

Time	Technical Sessions			
	Session T1	Session T2	Session T3	Session T4
08:00	Registration (open 08:00 - 10:00) Location: The lobby at the Conference Centre			
09:00	Ammonia 1 - in Room 104 A NOVEL DESIGN OF BI-VALENT AIR SOURCE HEAT PUMP USING AMMONIA AS THE WORKING FLUID (AMM 01 - T1-01) F. PEARSON	Heat Pumps 1 - in Room 105 A CONCEPT FOR AN INTEGRATED R744 HEAT PUMP FOR LOW-HEATING-ENERGY BUILDINGS (HPU 01 - T2-01) A. HEINZ, R. RIEBERER	CO₂ Practical 3 - in Room S-1 A MULTI-CHAMBER BLAST FREEZER WITH CARBON DIOXIDE AS REFRIGERANT (CDP 09 - T3-01) A. PEARSON	CO₂ Scientific 3 - in Room 101-102 INVESTIGATION OF A TWO-PHASE FLOW EJECTOR IN A TRANSCRITICAL CO ₂ AIR CONDITIONING SYSTEM (CDS 09 - T4-01) F. LIU, E. GROLL
09:25	CONVERSION FROM HCFC22 TO NH ₃ - PRACTICAL EXPERIENCES FROM A LARGE DISTRIBUTION CENTER (AMM 02 - T1-02) S. JENSEN, S. CZYZCELIS	SIMULATION AIDED DESIGN OF A COMPACT CO ₂ EXHAUST AIR HEAT PUMP (HPU 02 - T2-02) S. OTT	SUCCESSFUL CONVERSION OF ECU AIR CONDITIONER TO R744 (CDP 10 - T3-02) P. HRNJAK, J. MANZIONE, D. ADAMS, D. GARSKI, S. COLLIER	EXPERIMENTAL PARAMETER INVESTIGATION OF R744 EJECTOR (CDS 10 - T4-02) M. DRESCHER, A. HAFNER, K. BANASIAK
09:50	UNIQUE DESIGN CONSIDERATIONS FOR LARGE EVAPORATIVE AMMONIA CONDENSER INSTALLATIONS (AMM 03 - T1-03) J. WELCH, J. WRIGHT	STATIC SIMULATION AND EXPERIMENT OF CO ₂ HEAT PUMP WATER HEATER (HPU 03 - T2-03) D. KATO, S. YAMAGUCHI, K. SAITO, S. KAWAI	CONTAINMENT OF CO ₂ REFRIGERATION INSTALLATIONS (CDP 11 - T3-03) X. CAZAUAN, S. GUYOT, C. HERMON	ANALYSIS ON EXPANSION AND PHASE CHANGE PROCESS OF CO ₂ EXPANDER (CDS 11 - T4-03) QINGSONG AN, YITAI MA, MINXIA LI, ZHAO YANG
10:15	BOILING OF AMMONIA/LUBRICANT MIXTURE ON AN ENHANCED TUBE BUNDLE WITH INLET VAPOR QUALITY (AMM 04 - T1-04) M.-C. CHYU, J. ZHENG, Z. AYUB	CO ₂ HEAT PUMP FOR DOMESTIC HOT WATER (HPU 04 - T2-04) E. FORNASIERI, S. GIROTTI, S. MINETTO	APPLICATIONS AND EXPERIENCE WITH NATURAL REFRIGERANTS CARBON DIOXIDE / CO ₂ AND HYDROCARBON R-1270 (CDP 12 - T3-04) BENT JOHANSEN	EXPANSION VALVE FOR CO ₂ - MEASUREMENTS AND SIMULATION MODEL FOR SUB-CRITICAL INLET CONDITIONS (CDS 12 - T4-04) K. MARTIN, TH. ALPÖGGER, R. RIEBERER
10:40	Coffee Break			
11:00	Ammonia 2 - in Room 104 A SURVEY OF AMMONIA HEAT TRANSFER IN BOILING APPLICATIONS (AMM 05 - T1-05) SPINDLER, K.	Heat Pumps 2 - in Room 105 PERFORMANCE OF CO ₂ HEAT PUMP WATER HEATERS (HPU 05 - T2-05) N. FERNANDEZ, Y. HWANG, R. RADERMACHER	CO₂ Practical 4 - in Room S-1 SCREW COMPRESSOR FOR TRANSCRITICAL CO ₂ APPLICATIONS (CDP 13 - T4-05) D. ZAYTSEV, D. MOSEMANN, O. FREDRICH	CO₂ Scientific 4 - in Room 101-102 TRANSCRITICAL CARBON DIOXIDE FLOW THROUGH ADIABATIC CAPILLARY TUBES PART I: EXPERIMENTAL INVESTIGATION (CDS 13 - T4-05) D. L. SILVA, C. J. L. HERMES, C. MELO, J. M. GONÇALVES, G. C. WEBER
11:25	AN EXPERIMENTAL INVESTIGATION OF TWO PHASE AMMONIA IN TUBES AND BENDS COTTER (AMM 06 - T1-06) COTTER D.J., MISSENDEN J.F., MAIDMENT G.G.	CO ₂ HEAT PUMP SYSTEM FOR SPACE HEATING AND HOT WATER HEATING IN LOW-ENERGY HOUSES AND PASSIVE HOUSES (HPU 06 - T2-06) J. STENE	COMMERCIAL REFRIGERATION SYSTEMS WITH CO ₂ AS REFRIGERANT (CDP 14 - T3-06) O. JAVERSCHKEK	TRANSCRITICAL CARBON DIOXIDE FLOW THROUGH ADIABATIC CAPILLARY TUBES PART II: MATHEMATICAL MODELING (CDS 14 - T4-06) C.J.L. HERMES, D.L. SILVA, C. MELO, J.M. GONÇALVES, A.J.P. ZIMMERMANN
11:50	THE DEVELOPMENT OF AN AMMONIA ETHANE AZEOTROPIC REFRIGERANT FOR LOW TEMPERATURE APPLICATIONS (AMM 07 - T1-07) N. COX, V. MAZUR, D. COLBOURNE	DEVELOPMENT OF REVERSIBLE HEAT PUMPS WITH CO ₂ AS REFRIGERANT THAT COMBINES VENTILATION AND HEATING OF DOMESTIC HOT WATER (HPU 07 - T2-07) S. V. PEDERSEN	A CASE STUDY INTO THE APPLICATION OF CO ₂ COOLING AND HEATING IN AMERICAN OFFICE BUILDINGS (CDP 15 - T3-07) K. VISSER	EXPERIMENTAL INVESTIGATIONS ON AN ADIABATIC CAPILLARY TUBE IN A TRANSCRITICAL CARBON DIOXIDE HEAT PUMP SYSTEM (CDS 15 - T4-07) NEERAJ AGRAWAL, SOUVIK BHATTACHARYYA
12:15	GLOBAL PHASE BEHAVIOUR AND CYCLE PERFORMANCE OF THE AMMONIA - INDUSTRIAL REFRIGERANT BLENDS (AMM 08 - T1-08) S. ARTEMENKO, V. CHEPURNENKO, M. KHMELNYUK, V. AZUR	SMALL HEAT PUMPS FOR VENTILATED HOUSES AND DOMESTIC HOT WATER PRODUCTION (HPU 08 - T2-08) J. PAUL, J.P.G.V. SANTOS	CO ₂ COOLING FOR THE LHCb-VELO EXPERIMENT AT CERN (CDP 16 - T3-08) B. VERLAAT*, A. VAN LYSEBETTEN, AND M. VAN BEUZEKOM	NOZZLE DESIGN AND APPLICABLE EMPIRICAL THEORIES OF FRICTIONAL PRESSURE DROP FOR SUPERSONIC TWO-PHASE FLOW OF CO ₂ (CDS 16 - T4-08) M. NAKAGAWA, M. BERANA
12:40	Lunch			
13:45	Not-in-Kind Technologies and Alternatives 1 - in Room 104 MAGNETIC COOLING AT RISØ DTU (NIK 01 - T1-09) K.K. NIELSEN, R. BJØRK, J.B. JENSEN, C.R.H. BAHL, N. PRYDS, A. SMITH, A. NORDENTOF, J. HÄTTEL	Heat Pumps 3 - in Room 105 THERMODYNAMIC COMPARISON OF DIFFERENT DESIGNS OF SINGLE STAGE AMMONIA / WATER ABSORPTION HEAT PUMPS (HPU 09 - T2-09) H. MOSER, R. RIEBERER	CO₂ Scientific 5 - in Room S-1 MEASUREMENT AND CORRELATION OF VISCOSITY OF A MIXTURE OF CO ₂ AND A POLYOLESTER OIL (CDS 17 - T3-09) M. A. MARCELINO NETO, J. R. BARBOSA, JR.	Technical Visits (Registration mandatory!) TV1: Energy efficient refrigeration with natural refrigerants CO ₂ and R1270 in a "full scale" Føtex Supermarket TV2: Transcritical CO ₂ refrigeration booster system for COOP Supermarket TV3: Denmark's largest transcritical industrial cold and frost storage system with CO ₂ at Inco Denmark TV4: Efficient supermarket refrigeration with transcritical CO ₂ applied by SuperBest
14:10	PERFORMANCE ANALYSIS ON ACTIVE MAGNETIC REGENERATOR OF MAGNETIC REFRIGERATOR (NIK 02 - T1-10) T. KAWANAMI, S. HIRANO, K. NAKAMURA, M. IKEGAWA, K. FUMOTO	PERFORMANCE OF A 100 kW LOW CHARGE HEAT PUMP USING PROPANE (HPU 10 - T2-10) D. DEL COL, A. CAVALLINI, E. DA RIVA, M. MANTOVAN	WHICH POLYMERS SHOULD BE USED IN HEAT PUMPS AND REFRIGERATION SYSTEMS THAT USE CO ₂ AS REFRIGERANT? (CDS 18 - T3-10) K. FREDERIKSEN, N. VON SOLMS, V. NEELA	
14:35	FREE COOLING WITH COOLING TOWERS IN THE BIOPHARMACEUTICAL BUSINESS (NIK 03 - T1-11) JENS PETER TRUENSEN, OVE RASMUSSEN	DESIGN AND APPLICATION OF AMMONIA HEAT PUMP SYSTEMS FOR HEATING AND COOLING OF NON-RESIDENTIAL BUILDINGS (HPU 11 - T2-11) J. STENE	VISUAL OBSERVATION OF TWO-PHASE CARBON DIOXIDE FLOWING IN A HORIZONTAL MICRO-FIN TUBE (CDS 19 - T3-11) S. HIGASHIUE, S. IKEDA, K. KUWAHARA, S. KOYAMA	
15:00	DESIGN AND SIMULATION OF A HEAT PUMP FOR SIMULTANEOUS HEATING AND COOLING USING HFC OR CO ₂ AS A WORKING FLUID (NIK 04 - T1-12) P. BYRNE, J. MIRIEL, Y. LENAT	EXPERIMENTAL STUDY ON TRANSCRITICAL CO ₂ HEAT PUMP WATER HEATER WITH EJECTOR SYSTEM (HPU 12 - T2-12) X.X. XU, G.M. CHEN, S. LIU, L.M. TANG	INVESTIGATION OF POST-DRYOUT HEAT TRANSFER OF CARBON DIOXIDE (CDS 20 - T3-12) E. HIHARA, N. HARAGUCHI, T. YAMADA, C. DANG	
15:25	Coffee Break			
15:45	Not-in-Kind Technologies and Alternatives 2 - in Room 104 VACUUM METHODS OF WATER ICE FORMATION (NIK 05 - T1-13) B. T. MARINYUK, A. E. ERMOLAEV, D. V. SUSLIKOV	Heat Pumps 4 - in Room 105 THE BEHAVIOUR OF HEATING SYSTEMS AT OFF-DESIGN CONDITIONS AND THE INFLUENCE ON AMMONIA HEAT PUMP DESIGN PERFORMANCE OR HOW WELL CAN A STANDARD AMMONIA CHILLER PERFORM, WHEN USED AS A HEAT PUMP (HPU 13 - T2-13) GERT NIELSEN	CO₂ Scientific 6 - in Room S-1 ANALYSIS OF A R744 TWO-PHASE LOOP THERMOSYPHON APPLIED TO THE COLD END OF A STIRLING COOLER (CDS 21 - T3-13) A. J. P. ZIMMERMANN, C. MELO	IR Meetings - in room "Tårnet" IR Meeting in Section B: Thermodynamics, equipment and systems Commission B1: Thermodynamics & transfer processes Commission B2: Refrigerating equipment IR Meeting in Section E: Air conditioning, heat pumps, energy recovery Commission E1: Air conditioning Commission E2: Heat pumps, energy recovery
16:10	OPTIMIZATION OF A TRANSCRITICAL NO REFRIGERATION/HEAT PUMP CYCLE (NIK 06 - T1-14) J. SARKAR, S. BHATTACHARYYA	SIMULATION OF TRANSCRITICAL CO ₂ HEAT PUMPS WITH EXPANDER FOR SIMULTANEOUS COOLING AND HEATING (HPU 14 - T2-14) JAHAR SARKAR, SOUVIK BHATTACHARYYA	EFFICIENCY ANALYSIS OF A TWO CYLINDER ROLLING PISTON EXPANDER FOR CARBON DIOXIDE REFRIGERANT (CDS 22B - T3-14) J. YANG, L. ZHANG, LI ZHANG, H.Y. LI, J.P. CHEN	
16:35	OPTIMIZATION OF EVAPORATIVE AND DESICCANT SYSTEMS FOR AIR-CONDITIONING IN MEDITERRANEAN AREAS (NIK 07 - T1-15) I. KORONAKI, E. ROGDAKIS, T. KAKATSIOU	DEVELOPMENT AND PERFORMANCE CHARACTERISATION OF A WATER TO WATER REVERSIBLE HEAT PUMP WORKING WITH PROPANE (HPU 15 - T2-15) J. M. CORBERÁN, J. GONZÁLEZ, I.O. MARTÍNEZ, C. RADULESCU	AN EXPERIMENTAL STUDY ON THE COOLING PERFORMANCE OF A CO ₂ CYCLE WITH AN INTERNAL HEAT EXCHANGER (CDS 23 - T3-15) S. KOYAMA, J. XUE, N. TAKATA, K. KUWAHARA	
17:00	PERFORMANCE ANALYSIS OF MULTI-PARTITION DESICCANT WHEEL 2 nd report - The detailed Performance Evaluation (NIK 08 - T1-16) J. JEONG, S. YAMAGUCHI, K. SAITO, S. KAWAI		NUMERICAL SIMULATION AND EXPERIMENTAL VALIDATION OF INTERNAL HEAT EXCHANGER INFLUENCE IN CO ₂ TRANS-CRITICAL CYCLES UNDER REAL WORKING CONDITIONS FOR SMALL COOLING APPLICATIONS (CDS 24 - T3-16) J. RIGOLA, N. ABLANQUE, C.D. PÉREZ-SEGARRA, A. OLIVA	
17:30	End of Sessions			
19:00	Conference Dinner at "Grøften" in TIVOLI			