

36TH UIT HEAT TRANSFER CONFERENCE

CATANIA, JUNE 25-27, 2018

Four Points by Sheraton Hotel
Via Antonello da Messina, 45, 95121, Catania

CONFERENCE PROGRAMME

Monday, June 25, 2018	
10:00 10:45	OPENING CERIMONY AND UIT PRIZES
10:45 11:40	KEYNOTE LECTURE held by Prof. G. S. BAROZZI Chairman: Prof. V. Naso
11:40 13:20	SESSION 1.A (Chairman: Prof. A. Niro) <i>Theme: Flow visualization, IR thermography, Heat transfer in nuclear plants, Micro and Nano Scale Thermo-Fluid Dynamics</i>
	11:40 – 12:00 Multiscale simulation of the thermal properties of polymeric composite materials reinforced with carbon nanofillers <i>M. FASANO, R. SRIVASTAVA, S. MOHAMMADNEJAD, H. CHAVEZ THIELEMANN, M. ALBERGHINI, A. CARDELLINI, E. CHIAVAZZO, P. ASINARI</i>
	12:00 – 12:20 LCT, PIV and IR Imaging Detection in Selected Technical and Biomedical Applications <i>J. STASIEK, M. JEWARTOWSKI</i>
	12:20 – 12:40 Use of multispectral and thermal imagery in precision viticulture <i>G. TANDA, V. CHIARABINI</i>
	12:40 – 13:00 Experimental and numerical study on a lab-scale latent heat storage prototype for cooling applications <i>M. CALIANO, N. BIANCO, G. GRADITI, L. MONGIBELLO</i>
	13:00 – 13:20 Parametric thermal analysis for the optimization of Double Walled Tubes layout in the Water Cooled Lithium Lead inboard blanket of DEMO fusion reactor <i>P. ARENA, A. DEL NEVO, P.A. DI MAIO, R. FORTE, G. NEVONE</i>
13:20 14:20	LUNCH
14:20 16:20	SESSION 1.B (Chairman: Prof. G.S. Barozzi) <i>Theme: Computational fluid Dynamics and heat transfer (part I)</i>
	14:20 – 14:40 Bioheat transfer in a spherical biological tissue: a comparison among various models <i>A. ANDREOZZI, L. BRUNESE, M. IASIELLO, C. TUCCI, G.P. VANOLI</i>

	<p>14:40 – 15:00 Numerical analysis of advection-diffusion problemson 2D general-shaped domains by means of a RBF Collocation Meshless Method <i>R. ZAMOLO, E. NOBILE</i></p> <p>15:00 – 15:20 Preliminary DNS results on the friction factor at low Re inside a rectangular channel of 1:10 aspect ratio <i>F. VIGNATI, P. GRAMAZIO, L. VITALI, D. FUSTINONI, A. NIRO</i></p> <p>15:20 – 15:40 Selection of Turbulence Models for Low-Reynolds Number Turbulent Flow in Spacer-Filled Channels <i>M. CIOFALO, M. LA CERVA, M. DI LIBERTO</i></p> <p>15:40 – 16:00 Modeling heat conduction in open-cell metal foams by means of the Three-Dimensional Thermal Fin Theory <i>M. IASIELLO, C. SAVARESE, P.J. DAMIAN, N. BIANCO, A. ANDREOZZI, W. K. S. CHIU, V. NASO</i></p> <p>16:00 – 16:20 Comparison between cooling strategies for power electronic devices: fractal mini-channels and arrays of impinging submerged jets <i>N. BARALDI, A. FREGNI, M. SABATO, E. STALIO, F. BRUSIANI, M. TRANCHERO, T. BARITAUD</i></p> <p>16:20 – 16:40 On the effect of random Si nanowires on the Leidenfrost phenomenon <i>M. AULIANO, M. FERNANDINO, P. ZHANG, C. DORAO</i></p>
<p>16:40 17:00</p>	<p style="text-align: center;">1° COFFE BREAK</p>
<p>17:00 18:40</p>	<p style="text-align: center;">SESSION 1.C (Chairman: Prof. A. Fichera) Theme: Heat transfer and efficiency, in energy system, environmental technologies, and buildings (part I)</p>
	<p>17:00 – 17:20 Conversion of Biomass and Municipal Wastes into Syngas and Hydrogen using Highly Preheated Agent (HTAG) <i>J. STASIEK, M. JEWARTOWSKI</i></p> <p>17:20 – 17:40 Comparison of two hygroscopic materials for a solar-assisted desiccant-based air handling unit <i>C. ROSELLI, M. SASSO, F. TARIELLO</i></p> <p>17:40 – 18:00 Performance maps for an air-cooled air conditioning system as a preliminary instrument for the diagnosis of evaporator fouling <i>P. CATRINI, A. PIACENTINO, J. E. BRAUN, A. PATIL, A. L. HJORTLAND</i></p> <p>18:00 – 18:20 Ventilated pitched roof with forced ventilation and flow homogenizer device: testing and performance assessment <i>C. FERRARI, A. MUSCIO</i></p> <p>18:20 – 18:40 Simplified numerical modelling of infrared radiation effects in tomato dry peeling <i>G. CUCCURULLO, L. GIORDANO</i></p>

Tuesday, June 26, 2018

8:40
9:40

KEYNOTE LECTURE held by Prof. M. CIOFALO
Chairman: Prof. E. Nobile

9:40
10:40

SESSION 2.B (Chairmen: Prof. D. Del Col and Prof. N. Bianco)
POSTER SESSION

Tunnel fire active protection: improving ventilation system

L. CIRRINCIONE, G. SCACCIANOCE, M. SCRUDATO, M. PIETRAFESA, G. RIZZO

Numerical analysis of temperature stratification in the CIRCE pool facility

F. EDEMETTI, A. TASSONE, V. NARCISI, F. GIANNETTI, L. FERRONI, M. TARANTINO

Numerical simulation of oil-water two-phase flow in a horizontal duct with a Venturi flow meter

M. GUILIZZONI, G. SALVI, G. SOTGIA, L.P.M. COLOMBO

Parametric analysis of input data on the CFD fire simulation

A. ANDREOZZI, N. BIANCO, M. MUSTO, G. ROTONDO

Effect of finite heating duration on sensitivity coefficients for thermal property estimation when using a boundary condition of the 4th kind

G. D'ALESSANDRO, F. DE MONTE

Experimental study of PM emissions from wood pellet stoves with an innovative burning pot

L.F. POLONINI, D. PETROCELLI, S.P. PARMIGIANI, A.M. LEZZI

Design and commissioning of an experimental facility for performance evaluation of pure and mixed refrigerants

L. MOLINAROLI, A. LUCCHINI, L.P.M. COLOMBO

Coupling infrared thermography and numerical models for photovoltaic (PV) system efficiency characterization: results from on field tests

I. NARDI, M. MUTTILLO, T. DE RUBEIS, M. SARCINA, S. SFARRA, D. AMBROSINI, D. PAOLETTI

A Ground Coupled Heat Pump model based on COMSOL Multiphysics and MATLAB software

C. ALIMONTI, E. SOLDI, S. MINNITI, M.F.M. SPEETJENS

Application of RELAP5/Mod3.3 – Fluent coupling codes to CIRCE-HERO

N. FORGIONE, M. ANGELUCCI, C. ULISSI, D. MARTELLI, G. BARONE, R. CIOLINI, M. TARANTINO

Pattern recognition by Recurrence Analysis in the flow around a bluff body

D. ANGELI, A. CIMARELLI, A. LEONFORTE, A. PAGANO

On the thermal dynamic behaviour of the helium-cooled DEMO fusion reactor

I. MOSCATO, L. BARUCCA, S. CIATTAGLIA, P.A. DI MAIO

The ultrasounds as a mean for the enhancement of heat exchanger performances: an analysis of the available data

A. FRANCO, C. BARTOLI

Occupancy modelling of buildings based on CO2 concentration measurements: an experimental analysis

A. FRANCO, F. LECCESE, L. MARCHI

Design and assessment of an experimental facility for the characterization of flow boiling of azeotropic refrigerants in horizontal tubes

L.P.M. COLOMBO, A. LUCCHINI, T.N. PHAN, L. MOLINAROLI, A. NIRO

	<p>Numerical study on latent thermal energy storages with PCM partially filled with aluminium foam <i>B. BUONOMO, D. ERCOLE, O. MANCA, S. NARDINI</i></p> <p>The effect of PPI on thermal parameters in compact heat exchangers with aluminum foam <i>B. BUONOMO, A. DI PASQUA, D. ERCOLE, O. MANCA</i></p> <p>Dry deposition of particle on urban areas <i>M. GIARDINA, P. BUFFA, A. CERVONE, C. LOMBARDO</i></p> <p>Experimental analysis of steam condensation patterns within a pressure suppression system operating at sub-atmospheric pressure conditions <i>D. AQUARO, D. MAZED, R. LO FRANO, D. DEL SERRA, G. GIAMBARTOLOMEI</i></p> <p>Distributed optimal control applied to Fluid Structure Interaction problems <i>A. CHIERICI, L. CHIRCO, R. DA VIÀ, M. MAGNANI, S. MANSERVISI</i></p> <p>Numerical simulation of a turbulent Lead Bismuth Eutectic flow inside a 19 pin nuclear reactor bundle with a four logarithmic parameter turbulence model <i>A. CHIERICI, L. CHIRCO, R. DA VIÀ, S. MANSERVISI</i></p>
10:40 11:00	COFFEE BREAK
11:00 13:00	SESSION 2.C (Chairman: Prof. S. Rainieri) <i>Theme: Natural, forced and mixed convection</i>
	<p>11:00 – 11:20 Experimental results on local heat transfer coefficient inside a rectangular channel with chevron-shaped ribs <i>P. GRAMAZIO, L. VITALI, D. FUSTINONI, A. NIRO</i></p> <p>11:20 – 11:40 Experimental investigation on the convective heat transfer enhancement in tubes with twisted-tape inserts <i>F. BOZZOLI, L. CATTANI, A. MOCERINO, S. RAINIERI, G. PAGLIARINI</i></p> <p>11:40 – 12:00 Convective and absolute instability of horizontal flow in porous media <i>A. BARLETTA, M. CELLI</i></p> <p>12:00 – 12:20 Onset of convective instability within an inclined porous layer with a permeable boundary <i>M. CELLI, A. BARLETTA</i></p> <p>12:20 – 12:40 Direct simulation of transition in a differentially heated vertical channel <i>P. CINGI, A. CIMARELLI, D. ANGELI</i></p> <p>12:40 – 13:00 Passive boundary layer control on wind turbines blades using dimples <i>V. D'ALESSANDRO, G. CLEMENTI, M. FALONE, L. GIAMMICHELE, S. MONTELPARE, R. RICCI</i></p>
13:00 14:00	LUNCH
14:00 15:00	KEYNOTE LECTURE held by Prof. M. MARENGO Chairman: Prof. G. Tanda

15:00 17:20	<p style="text-align: center;">SESSION 2.C (Chairman: Prof. L. Rossetto) <i>Theme: Multi-phase fluid dynamics, heat transfer and interface phenomena</i></p>
	<p>15:00 – 15:20 Experimental study of liquid velocity profiles in large-scale bubble columns with particle tracking velocimetry <i>G. BESAGNI, F. INZOLI, T. ZIEGENHEIN, D. LUCAS</i></p> <p>15:20 – 15:40 Condensation heat transfer in minichannels: a review of available correlations <i>M. AZZOLIN, A. BERTO, S. BORTOLIN, D. DEL COL</i></p> <p>15:40 – 16:00 Experimental investigation on flow boiling heat transfer and pressure drop of refrigerants R32 and R290 in a stainless steel horizontal tube <i>B. CITARELLA, G. LILLO, R. MASTRULLO, A. W. MAURO, L. VISCITO</i></p> <p>16:00 – 16:20 Relative importance of entrained liquid fraction and mass transfer at the interface on pressure drop of annular flows <i>G. LILLO, R. MASTRULLO, A. W. MAURO, R. REVELLIN</i></p> <p>16:20 – 16:40 Experimental study of flow boiling in an inclined mini-channel <i>R. REVELLIN, T. LAYSSAC, S. LIPS</i></p> <p>16:40 – 17:00 Experimental investigation of R1234ze(E) and R134a condensation inside a 4.0 mm OD microfin tube <i>A. DIANI, L. ROSSETTO</i></p> <p>17:00 – 17:20 Horizontal Air-Water Two-Phase Flow Measurement Using an Electrical Impedance Probe and a Venturi Flow Meter <i>G. CHIESA, C. BERTANI, N. FALCONE, A. BERSANO, M. DE SALVE, B. PANELLA</i></p>
17:20 17:40	COFFE BREAK
17:40 19:00	REUNION OF UIT FELLOWS
20:30	COMPLIMENTARY BUS FOR THE SOCIAL DINNER LEAVING FROM 4 POINTS HOTEL
21.00	<p>SOCIAL DINNER will take place at <i>Palazzo Francicanava Asmundo</i>, Piazza Asmundo, 3, Catania</p> <p>37°30'12.85"N 15°05'00.46"E</p>

Wednesday, June 27, 2018	
8:40 10:20	SESSION 3.A (Chairman: Prof. A. Pagano) Theme: Computational fluid Dynamics and heat transfer (part II)
	<p>8:40 – 9:00 Optimal Control of the Wilcox turbulence model with lifting functions for flow injection and boundary control <i>L. CHIRCO, A. CHIERICI, R. DA VIA', V. GIOVACCHINI, S. MANSERVISI</i></p> <p>9:00 – 9:20 Numerical modelling of flashing flow phase change in convergent-divergent nozzle: A sensitivity analysis <i>Q. DANG LE, R. MEREU, G. BESAGNI, V. DOSSENA, F. INZOLI</i></p> <p>9:20 – 9:40 Experimental validation of numerical model for evaluation of local heat transfer coefficient in coiled tubes <i>P. VOCALE, M. ABBENANTE, F. BOZZOLI, S. RAINIERI, G. PAGLIARINI</i></p> <p>9:40 – 10:00 A new surface tension VOF evaluation by using variational representation and Galerkin interpolation projection <i>L. CHIRCO, A. CHIERICI, R. DA VIA', S. MANSERVISI</i></p> <p>10:00 – 10:20 Projection algorithm for simulation of fluid flow around moving objects with immersed boundary method <i>A. ABBATI, A. CHIERICI, L. CHIRCO, R. DA VIA', S. MANSERVISI</i></p>
10:20 10:40	COFFEE BREAK
10:40 12:40	SESSION 3.B C (Chairman: Prof. P. Baggio) Theme: Heat transfer and efficiency, in energy system, environmental technologies, and buildings (part II)
	<p>10:40 – 11:00 Comparison of isothermal and isoflux g-functions for borehole-heat-exchanger fields <i>C. NALDI, E. ZANCHINI</i></p> <p>11:00 – 11:20 Back analysis of a horizontal geothermal plant implemented in a wine production process <i>C. ALIMONTI, E. SOLDI, G. PECCI</i></p> <p>11:20 – 11:40 Feasibility study of a ground source heat pump system for heating and cooling of an industrial building <i>C. ALIMONTI, E. SOLDI, A. GRECO</i></p> <p>11:40 – 12:00 Low-order dynamic model of a domestic electric oven Part I: Experimental characterization of the main heating functions <i>M. LUCCHI, M. LORENZINI, G. ROBERTI</i></p>

	<p>12:00 – 12:20 Low-order dynamic model of a domestic electric oven Part II: parameter identification and model validation for the static heating mode <i>M. LUCCHI, M. LORENZINI, V. DI PAOLA</i></p> <p>12:20 – 12:40 A Mesoscale-Microscale approach for the energy analysis of buildings <i>S. MONTELPARE, V. D’ALESSANDRO, C. LOPS, E. COSTANZO, R. RICCI</i></p>
<p>12:40 13:10</p>	<p style="text-align: center;">CLOSING CERIMONY</p>
<p>13:10 14:00</p>	<p style="text-align: center;">LIGHT BRUNCH</p>