39th UIT Heat Transfer Conference Program

Conference day 1, 20 June 2022

Time		
08:30	Conference registration	
09:00	Opening Ceremony (Room "Luca Celenza")	
09:30	Keynote Lecture Prof. Perumal Nithiarasu, "Physics-Informed Neural Networks (PINNs) for solving thermal problems" (Room "Luca Celenza")	
10:20	Coffee Break	
10:40	Technical session A1: CFD-1	Technical session A2: EnerSys-1
12:40	End of morning Conference activities	
13:00	Lunch Break	
14:30	Technical session A3: SinglePhase-1	Technical session A4: Meas-1
15:50	Coffee Break	
16:10	Technical session A5: HT-1	Technical session A6: SinglePhase-2
17:30	"Misure termofluidodinamiche" book presentation, Paolo Vigo, Marco Dell'Isola and Giorgio Ficco (Room "Luca Celenza")	
18:00	End Conference Work Day-1	
18:00	Guided tour at the Castello Angioino	

Conference day 2, 21 June 2022

Time		
08:30	Conference registration	
09:00	Keynote Lecture Prof. Wilson K. S. Chiu, "Thermal Transport in Architected Open Cell Foams" (Room "Luca Celenza")	
09:50	Technical session B1: HT-2	Technical session B2: Meas-2
10:50	Coffee Break	
11:10	Technical session B3: CFD-2	Technical session B4: Mutiphase-1
12:50	End of morning Conference activities	
13:00	Lunch Break	
14:30	Technical session B5: CFD-3	Poster session
15:40	Coffee Break	
16:00	UIT Assembly	
18:00	End Conference Work Day-2	
18:00	Guided tour at Castello Angioino	
20:00	Social dinner at Summit Hotel	

Conference day 3, 22 June 2022

Time		
08:30	Conference registration	
09:00	Technical session C1: EnerSys-2	Special Session S1
10:40	Coffee Break	
11:00	Technical session C2: Mutiphase-2	Special Session S2
13:00	Closing Cerimony (Room "Luca Celenza")	
13:30	Light Lunch	

Parallel Techical Sessions Program Details — Day 1

Time	Technical Session A1: Computational fluid dynamic and heat transfer (Room "Luca Celenza")	Technical Session A2: Heat and mass transfer in nuclear plants and energy systems (Aula Conchi Vargas)
Chairman:	**Pietro Asinari**	**Sara Rainieri**
10:40	Accurate RBF-FD meshless numerical simulation of thermo-fluid problems for generic 3D geometries. Riccardo Zamolo, Università degli Studi di Trieste	A multiple-zone air flow model for the ventilation loads evaluation in buildings' at urban scale. Guglielmina Mutani, Politecnico di Torino
11:00	Accuracy in evaluating heat transfer coefficient by rans CFD simulations in a rectangular channel with high aspect ratio – part 1: benchmark on a channel with plane walls. Alfonso Niro, Politecnico di Milano	Energy demand in secondary steel making process: numerical analysis to assess the influence of the ladle working lining properties. Manuela Neri, Università di Brescia
11:20	Accuracy in evaluating heat transfer coefficient by rans CFD simulations in a rectangular channel with high aspect ratio – part 2: channel with ribbed walls. Alfonso Niro, Politecnico di Milano	Experimental study of a R290 variable geometry ejector. Fabio Inzoli, Politecnico di Milano
11:40	CFD numerical simulations of a real car cabin: design, potential and limitations of numerical analysis. Giorgio Grossi, Università di Cassino	Fouling effect in a tubes-in-shell heat exchanger with twisted tape inserts applied to a small-scale biomass gasification power plant. Giulio Allesina, Università degli Studi di Modena e Reggio Emilia
12:00	Experimental and numerical analysis of the phase change process of a low temperature paraffin for refrigerated transport applications. Michele Calati, Università di Padova	Liquefied air energy storage (laes) systems: microgrid application in urban areas. Beatrice Castellani, Università degli Studi di Perugia
13:00	**Lunch Break**	

Time	Technical Session A3: Forced, natural and mixed convection (Room "Luca Celenza")	Technical Session A4: Measurement techniques for heat and mass transfer (Room "Conchi Vargas")
Chairman:	**Vincenzo Naso**	**Gianluca Morini**
14:30	Design of PCM-based heat sinks through topology optimization. Andrea Fragnito, Università degli Studi di Napoli "Federico II"	A new experimental setup for the measurement of dynamic contact angles based on the wilhelmy plate technique. Damiano Menegon, Università di Padova
14:50	A multi-scale study of phase change nanocomposites for thermal energy storage applications. Alessandro Ribezzo, Politecnico di Torino	Development of an innovative tool for estimating the heat release curve during fermenting processes. Matteo Malavasi, Università degli Studi di Parma
15:10	Analysis of air inlet velocity effects on the thermofluid dynamic and ufp concentration fields in an actual operating room. Andrea Carlo D'Alicandro, Università degli Studi di Napoli PARTHENOPE	Experimental investigation of the airflow within a car cabin. Michele Bertone, Università di Cassino
15:30	Boundary element method for contactless estimation of spatially varying internal heat transfer coefficient in circular pipes. Luca Cattani, Università degli Studi di Parma	Direct measurement of liquid fraction in ice melting. Dario Guarda, Università di Padova
15:50	**Coffee Break**	

Time	Technical Session A5: Conduction, radiation, thermophysical properties and porous media (Room "Luca Celenza")	Technical Session A6: Forced, natural and mixed convection (Room "Conchi Vargas")
Chairman:	**Nicola Bianco**	**Diego Angeli**
16:10	An exhaustive research optimization of heat transfer and pressure drop in designed Kelvin's open-cell foams. Marcello Iasiello, Università degli Studi di Napoli Federico II	Experimental assessment of the optical behaviour of a direct absorption solar collector during nanofluid flow. Arianna Berto, Università di Padova
16:30	Experimental and numerical analysis of pcms melting inside reticular structures. Andrea Diani, Università degli Studi di Padova	Forced convection heat transfer enhancement by means of liquid droplets generated in a micro-junction. Filippo Azzini, Università di Bologna
16:50	Experimental study on the thermal transport phenomenon of copper foam/paraffin composite in a large cavity: effects of structure parameters and heating power. Shengqi Zhang, Università di Padova	Analysis of variance of the heat and mass transfer coefficients in an evaporative condenser. Marco Lorenzini, Università di Bologna
17:10		Preliminary experimental results of a pulsating heat pipe with a long adiabatic section. Roberta Perna, Università di Pisa
17:30	**"Misure termofluidodinamiche" book presentation, Paolo Vigo, Marco Dell'Isola and Giorgio Ficco (Room "Luca Celenza")**	
18:00	**End Conference Work Day-1**	
18:00	**Guided tour at the Castello Angioino**	

Parallel Techical Sessions Program Details — Day 2

Time	Technical Session B1: Conduction, radiation, thermophysical properties and porous media (Room "Luca Celenza")	Technical Session B2: Measurement techniques for heat and mass transfer (Room "Conchi Vargas")
Chairman:	**Nicola Massaortti**	**Giorgio Ficco**
09:50	Stability analysis of dual stationary viscous flows in a vertical porous pipe. Michele Celli, Università di Bologna	Experimental friction factors on multiroughness cooling channels made via additive manufacturing at different building orientations. Giacomo Favero, Università degli Studi di Padova
10:10	Stability of natural convection for a power-law fluid in a vertical porous slab with open boundaries. Stefano Lazzari, Università di Bologna	Preliminary multi-variable experimental analysis to determine the start up criteria of pulsating heat pipes. Mauro Abela , Università di Pisa
10:30	Thermal convection of an ellis fluid saturating a porous layer with Neumann boundary conditions. Pedro Vayssiere Brandao, Università di Bologna	Thermophysical characterization of surgical masks for possible reuse in building refurnishing. Vincenzo Ballerini, Università di Bologna
10:50	**Coffee Break**	

Time	Technical Session B3: Computational fluid dynamic and heat transfer (Room "Luca Celenza")	Technical Session B4: Multiphase fluid dynamics and heat transfer (Room "Conchi Vargas")
Chairman:	**Perumal Nithiarasu**	**Paolo di Marco**
11:10	Lattice Boltzmann model of a square natural circulation loop with small inner diameter: working fluid effects. Johan Augusto Bocanegra, Università degli Studi di Genova	Condensation heat transfer of R1234ze(E) and R450A inside a 7 mm od enhanced tube. Andrea Diani, Università degli Studi di Padova
11:30	Numerical evaluation of head losses in plate and bar heat exchangers. Diego Angeli, Università degli Studi di Modena e Reggio Emilia	Condensation heat transfer of superheated vapour of R1234ZE(E) and R134A inside a brazed plate heat exchanger. Gianluca Cattelan, Università degli Studi di Padova
11:50	Numerical simulation of thin film evolution via lubrication theory including inertia. Nicola Suzzi, Università degli Studi di Udine	Experimental analysis of drop size distribution and nucleation site density during dropwise condensation from humid air flow. Matteo Mirafiori, Università degli Studi di Padova
12:10	On the solved turbulent scales in plume fires. Stefano Piva, Università di Ferrara	Experimental heat transfer characterization of low temperature PCM for refrigeration application. Giulia Righetti, Università degli Studi di Padova
12:30	Application of the porous media approach to a standing wave thermoacoustic engine for cfd simulations. Armando Di Meglio , Università degli Studi di Napoli PARTHENOPE	Experimental study on the storage performance of a finned heat exchanger immersed in a phase change material. Giulia Martino, Università di Bologna
13:00	**Lunch Break**	

Time	Technical Session B5: Computational fluid dynamic and heat transfer (Room "Luca Celenza")	Poster Session (Room "Conchi Vargas")
Chairman:	**Adriano Lezzi**	
14:30	An eulerian-lagrangian multi-scale numerical approach for saliva droplets airborne transport modelling. Valerio D'Alessandro, Università Politecnica delle Marche	Oscillations in aqueous polymer droplets impacting on a heated superhydrophobic surface. Sang W. Joo, Yeungnam University
14:50	Local wall heating effects on aeroacoustic field radiated by an isolated square cylinder in a laminar flow. Valerio D'Alessandro, Università Politecnica delle Marche	Wettability analysis of coated plates for indirect evaporative cooling system. Roberta Caruana, Politecnico di Milano
15:10	Numerical investigation of the performance of different oils for transformer cooling. Diego Angeli, Università degli Studi di Modena e Reggio Emilia	Modelling of gas-liquid flows in the presence of foam. Igor Matteo Carraretto, Politecnico di Milano
		Convective condensation of R134a and R1234ZE(E) inside microfin tube. Andrea Lucchini, Politecnico di Milano
		Fluidodinamic CFD simulation for retrofitting marketed blood fridgebank. Marilena Musto, Univerità di Napoli "Federico II"
		Numerical study on latent heat thermal energy storage with phase change material and metal foam in shell and corrugated tube with external heat losses. Sergio Nardini, Università degli Studi della Campania "Luigi Vanvitelli"
		Enhancing pcms thermal conductivity: a comparison among porous metal foam, nanoparticles and finned surfaces in triplex tube heat exchangers. Abolfazl NematpourKeshteli, Università degli Studi di Napoli Federico II
		Optimised electro-osmotic flow in rectangular microchannels with smoothed corners. Marco Lorenzini, Università di Bologna
		Thermal and fluid dynamic behaviour of air forced convection in phase change material cell structures. Oronzio Manca, Università degli Studi della Campania "Luigi Vanvitelli"
		Numerical investigation on a thermoelectric generator in an exhaust automotive line with copper foam. Oronzio Manca, Università degli Studi della Campania "Luigi Vanvitelli"
		Calorimetric determination of wet snow liquid water content. Damiano Fasani, Politecnico di Milano
		Hidden grid background oriented schlieren in studying convective flows. Dario Ambrosini, Università degli Studi Dell'Aquila
		Pressure drop measurements of mixtures with different viscosity flowing in a plate heat exchanger for automotive applications. Alfonso Niro, Politecnico di Milano
15:40	**Coffee Break**	
16:00	**UIT Assembly (Room "Luca Celenza")**	
18:00	**End Conference Work Day-2**	
18:00	**Guided tour at the Castello Angioino**	
20:00	**Social Dinner**	

Parallel Techical Sessions Program Details — Day 3

Time	Technical Session C1: Heat and mass transfer in nuclear plants and energy systems (Room "Luca Celenza")	Special Session S1: Heat Transfer and Thermal Energy Storage Enhancement by Foams and Nanoparticles (Room "Conchi Vargas")
Chairman:	**Luca Stabile**	**Oronzio Manca**
09:00	Design and modelling of minichannels to enhance heat transfer in a millimetric catalytic combustor. Alfonso Niro, Politecnico di Milano	Introduction
09:20	The use of heat exchangers in the development of thermodynamics humidity standards over a wide range of temperature and pressure. Vito Fernicola, INRIM - Istituto Nazionale di Ricerca Metrologica	
09:40	The effect of different sediment conditions on CO2-CH4 replacement in natural gas hydrates. Beatrice Castellani, Università degli Studi di Perugia	Thermal Convection and Instability in Metal Foams. Michele Celli, research unit: Università di Bologna
10:00	Thermal comfort in a canteen with ceiling fan coils air conditioning. Eleonora Palka Bayard de Volo, Università di Bologna	Pore scale analysis of thermal and fluid dynamics behaviors in open metal foams. Oronzio Manca, research unit: Università della Campania L. Vanvitelli
10:20	Transient analysis of sirio using relap5/mod3.3 system code. Martina Molinari, Università di Roma "Sapienza"	Phase Change Materials for thermal management of electronic devices. An overview.. Vincenzo Bianco, research unit: Università di Genova
10:40	**Coffee Break**	

Time	Technical Session C2: Multiphase fluid dynamics and heat transfer (Room "Luca Celenza")	Special session S2: Heat Transfer and Thermal Energy Storage Enhancement by Foams and Nanoparticles (Room "Conchi Vargas")
Chairman:	**Alfonso Niro**	**Oronzio Manca**
11:00	Experiments of convective evaporation of refrigerant R513A in a horizontal stainless-steel tube. Alice Arcasi, Università degli studi di Napoli Federico II	Experimental and numerical pore-scale and macro-scale analysis of PCM with foams. Marcello Iasiello, research unit: Università di Napoli Federico II
11:20	Flat-plate pulsating heat pipe for three-dimensional thermal spreader. Naoko Iwata, Università degli Studi di Parma	Enhanced heat transfer surfaces for single-phase and two-phase change applications. Andrea Diani e Carlo Nonino, research unit: Università di Padova
11:40	Particle-fluid thermal interaction in free mixing layers. Hamid Reza Zandi Pour, Politecnico di Torino	Thermal characterization of phase change nanocomposites for cold storage applications. Eliodoro Chiavazzo, research unit: Politecnico di Torino
12:00	Performance of a flat-plate polymeric pulsating heat pipe: effect of aluminium oxide coating. Ali Alqahtani, University of Liverpool	Discussion
12:20	Reverse flow in a pressure suppression system due to condensation instabilities. Guglielmo Giambartolomei, Università di Pisa	
12:40	Evaporating droplets in electric fields in normal and reduced gravity. Paolo Di Marco, Università di Pisa	
13:00	**Closing Cerimony (Room "Luca Celenza")**	
13:30	**Light Lunch**	