visser, KAV Consulting Ltd (Australia)	Moving the CO2 'equator' from the northern Mediterranean to Malaysia without ejectors
11:40	Stefano Filippini, U. Merlo, G. Mariani, L. Perrotta, LU-VE Group, Italy	EMERITUS: the new condenser/CO2 gas cooler/liquid cooler that minimize energy consumption
12:00	Oliver Javerschek, Julian Pfaffl, Julian Karbner, "Bitzer", Germany	Reduction of the energy consumption by applying a new generation of CO2 compressors
12:20	A. de Ona, A. Gkizelis, K. Skačanova, E. Boccabella Shecco, Belgium	Global market and policy trends for CO2 and Ammonia as natural refrigerants
12:40	Lunch break	
	Poster session, Chairmen: John Ritmann and Risto Ciconkov	
13:40		
	Karoline Kvalsvik, K. Banasiak, A. Hafner, SINTEF/NTNU, Norway	Integrated CO2 refrigeration and AC unit for hot climates
	B. Ates, K. Widell, T. Nordtvedt, A. Cojocar, U. SINTEF (Norway)	Energy consumption for salmon slaughtering processes
	Ignat Tolstorebrov, T. Eikevik, A. Hafner, M. Bantle, NTNU, Norway	Performance simulation of a refrigerated sea water system for Salmon chilling with R744 as refrigerant
	Karoline Kvalsvik, SINTEF (Norway)	Efficient energy systems for the dry-cured meat industry
	M. Jokiel, H. Kauko, Ch. Schlemminger, A. Hafner, I. Claussen, Germany/Norway	Phase change material thermal energy storage for a large ammonium chiller/heat pump system
	Joachim Germanus and Peter Röllig, ILK Dresden (Germany)	Carbon dioxide as a possible low temperature refrigerant
	Christian Hanzelmann and Steffen Feja, ILK Dresden (Germany)	Experimental investigations of the influence of dissolved ammonia on the low temperature-cold-flow properties of refrigeration oils
	Steffen Feja, C. Hanzelmann, S. Zuber, ILK Dresden (Germany)	PVT-measurements for high-temp ammonia heat pump lubricants
	A. Pardinias, A. Hafner, K. Banasiak, L. Larsen, NTNU/SINTEF/Danfoss, Norway/Denmark	Performance test procedures for LCCP supermarket analysis
	G. Tarlea, A. Tarlea, M. Vinceriuc, Technical University Bucharest, Romania	Ammonia and CO2 Romanian study cases - Refrigeration applications
	O. Ziegler, U. Hesse, C. Thomas, M. Grund, T. Weimer, TU Dresden // Resotec, Germany	Influence of the recirculation of the solution on the performance of a resorption refrigeration system
	Mihail-Dan Staicovici, SC Varia Energia SRL (Romania)	Further research concerning the hybrid compression heat pumps
	Oleksandr Titlov, Mykyta Ozolin, Odessa National Academy of Food Tech. (Ukraine)	Thermodynamic analysis of periodic operation ammonia-water absorption refriger. unit in atmospheric water generation system

15:15 Excursion in the complex "Sv. Naum"

20:00 Gala dinner

**May 13, 2017 (Saturday)**

	Continued discussions at posters; Informal discussions	
9:00	Continued discussions at posters	
10:00	Informal discussions; Q&A; Opportunities to meet known experts; Ideas for research, projects, business, ...	
11:00	Coffee, tea and light snacks on the lake terrace	

**Accompanying Persons Programme**

Presence at all social events of the conference: welcome drink, conference gala dinner, sightseeing or excursion.

May 11, 13:30: Excursion in the Monastery complex of Kalishta near Struga, along the lake.

May 12, 10:00: Visit at the Ohrid old bazaar with special jewels, filigree and Ohrid pearls. Coffee party by the lake.