

# UIT 2012 FINAL PROGRAM

**MONDAY 25/06/2012**

**08:30-09:30 Registration of the participants**

**09:30-10:00 Welcome Address (Aula 61)**

**10:00-10:15 UIT Best Thesis Prize: Announcement of the 2011 Winner (Aula 61)**

**10:15-11:00 Keynote Lecture by Gian Paolo Beretta (Aula 61)**

Authors:	Beretta G P
Title:	Steepest Entropy Ascent in Non-Equilibrium Thermodynamics

**11:00-11:30 Coffee break**

## **ORAL PRESENTATIONS**

**AULA 6.1, Monday 25/06, 11:30-12:30**

**Topic: Micro-thermofluidics and nanofluids      Chairman: Antonio Barletta**

Authors:	Alberico G, Manca O, Nardini S, Ricci D
Title:	A numerical investigation on confined slot jets of nanofluids impinging on an isothermal moving surface

Authors:	Belgiorno G, Buonomo B, Manca O, Ricci D
Title:	A numerical investigation on nanofluid forced convection in flat tubes

Authors:	Buonomo B, Mesoletta P, Manca O, Nardini S, Tamburrino S
Title:	Nanofluids mixed convection in channels with open cavity below

**AULA 6.2, Monday 25/06, 11:30-12:30**

**Topic: Single-phase fluid flow and heat transfer      Chairman: Sara Rainieri**

Authors:	Biserni C
Title:	Thermal performance of C-shaped cavities on the basis of constructal theory

Authors:	Cuccurullo G, Giordano L, Spingi V, D'Agostino F, Migliozzi M
Title:	A numerical-analytical solution for continuous flow microwave heating of liquids in laminar motion

Authors:	Cuccurullo G, Spingi V, Di Giuda R
Title:	An analytical solution for heat partition in a pin-on-disc frictional device

12:30-13:30 Lunch

## ORAL PRESENTATIONS

**AULA 6.1, Monday 25/06, 13:30-15:30**

Topic: Micro-thermofluidics and nanofluids Chairman: Antonio Barletta

Authors:	Celli M, Magi G M, Barletta A
Title:	<b>Natural convection of a nanofluid inside a square cavity</b>

Authors:	Chalabi H, Saraceno L, Boccardi G, Celata G P, Lorenzini M, Valougeorgis D, Morini G L
Title:	<b>Heat conduction in an annular gap filled with a rarefied gas</b>

Authors:	Geri M, Morini G L
Title:	<b>Convective heat transfer for electro-osmotic flows in rectangular microchannels</b>

Authors:	Rossi di Schio E, Celli M, Barletta A
Title:	<b>Analysis of the laminar forced convection of a nanofluid in a channel with periodic boundary conditions</b>

Authors:	Spiga M, Vocale P
Title:	<b>Friction factors for rarefied flows in elliptical microchannels</b>

Authors:	Spiga M, Vocale P
Title:	<b>Numerical investigation of transient free convection in slip flow</b>

Topic: Multi-phase fluid flow, heat transfer, and interface phenomena Chairman: Gian Piero Celata

Authors:	Antonini C, Villa F, Bernagozzi I, Marengo M
Title:	<b>Analysis of water drop impacts on tilted non-wettable surfaces</b>

## AULA 6.2, Monday 25/06, 13:30-15:30

Topic: Single-phase fluid flow and heat transfer      Chairman: Sara Rainieri

Authors:	Fasanella R, Ferrara N, Di Tommaso R M, Nino E
Title:	<b>PIV measurements on a hybrid mini wind turbine</b>

Authors:	Fustinoni D, Gramazio P, Niro A
Title:	<b>Experimental results by IR-thermography on convective heat transfer inside a ribbed rectangular channel</b>

Authors:	Iannace G, Menditto L, Nardini S, Trematerra A
Title:	<b>Numerical investigation on natural convection caused by solar heating in the Ear of Dionysius in Syracuse</b>

Authors:	Rainieri S, Bozzoli F, Cattani L, Corradi C, Mordacci M, Pagliarini G
Title:	<b>Experimental investigation on the convective heat transfer in coiled corrugated tubes</b>

Authors:	Ranut P, Nobile E, Mancini L
Title:	<b>Metal foams for enhanced heat transfer. State of the art and X-ray microtomography characterization</b>

Authors:	Rossi R, Coletti F, Ryan K, Iaccarino G, Eaton J K
Title:	<b>Aero-thermal performance of Lotus-type fins for battery cooling applications</b>

Topic: Computational fluid flow and heat transfer      Chairman: Enrico Nobile

Authors:	Bottarelli M, Piva S
Title:	CFD analysis for horizontal ground heat exchangers placed into embankments

**15:30-16:00      Coffee break**

## ORAL PRESENTATIONS

### AULA 6.1, Monday 25/06, 16:00-17:30

Topic: Multi-phase fluid flow, heat transfer, and interface phenomena      Chairman: Gian Piero Celata

Authors:	Arosio S, Guilizzoni M
Title:	<b>Flow rates measurement in a gas-liquid mixture by means of phase density signal</b>

Authors:	Bertani C, Malandrone M, Panella B
Title:	<b>Experimental study on two-phase flow in a horizontal impacting T-junction</b>

Authors:	De Salve M, Monni G, Panella B
Title:	<b>Horizontal air-water flow characterisation with a wire mesh sensor</b>

Authors:	Del Col D, Bortolin S, Da Riva E
Title:	<b>Numerical simulations of condensation inside a square minichannel at high mass flux</b>

Authors:	Deon L, Bnà S, Bornia G, Meloni P, Manservigi S, Scardovelli R
Title:	<b>Numerical simulations of heterogeneous nucleate boiling from a single site</b>

### AULA 6.2, Monday 25/06, 16:00-17:30

Topic: Computational fluid flow and heat transfer      Chairman: Enrico Nobile

Authors:	Casamirra M, Castiglia F, Giardina M, Morana G, Prete G
Title:	<b>Thermal-hydraulic analysis on the cooling system of the target in the SPES plant</b>

Authors:	Errico O, Angeli D, Barozzi G S, Stalio E, Corticelli M A
Title:	<b>Numerical analysis of weakly turbulent mixed convection flows in a horizontal pipe</b>

Authors:	Grasso G, Ranut P, Nobile E
Title:	<b>Numerical simulation of heat transfer and fluid flow in streamwise-periodic geometries: a review</b>

Authors:	Inzoli F, Colombo E, Basilico C, Mereu R
Title:	<b>CFD modeling of wind load on PV panels on flat roofs</b>

Authors:	Magnini M, Pulvirenti B, Thome J R
Title:	<b>Numerical study of the hydrodynamics and heat transfer of bubbles within microchannels in flow boiling conditions</b>

19:15

**Bus departure to Villa Capriata (Castenaso) for Social Dinner**

## TUESDAY 26/06/2012

### 09:00-10:00 Keynote Lecture by John Richard Thome (Aula 61)

Authors:	Thome J R, Cioncolini A
Title:	LTCM unified model for annular two-phase flow: presentation of the modeling suite and preliminary results for convective evaporation and condensation in circular tubes

### 10:00-10:30 Coffee break

## ORAL PRESENTATIONS

### AULA 6.1, Tuesday 26/06, 10:30-12:30

Topic: Multi-phase fluid flow, heat transfer, and interface phenomena    Chairman: Gian Piero Celata

Authors:	Arini A, Ciofalo M
Title:	CFD predictions of turbulent two-phase flow in helical coils (versione BN + colore)

Authors:	Baldassari C, Mameli M, Marengo M
Title:	Heterogeneous non uniform flow boiling of R-134a inside a glass minichannel

Authors:	Briola S, Di Marco P, Gabbrielli R
Title:	Two-Phase Fluid Expanders – A Review

Authors:	De Salve M, Giraud M G, Panella B
Title:	Experimental study of air-water two-phase flow in parallel helically coiled pipes

Authors:	Fichera A, Pagano A
Title:	Assessment of an innovative representation tool for experimental complex dynamics of air-water two phase flows in vertical pipes

Authors:	Filippeschi S, Franco A
Title:	An experimental device for analysis of heat and mass flow rate in small size two-phase loop thermosyphons

Authors:	Ibarra-Castanedo C, Rouse D R
Title:	Experimental characterization of sensible and latent heat exchanges in a counterflow air-to-air heat exchanger

## AULA 6.2, Tuesday 26/06, 10:30-12:30

Topic: Computational fluid flow and heat transfer    Chairman: Enrico Nobile

Authors:	Cafaro E, Saba F, Consalvo De Giorgi L, Cima C, Taurino T
Title:	<b>A tool for risk analysis in tunnels: Pro Securitate 2005</b>

Authors:	Marocco L, Gramazio P, Fustinoni D, Niro A
Title:	<b>Numerical simulation of forced-convection heat transfer in a ribbed channel with high blockage</b>

Authors:	Oliviero M, Bianco N, Contento G, Naso V
Title:	<b>Prediction of radiation heat transfer in open cell foams by a model based on the Lord Kelvin geometrical representation</b>

Authors:	Petrone G, Cammarata L, Cammarata G
Title:	<b>Numerical simulation of heat loss by a DSG solar collector</b>

Authors:	Viaro S, Lampitella P, Mereu R, Colombo E, Inzoli F
Title:	<b>Large eddy simulation of a turbulent pipe flow: a sensitivity analysis on computational parameters</b>

Topic: Heat transfer and efficiency in energy systems, environment, and buildings

Chairman: Enzo Zanchini

Authors:	Alimonti C, Gnoni A, Marinucci E
Title:	<b>Comparison between geothermal closed loop and open loop with groundwater efficiency of a geothermal heat pump plant in urban areas</b>

Authors:	Alimonti C, Gnoni A, Marinucci E
Title:	<b>Modelling of an abandoned oil well for the purpose of geothermic and geoelectric uses</b>

Authors:	Allesina G, Pedrazzi S, Puglia M, Fontanesi C, Tartarini P
Title:	<b>Upgrading or substituting the gasification process for electrical energy production: an energy-based comparison</b>

**12:30-13:30    Lunch**

## ORAL PRESENTATIONS

**AULA 6.1, Tuesday 26/06, 13:30-16:00**

**Topic: Multi-phase fluid flow, heat transfer, and interface phenomena    Chairman: Gian Piero Celata**

Authors:	Mancin S, Del Col D, Rossetto L
Title:	<b>Condensation of R32 and R410 inside a brazed plate heat exchanger</b>

**Topic: Heat transfer in nuclear power plants    Chairman: Ruben Scardovelli**

Authors:	Bassenghi F, Bandini G, Donato F, Lombardo C, Manservigi S, Meloni P, Polidori M
Title:	<b>Analysis of the full scale PERSEO test for decay heat removal in LWRS by coupling CATHARE V2.5 and NEPTUNE_CFD codes</b>

Authors:	Bnà S, Bornia G, Cerroni D, Manservigi S, Menghini F, Scardovelli R
Title:	<b>Heat transfer numerical simulations with the four parameter <math>\kappa</math>-<math>\omega</math>-<math>\kappa_t</math>-<math>\epsilon_t</math> model for low-Prandtl number liquid metals</b>

Authors:	Chiovaro P, Mascari F, Vella G
Title:	<b>Analyses of the SPES-3 design and beyond design accident condition by using TRACE code</b>

Authors:	Cristofano L, Giannetti F, Gramiccia L, Nobili M
Title:	<b>Investigation on two-phase flow instabilities with RELAP5 code</b>

Authors:	Cristofano L, Naviglio A, Caruso G, Vitale Di Maio D
Title:	<b>Gas entrainment phenomena affecting safety issues of GEN IV nuclear reactors</b>

Authors:	D'Aleo F, Di Maio P A, Granifero R, Trinca C, Vella G, Volo L
Title:	<b>On the investigation of lithium methatitanate pebble bed thermal diffusive properties by the improved current pulse method</b>

## **AULA 6.2, Tuesday 26/06, 13:30-16:00**

**Topic: Heat transfer and efficiency in energy systems, environment, and buildings**

**Chairman: Enzo Zanchini**

Authors:	Fabbri G, Greppi M, Lorenzini M
Title:	<b>PVT water based prototype construction and experimental efficiency analysis for a particular Italian North-Est location</b>

Authors:	Fabbri K, Tronchin L, Tarabusi V
Title:	<b>Exergy method to evaluate building wrapper performance</b>

Authors:	Lazzari S, Zanchini E
Title:	<b>Time evolution of the ground temperature around a set of borehole heat exchangers with unbalanced seasonal loads and no groundwater movement</b>

Authors:	Leoncini L, Paganini D
Title:	<b>Design and realization of an experimental apparatus based on hot plate concept for measure of thermal resistance of building insulating materials</b>

Authors:	Levoni P, Scorcioni A, Angeli D, Stalio E, Barozzi G S, Cipollone M
Title:	<b>T.A.L.P.A.: an innovative facility for continuous longitudinal airflow profile acquisition in tunnels</b>

Authors:	Lodi C, Ferrari F, Muscio A, Tartarini P
Title:	<b>Investigation of an equivalence criterion between periodic thermal transmittance of opaque building elements and cool roof or cool color coatings</b>

Authors:	Luscietti D, Pilotelli M
Title:	<b>Chimney in wood-frame houses: preliminary thermal analysis in relation to the fire hazard</b>

**16:00-16:30    Coffee break**

**16:30-18:30    Assemblea Generale Soci UIT**

**20:00            Gala Dinner hosted by Chef Andrea Merlini at Circolo Bononia**



## WEDNESDAY 27/06/2012

### 09:00-10:00 Keynote Lecture by Michele Ciofalo (Aula 61)

Authors:	Ciofalo M, Di Liberto M, Di Piazza I
Title:	Steady, periodic, quasi-periodic and chaotic flow regimes in toroidal pipes

### 10:00-10:30 Coffee break

## ORAL PRESENTATIONS

### AULA 6.1, Wednesday 27/06, 10:30-12:30

Topic: Heat transfer in nuclear power plants      Chairman: Ruben Scardovelli

Authors:	De Santis A, Nobili M, Vitale Di Maio D, Naviglio A, Giannetti F
Title:	Innovative radiation-based decay heat removal system

Authors:	Forgione N, Angelo I, Baudanza V, Martelli D
Title:	Analysis of mixing phenomena in the downcomer and lower plenum of an IPSR type reactor

Authors:	Forgione N, De Rosa M, Martelli D, Bandini G, Tarantino M
Title:	Thermal-hydraulic pre-test analysis of ICE test section with DHR system

### AULA 6.2, Wednesday 27/06, 10:30-12:30

Topic: Heat transfer and efficiency in energy systems, environment, and buildings

Chairman: Enzo Zanchini

Authors:	Pagliarini G, Rainieri S, Corradi C, Fontanesi F
Title:	Thermal environment characterisation of a glass-covered semi-outdoor space: comparison between experimental and analytical results

Authors:	Petrocelli D, Lezzi A M
Title:	Experimental study of a pellet stove

Authors:	Quadrini F, Mariani A, Celata G P, Calabrese N, D'Annibale F, Trinchieri R
Title:	Influence of inclination on the performance of a wickless heat pipe for solar applications

Authors:	Valdiserri P, Pedretti L
Title:	Dynamic simulation of HVAC systems: evaluation of energy and comfort performance in hospital rooms

12:30                      Conference ends