

ASME-ATI-UIT 2010 CONFERENCE
Thermal and Environmental Issues in Energy Systems

PROGRAM

REGISTRATION – Sunday, May 16: 15,00 – 17,30; Monday, May 17, Tuesday, May 18, Wednesday, May 19: from 8,15

OPENING CEREMONY - Sunday, May 16: 17,30 - ULISSE ROOM

Welcoming Remarks

American Society of Mechanical Engineering (Terrence Simon)
 Associazione Termotecnica Italiana (Sergio Faggiani)
 Unione Italiana Termofluidodinamica (Gian Piero Celata)

The Outlook for Energy: a View to 2030

Piero Biscari - Member of the Board - Esso Italiana – ExxonMobil

Welcome drink – SORRENTO LOUNGE

INVITED LECTURES – ULISSE ROOM

Monday, May 17, 2010: 8,40 – 9,25	John Richard Thome – Ecole Polytechnique Federale de Lausanne	Comparison of New Refrigerant R1234ze versus R134a for Two-Phase Cooling of Microprocessors
Monday, May 17, 2010: 10,50 – 11,35	Kambiz Vafai – University of California Riverside	Primary Aspects of Transport in Biofilms
Monday, May 17, 2010: 14,40 – 15,25	Robert Watts – Tulane University	Global Warming and the Future of the Earth
Tuesday, May 18, 2010: 8,40 – 9,25	Ingwald Obernberger – Technische Universität Graz	The Present State and Future Development of Industrial Biomass Combustion for Heat and Power Generation
Tuesday, May 18, 2010: 10,50 – 11,35	Mamoru Ishii – Purdue University	Renaissance of Nuclear Engineering and Coming Global Energy Crisis
Wednesday, May 19, 2010: 8,40 – 9,25	Yogi Goswami – University of South Florida	New and Emerging Developments in Solar Energy
Wednesday, May 19, 2010: 10,50 – 11,35	Hans Müller-Steinhagen – Institut für Technische Thermodynamik - Stuttgart	Desertec: Sustainable Electricity for Europe, Middle East and North Africa

ORAL PRESENTATIONS

MONDAY, MAY 17, 2010

ULISSE ROOM

8,40 – 9,25 **Invited lecture: Comparison of New Refrigerant R1234ze versus R134a for Two-Phase Cooling of Microprocessors**
 John Richard Thome – Ecole Polytechnique Federale de Lausanne
Chairman: R. Mastrullo

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-1-1: TWO-PHASE HEAT TRANSFER I Chairman: J. R. Thome	SESSION C-1-1: SPRAY, LIQUID FUELS AND EMULSIONS Chairman: P. Massoli	SESSION P-1-1: ENERGY AND BUILDINGS I Chairman: F. de' Rossi	SESSION A-1-1: INTERNAL COMBUSTION ENGINES Chairman: A. Senatore
9,30 – 9,50	Two-phase distribution and flow patterns in compact heat exchanger - Ben Saad Haddad S., Clement P., Fourmigue J. F., Gentric C., Leclerc J. P.	Numerical study of the influence of the spray velocity on the tetradecane's combustion - Askarova A. S., Ryspayeva M. Z., Voloshina I. E.	A new methodology supported by the HDR imaging technology for photometric survey in scholastic environment: a case study - Bellia L., Iuliano G. F., Spada G.	Effect of H₂:CO ratio in syngas for a dual fuel diesel engine operation - Sahoo B. B., Sahoo N., Saha U. K.
9,50 – 10,10	Two-phase flow pressure change across sudden expansion in small channels - Chen Y., Tseng C. Y., Wang C. C.	Experimental study of dispersed water droplets size effect in micro-explosion for a water-in-oil emulsion - Mura E., Josset C., Loubar K., Huchet G., Bellettre J.	Heat transfer simulation on a transparent envelope - Chiesa G., Rotta E., Maistrello M.	Atkinson cycle and very high pressure turbocharging: increasing internal combustion engine efficiency and power while reducing emissions - Gheorghiu V.
10,10 – 10,30	Numerical methods for phase transitions in two-phase flows - Cordier F., Degond P., Kumbaro A.	Optimizing water/fuel emulsions for effective droplets micro-explosion in combustion systems - Califano V., Chiariello F., Calabria R., Massoli P.	Systems for the abstraction and production of heat in ancient roman baths; two case studies: the forum baths at Cuma and the small baths at Baia - Guardascione F. M.	Particulate filter behaviour of a Diesel engine fueled with biodiesel - Buono D., Senatore A., Prati M. V.

10,30 – 10,50 **Coffee break - GARDEN**

MONDAY, MAY 17, 2010

ULISSE ROOM

10,50 - 11,35 **Invited lecture: Primary Aspects of Transport in Biofilms**
 Kambiz Vafai - University of California Riverside
Chairman: O. Manca

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-1-2: POWER PLANTS Chairman: S. Consonni	SESSION C-1-2: SOLAR PLANTS I Chairman: K. Vafai	SESSION P-1-2: BIOMASS AND GEOTHERMAL I Chairman: V. Naso	SESSION A-1-2: WIND TURBINES Chairman: B. Fortunato
11,40 – 12,00	CO₂ capture and sequestration for emissions reduction and enhanced oil recovery applications - Islam M. D., Ohadi M., Pillay A. E.	Feasibility analysis of a stand alone desalination system working with solar energy - Chesi A., Ferrari L., Paganelli S.	Biogas to energy from the MSW organic fraction solid state anaerobic digestion: a real case experimental evaluation and process optimization procedure - Di Maria F., Bidini G., Sordi A., Spazzoli E., Pavesi G.	Study of the boundary layer on a wind turbine blade section - Marzabadi F. R., Masdari M., Soltani M. R.
12,00 – 12,20	A methodology for optimizing heat recovery steam cycles based on linear programming and particle swarm - Martelli E., Consonni S., Amaldi E.	An experimental study on sloped solar chimney power plant system - Fei C., Liang Z., Yu H., Junyin Y., Qin W.	Biodiesel process: comparative evaluation of a theoretical model and a real case - Di Nicola G., Marinelli G., Moglie M., Polonara F., Santori G.	Flow analysis around wind turbine rotor blades - Amano R. S., Malloy R. J.
12,20 – 12,40	Cycle upgrade for waste-to-energy power plants - Bianchi M., Branchini L., Melino F.	Angle optimization of sloped solar chimney system - Fei C., Liang Z., Huashan L., Liangliang F., Yu H.	Temperature dependence of viscosity of biodiesel from waste vegetable oil - Higano M., Shuchi S., Kato S., Ishida T.	Experimental results on wind tunnel of a vertical axis wind turbine - Fortunato B., Camporeale S. M., Torresi M., De Fazio D., Giordano M.
12,40 – 13,00	An overview of Indian and global energy scenario - Parishward G.	Feasibility analysis of sloped solar chimney power system in Northern China - Fei C., Liang Z., Huashan L., Yu H., Xule Z.	Multi-objective optimization of a biodiesel production process: comparison between algorithms - Di Nicola G., Marinelli G., Moglie M., Polonara F., Santori G.	Transformations of wave influenced by the wind farm - Hsu C. M., Lin M. C., Hsiao S. S., Chiang Y. C.

13,00 – 14,30

Light lunch – GINESTRE

MONDAY, MAY 17, 2010

ULISSE ROOM

14,40 – 15,25 **Invited lecture: Global Warming and the Future of the Earth**
 Robert Watts - Tulane University
Chairman: V. Naso

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-1-3: PHOTOVOLTAIC I Chairman: B. Fortunato	SESSION C-1-3: CHEMICAL KINETICS CATALYTICS AND POLLUTANT FORMATION Chairman: A. Peretto	SESSION P-1-3: REFRIGERATION AND HEAT PUMPS I Chairman: V. Naso	SESSION A-1-3: HYDROGEN AND FUEL CELLS Chairman: G. P.Celata
15,30 – 15,50	Technical and economical evaluation of an hybrid photovoltaic-thermal plant - Fortunato B., Camporeale S., Torresi M.	Theoretical analysis of self- ignition and quenching of catalytic combustion - Zimont V. L., Pirone R.	Optimized design of heat pump assisted dryer for perishables - Aravind V., Karthik K. S., Datta A. K.	Modelling and simulation of a hybrid SOFC/GT system for an aircraft auxiliary power unit - Sciubba E., Toro C.,
15,50 - 16,10	Advanced results of modelling, experiments, and innovative solar energy components conceived at FTA laboratories - Spena A., Bartocci S., Cornaro C., D'Angiolini G., Di Tivoli C., Serafini A., Strati C.	On the simplified ethanol kinetics by means of a computational singular perturbation approach - Salvato L., Viggiano A., Valorani M., Magi V.	Effects of simultaneous heat and moisture transfer in soils on the performance of a ground source heat pump system - Leong W. H., Tarnawski V. R.	An accurate and stable fully explicit 3D algorithm for the simulation of solid oxide fuel cells - Arpino F., Carotenuto A., Massarotti N., Mauro A.
16,10 – 16,30	Comparison between two thermo-fluid dynamic models of a photovoltaic/thermal concentrator - Martelli F., Reatti A., Beltramini M., Presciani A., Tempesti D.	Modeling soot formation in laminar premixed toluene-air- flames with a sectional approach - Lin T., Goos E., Riedel U.	Comparison of frictional pressure drop models and correlations during annular flow condensation of R134a inside a vertical tube - Dalkilic A. S., Laohalertdecha S., Wongwiset S.	High-efficiency sustainable CHP generation using molten carbonate fuel cells fed with biogas from anaerobic digestion: effects of CO and H₂S - Cigolotti V., Lo Presti R., McPhail S. J., Paoletti C., Simonetti E., Zaza F.
16,30 – 16,50		Heat transfer, environmental pollution and energy labeling of industrial gas and oil fired heaters - Mansoori Z., Saffar-Avval M., Sepahi R., Jazayeri S., Ahmadi Beni G.	Experimental analysis of two- phase ejector system with varying mixing cross-sectional area using natural refrigerant CO₂ - Nakagawa M., Marasigan A. R., Matsukawa T.	Coal-derived syngas purification and hydrogen separation in a supersonic swirl tube - Sforza P. M., Castrogiovanni A., Voland R.

MONDAY, MAY 17, 2010

16,50 – 17,10

Coffee break - GARDEN

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-1-4: PHOTOVOLTAIC II Chairman: R. Watts	SESSION C-1-4: COAL, BIOMASS AND WASTE Chairman: S. Consonni	SESSION P-1-4: REFRIGERATION AND HEAT PUMPS II Chairman: E. Nino	SESSION A-1-4: HEAT EXCHANGERS I Chairman: V. Naso
17,10 – 17,30	System performance and economic analysis of a P-Si grid-connected PV plant in Northern Italy - Carrara A., Franchini G., Brancatelli S., Alberti D.	Net CO₂ emissions from solid recovered fuels: evaluation of the selective dissolution method - Ariyaratne W. K. H., Tokhein L. A., Melaen M. C.	Empirical simulation model of silica gel/water adsorption chillier - Al-Dadah R. K., Rezk A. R. M.	Experimental and numerical investigations of thermal performance in heat sink with embedded heat pipes - Weng Y. C., Chang C. C., Chen S. L.
17,30 – 17,50	Outdoor PV module performance comparison at two different locations - Cornaro C., Musella D., Chianese D., Friesen G., Dittmann S.	On the ultrafine particle removal efficiency of a fabric filter in a RDF incinerator plant - Buonanno G., Stabile L., Viola A., Anastasi P.	Finite element-based simulation of the heat and mass transfer process through an adsorbent bed in an adsorption heat pump/chiller - Freni A., Dawoud B., Cipiti F., Chmielewski S., Maggio G., Restuccia G.	Circuit design of multi-pass condenser with air mal-distribution - Ye H-Y., , Yook S-J.
17,50 – 18,10	A new five-parameter model for PV panels - application to commercial modules - Lo Brano V., Orioli A., Ciulla G., Di Gangi A.	Influence of turbulence-chemical interaction on modelling of pulverized coal oxycombustion flame operating at low O₂ concentration - Vascellari M., Locci C., Cau G.	A mathematical tool for combined simulation of an adsorption chiller operating in a solar air conditioning system - Santori G., Brasili M., Moglie M., Polonara F., Vasta S., Freni A., Restuccia G.	Air-side pressure drop for a louvered-plate fin-tube heat exchanger in relation to the number of tube rows - Ryu K., , Yook S-J.
18,10 – 18,30	A new five-parameter model for PV panels - experimental validation on a polycrystalline module - Lo Brano V., Orioli A., Ciulla G.	Experimental and numerical investigations on a swirl oxycoal flame - Habermehl M., Toporov D., Förster M., Kneer R.	Experiments on energy savings in chest freezers: a map of settings for optimal remote control - Grauso S., Mastrullo R., Mauro A. W., Vanoli G. P.	Heat transfer characteristics of parallel-plate thermoacoustic heat exchangers - Piccolo A.

TUESDAY, MAY 18, 2010

ULISSE ROOM

8,40 – 9,25 **Invited lecture: The Present State and Future Development of Industrial Biomass Combustion for Heat and Power Generation**
 Ingwald Obernberger - Technische Universität Graz
Chairman: F. Martelli

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-2-1: HYBRID SYSTEMS Chairman: I. Obernberger	SESSION C-2-1: GAS COMBUSTION AND TURBINES Chairman: P. J. Coelho	SESSION P-2-1: TWO-PHASE HEAT TRANSFER II Chairman: T. Simon	SESSION A-2-1: ENERGY AND BUILDINGS II Chairman: E. Nino
9,30 – 9,50	Study of a gamma type Stirling engine functioning with a real gas as working fluid - Gheith R., Aloui F., Tazerout M., Ben Nasrallah S.	Experimental and numerical analysis of natural gas and pyrolysis syngas combustion in a microturbine combustor - De Pascale A., Fantozzi F., Fussi M., Laranci P., Peretto A.	Analysis of the oblique shock waves in supersonic two-phase carbon dioxide flow - Harada A., Nakagawa M.	Optimization of polygeneration plants and μ-grids for civil applications - Piacentino A., Barbaro C., Cardona F.
9,50 – 10,10	Effect of the anode off-gas recirculation on a PEMFC system integrated with a steam reformer unit fed by LPG - Cicconardi S. P., Cozzolino R., Perna A.	Experimental data of the local wall heat flux for combustion codes validation in non-premixed swirling gas flames - Vondál J., Hájek J.	Non-isothermal effects in a common method for calculation of heat transfer coefficient in flow boiling and flow condensation in minichannels - Mikielewicz D., Mikielewicz J.	Water loop heat pump systems: dynamic simulation and energy saving optimization - Buonomano A., Calise F., Ferruzzi G., Palombo A.
10,10 – 10,30	Thermodynamic performance analysis of the IG-SOFC/GT power generation system based on IGCC system - Park S. K., Kim T. S.	Assessment of a presumed joint pdf for the simulation of turbulence-radiation interaction in turbulent reactive flows - Coelho P. J.	Frost formation around two cylinders in series in a wet air stream - Ismail K. Martins K. R., Benedetti T. M., Scalon V. L., Padilha A.	Methodology for energy rehabilitation of office building - Aste N., Del Pero C., Adhikari R. S.

10,30 – 10,50 **Coffee break - GARDEN**

TUESDAY, MAY 18, 2010

ULISSE ROOM

10,50 - 11,35 **Invited lecture: Renaissance of Nuclear Engineering and Coming Global Energy Crisis**
Mamoru Ishii - Purdue University
Chairman: B. Panella

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-2-2: SOLAR ENERGY Chairman: A. Spena	SESSION C-2-2: NUCLEAR POWER PLANTS I Chairman: G. Vella	SESSION P-2-2: HEAT EXCHANGERS II Chairman: L. Cremaschi	SESSION A-2-2: CFD TURBOMACHINES Chairman: R. J. Volino
11,40 – 12,00	First correlations for solar radiation on cloudy days in Italy - Spena A., D'Angiolini G., Strati C.	Trace modeling of chinshan NPP benchmark test - Chen C-Y., Shih C-K., Wang J-R., Lin H-T.	Simulation model of a gas-fired condensing boiler at full load operation in steady-state regime - Makaire D., Ngendakumana P.	Computational analysis of two phase flow in a low-pressure steam turbine - Konias F., Tourlidakis A.
12,00 – 12,20	Statistical analysis of solar thermal storage progress - Adinberg R.	On the determination of decay ratio in LAPUR5 methodology for BWR instability - Wang I.T., Hsieh C. L., Shih C., Wang J. R., Lin H. T.	Modelling of heat transfer in an SMX static mixer - Pianko-Oprych P., Zakrzewska B., Jaworski Z.	Numerical analysis of vertical axis marine currents turbines: an U-RANS turbulence modelling - Guédon G., Colombo E., Inzoli F.
12,20 – 12,40	Prediction of annual irradiation on tilted planes for solar energy applications - Del Col D., Padovan A., Rossi A.	Environmental impact of nuclear energy and comparison with the alternatives - Guidi G., Gugliermetti F., Violante A. C.	Dynamic simulation model of an air cooled condenser - Bracco S., Crosa G., Torre I., Trucco A.	Effect of combined sweep and dihedral on the performance of a low speed axial compressor - Suzith A., Pradeep A. M.
12,40 – 13,00	Hybrid solar cooking - Prasanna U. R., Umanand L.	Experiments on the ADS innovative nuclear reactor target at Politecnico di Torino - De Giorgi C. L., De Salve M., Panella B.	Start-up modelling of HRSG natural circulation evaporator - Cioffi M., Marino D.	Analysis of the influence of blade design on the performance of an h-Darrieus wind turbine - Bianchini A., Ferrari L., Magnani S.

13,00 – 14,30

Light lunch – S. ANTONIO

TUESDAY, MAY 18, 2010

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-2-3: HEAT TRANSFER ENHANCEMENT Chairman: O. Manca	SESSION C-2-3: AIR CONDITIONING Chairman: F. Gori	SESSION P-2-3: SOLAR AND WIND Chairman: P. Sforza	SESSION A-2-3: CONDUCTION HEAT TRANSFER Chairman: S. Faggiani
14,30 - 14,50	Investigation of heat transfer and fluid flow behavior between straight and inclined fins in duct - Islam M. D., Oyakawa K., Kubo I.	Exergetic analysis of a dual purpose refrigerating and heating system - Dobrovicescu A., Stanciu D., Apostol V., Petrescu S., Costea M., Petre C.	Bi-Darrie windturbine - Yershin S., Yershina A., Manatbayev R., Tulepbergenov A.	Generalized MacCormack scheme for fractional Cattaneo diffusion equation - Ghazizadeh H. R., Azimi A., Maerefat M.
14,50 – 15,10	Optimization of radial heat sink - Yu S-H., , Yook S-J.	Potential of waste heat recovery for automotive engines using detailed simulation - El habchi A., Ternel C., Leduc P., Hetet J. F.	Vertical-axial compound wind turbine of rotor-type - Yershin S., Yershina A.	Comparative analysis of different methods to evaluate the thermal conductivity of homogenous materials - Asdrubali F., Baldinelli G., Bianchi F., Libbra A., Muscio A.
15,10 – 15,30	Thermal fluid dynamics analysis of vented brake disc rotor with ribs tabulators - Panelli M., Cardone G.	Development of general-purpose energy system analysis simulator “ENERGY FLOW +M”: Static analysis of desiccant air-conditioning system - Fujita Y., Saito K.	Load matching for a combined solar-biomass Rankine cycle plant - Borello D., Corsini A., Rispoli F., Tortora E.	Performance evaluation of soil thermal conductivity models - Tarnawski V. R., Momose T., Leong W. H., Wagner B.
15,30 – 15,50	The enhancement of convective heat transfer in internal laminar flow by vibrating surfaces - Ricci R., Romagnoli R., Montelpare S., Secchiaroli A.	Prospects for micro-CHP technology in the residential sector - Arteconi A., Bartolini C. M., Brandoni C., Polonara F.	Experimental analysis of a savonius wind rotor for streetlighting systems - Ricci R., Montelpare S., Borrelli G., D'Alessandro V.	An electro-thermal steady-state simulator for the metal interconnection in single-layer PCB - Zhang Y., Bagnoli P. E.
15,50 – 16,10	A molecular dynamic study of properties of nanofluids - Puliti G., Paolucci S., Sen M.	Testing of an adsorption chiller prototype for trucks air conditioning - Sapienza A., Vasta S., Frazzica A., Costa F., Restuccia G.	Low cost micro wind turbines – a case - Moori D. A. A., Fortes J. F., Molon L.	
16,10 – 16,30	Coffee break - GARDEN			

TUESDAY, MAY 18, 2010

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-2-4: HEAT AND MASS TRANSFER Chairman: A. A. Minea	SESSION C-2-4: CONCENTRATED SOLAR POWER Chairman: O. Manca	SESSION P-2-4: REFRIGERATION AND HEAT PUMPS III Chairman: C. Melo	SESSION A-2-4: IMPINGING JETS Chairman: S. Faggiani
16,30 – 16,50	Heat-and-mass transfer relationship to determine shear stress in tubular membrane systems - Ratkovich N., Berube P. R., Nopens I.	Medium temperature PTC collector: experimental analysis and performance - Cinelli C., De Lucia M., Giovannetti P., Mengoni C. P., Toccafondi S.	Energy efficient automotive condenser system - Strupp N. C., Kohler J., Tegethoff W. J., Lemke N. C., Kossel R. M.	Impingement heat transfer by means of synthetic jets - Monaco G., Mongibello L., De Luca L.
16,50 – 17,10	Prediction of heat and mass transfer over a finite flat plate in a laminar parallel flow by estimating diffusional particle deposition - Yook S. J., Hwang H. J., Lee K. S., Ahn K. H.	Genetic-nash multi-objectives optimization of a solar furnace - Cioffi M.	A scaling approach for predicting frost growth in a heat exchanger – application to fin-tube coil - Padhmanabhan S., Fisher D. E., Cremaschi L.	Experimental study of heat transfer intensification in surface cooling using microjets - Mikielewicz J., Mikielewicz D., Muszynski T., Ichnatowicz E.
17,10 – 17,30	Heat transfer on the base surface of a finite circular cylinder in crossflow - Ianiro A., Astarita T., Carlomagno G. M.	Ray tracing for analysis of concentrating solar systems - Madessa H. B., Nydal O. J.	An in-situ study of frost accretion on "no-frost" evaporators - Knabben F. T., Hermes C. J. L., Melo C.	Flow and thermal characteristics of confined single slot jet impingement on a moving plate - Kang S., Yook S-J.
17,30 – 17,50	Experimental study of flow pattern and heat transfer during steam drying of wood - Wierzbowski M., Barański J., Stasiak J.	Modelling of a pneumatic prestressed solar concentrator based on polymeric membranes - Hartl M., Ponweiser K., Haider M., Höfler J.	Refrigeration cycle based on a membrane separation technology - Nino E., Marino R., Fasanella R., Di Tommaso R. M.	Numerical study of the heat transfer in a slot jet impinging on a semi-cylinder - Kharoua N., Khezzar L., Benhacine A., Nemouchi Z.
17,50 – 18,10	A review of heat transfer simulations in food processing by an optimized kinetics approach - De Bonis M. V., Ruocco G.		Improved inverse Joule-Brayton air cycle using turbocharger units - Catalano L. A., De Bellis F., Amirante R.	Experimental study on the drying power of a hot jet - Di Marco P., Filipeschi S., Pieve M.
20,00	Gala dinner – GARDEN			

WEDNESDAY, MAY 19, 2010

ULISSE ROOM

8,40 – 9,25 **Invited lecture: New and Emerging Developments in Solar Energy**
 Yogi Goswami - University of South Florida
Chairman: R. J. Goldstein

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-3-1: ADVANCED ENERGY SYSTEMS Chairman: M. Sasso	SESSION C-3-1: NUCLEAR POWER PLANTS II Chairman: B. Panella	SESSION P-3-1: TURBOMACHINERY Chairman: R. J. Volino	SESSION A-3-1: HEAT TRANSFER MEASUREMENTS Chairman: F. Gori
9,30 – 9,50	Multivariate statistical methods for monitoring and fault detection in MSW incinerators - Tavares G., Zsigraiová Z., Semiao V., Carvalho M.	Reactivity modeling in MSIV closure transient of Lungmen ABWR with TRACE - Chen S. C., Shih C., Lin H. T., Wang J. R.	Analytical relation for the hydrodynamic radial foil bearing capacity - Malinin V., Plykin M.	Heat transfer measurements in a rectangular duct using Hue-based calibrated wide-band thermochromic liquid crystal - Ghorbani-Tari Z., Wang L., Sundén B.
9,50 – 10,10	Small-scale biomass power generation - Carrara S., Barigozzi G., Franchini G., Perdichizzi A.	Detailed CFD analysis of the pressure loss on the primary side of the heat exchanger for the ELSY fast lead-cooled reactor by applying unit slice models - Onea A., Böttcher M., Struwe D.	Part-span sweep and lean at compressor blade tips - an experimental low speed linear cascade study - Bhaskar R., Deepak R.	Measurement of heat transfer enhanced by the use of transverse vortex generators - Mikielewicz D., Stasiak A., Jewartowski M., Stasiak J.
10,10 – 10,30	A new thermo-hydraulic process for efficient energy conversion - Mauran S., Stitou D., Martins M.	Inherently safe heat transfer of ITER's fusion power - Berry J., Kim S., Dell'Orco G., Topilski L.	Separation control on high lift low pressure turbine airfoils using pulsed jet vortex generator jets - Volino R. J., Ibrahim M. B.	A novel technique for measuring convective heat transfer coefficients - Carlomagno G. M., Discetti S., Astarita T.

10,30 – 10,50 **Coffee break - GARDEN**

WEDNESDAY, MAY 19, 2010

ULISSE ROOM

10,50 - 11,35 **Invited lecture: Desertec: Sustainable Electricity for Europe, Middle East and North Africa**
 Hans Müller-Steinhagen - Institut für Technische Thermodynamik – Stuttgart
Chairman: G. P. Celata

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-3-2: GAS TURBINES Chairman: F. Martelli	SESSION C-3-2: BIOMASS AND GEOTHERMAL II Chairman: M. Sasso	SESSION P-3-2: CONVECTION HEAT TRANSFER I Chairman: Y. Goswami	SESSION A-3-2: SOLAR PLANTS II Chairman: H. Müller-Steinhagen
11,40 – 12,00	Model for optimizing thermal efficiency of open indirect cycle of gas turbine based on the mathematical programming - Farzaneh H.	Toward a sustainable optimisation of very low enthalpy geothermal plant. Configuration efficiency and environmental assessment - Alimonti C., Gnoni A., Marinucci E.	An experimental analysis on the natural convection in a square cavity with concentrated energy sources - Paroncini M., Corvaro F., Montucchiari A., Nardini G.	Analysis of absorption power/cooling cycles activated with solar energy for building applications - Montero A., Bruno J. C., Coronas A.
12,00 – 12,20	A failure detection method for gas turbine sensors based on ARX, neural network and fuzzy logic models - Bracco S., Crosa G., Damiani L., Marino D.	Space-time mapping of wave energy conversion potential in Mediterranean sea states - Corsini A., Marro E., Rispoli F., Tortora E.	Foam height effects on heat transfer performance of 20 PPI aluminum foams - Mancin S., Zilio C., Rossetto L. Cavallini A.	The reactor design of a photoelectrochemical hydrogen system - Tseng C-J., Tseng C-L., Hourng L-W.
12,20 – 12,40	Comparison of available and future gas turbine power augmentation technologies for various climatic scenarios - Belvedere B., Bianchi M., Branchini L., Melino F., Peretto A.	Influence of temperature and residence time on thermo-chemical conversion of olive pit - Cammarata G., Monforte G., Cammarata L., Petrone G.	Combined forced convection and surface radiation in concentric annuli - Al-Amri F. G., El-Shaarawi M. A. I.	A new thermal-hydraulic process for solar cooling - Martins M., Mauran S., Stitou D.
12,40 – 13,00	Progress of technologies to meet in challenges of the industrial gas turbine industry in Japan - Takeishi K., Kaneko S., Takahashi T.	Estimation of soil and grout thermal properties through geothermal response test - Schiavi L., Bozzoli F., Rainieri S., Pagliarini G.	Three-dimensional vortex flow near the endwall of a short cylinder in crossflow: uniform diameter circular cylinder - Chen S. B., Sanitjai S., Ghosh K., Goldstein R. J.	Preliminary sizing and optimization of a micro solar power plant as an orientation tool for engineering design - Mathieu A., Feidt M., Rochelle P., Grosu L., Gualino D., Grappe B.
13,00 – 14,30	Light lunch – GINESTRE			

WEDNESDAY, MAY 19, 2010

WEDNESDAY, MAY 19, 2010				
	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-3-3: CONVECTION HEAT TRANSFER II Chairman: F. Gori	SESSION C-3-3: COGENERATION Chairman: A. Ö. Arnas	SESSION P-3-3: COMPUTATIONAL FLUID MECHANICS Chairman: J. Mikielewicz	ICHMT Executive Committee Meeting
14,30 - 14,50	Thermocapillary deformation of thin liquid layer heated by moving source - Sharypov O. V., Kuibin P. A.	Analysis of a “trigeneration” plant for a new urban agglomeration - Abagnale C., Blasi M., Dentice d'Accadia M., Iodice P., Migliaccio M.	Large eddy simulation of oil-water separation inside a hydrocyclone - Kharoua N., Khezzar L., Nemouchi Z.	
14,50 – 15,10	Nonlinear phenomena in thermoacoustic engines - Kouidri S., Jebali Jerbi F., Paridaens R.	Optimum electrical capacity of CHP system for buildings with high heat demand places – Lee S-B., Cho W., C., Kim J.	Numerical study of parallel jet interaction - Mereu R., Colombo E., Inzoli F., Merzari E., Ninokata H.	
15,10 – 15,30	The effect of forced ventilation on the plume of a line heat source - Farrugia P. S., Micallef A.	Optimum capacity of a residential combined heat and power system based on computer simulation – Cho W., Shin H. G., Lee K-S.	Modelling of molecular orientation and crystallization in the manufacture of semi-crystalline compound fibers - Blanco-Rodriguez F. J., Ramos J. I.	
15,30 – 15,50	Evaluation of tunnel fire consequences: a stochastic thermodynamic approach - Taurino T., Bertola V., Cafaro E.	Optimum capacity and number of generator units of a micro-CHP system in Korean apartment with different number of apartment units – Kim J., Cho W., Lee K-S.	Development and validation of low-Mach LES solver with openfoam - Arovitola A., Denaro F. M., Marra F. S.	
15,50 - 16,10	Spectral finite difference analysis for natural convection in a multiply-connected region - Mochimaru Y.	Experimental analysis of different small scale combined cooling, heating and power systems based on a natural gas-fired reciprocating internal combustion engine - Roselli C., Sasso M., Sibilio S.	Modelling of particles deposition in an environment relevant to biomass-fired boilers - Venturini P., Borello D., Hanjalic K., Rispoli F.	
16,10 – 16,30	Coffee break - GARDEN			

WEDNESDAY, MAY 19, 2010

	ULISSE ROOM	CAPRI ROOM	POMPEI ROOM	AMALFI ROOM
	SESSION U-3-4: HEAT EXCHANGERS III Chairman: L. Cremaschi	SESSION C-3-4: ENERGY SCENARIOS AND ADVANCED ENERGY SYSTEMS Chairman: A. Ö. Arnas	SESSION P-3-4: ROTOR FLOWS AND EXPERIMENTAL FLUID MECHANICS Chairman: R. S. Amano	
16,30 – 16,50	Finite line-source model for borehole heat exchangers in multilayered medium: effect of anisotropic diffusion - Bandos T. V., Montero Á., Fernández De Córdoba P. J., Urchueguía J. F.	Analyses of advanced energy conversion systems - Arnas A. Ö.	Three-phase mixtures of highly-viscous-oil/water/air in large diameter pipes - Poesio P., Strazza D., Sotgia G.	ICHMT Executive Committee Meeting
16,50 – 17,10	Experimental study of onset and growth of frost on outdoor coils of air-source heat pumps systems - Moallem E., Padhmanabhan S., Cremaschi L., Fisher D. E.	Thermal fluid dynamics analysis of the pneumatic system for a food processing plant - Bottazzi D., Franzoni F., Milani M., Montorsi L.	Semi-empirical models for trailing edge noise prediction in axial flow fans - Hurault J., Kouidri S., Bakir F., Rey R.	
17,10 – 17,30	Numerical modelling of a scraped surface heat exchanger designed for highly viscous fluids - Bozzoli F., Mordacci M., Rainieri S., Pagliarini G.	Numerical analysis of a hydrogen production and power generation system based on aluminum-water reaction - Bottazzi D., Franzoni F., Milani M., Montorsi L.	Ffwocs Williams-hawkings acoustic analogy for simulation of NACA 4-(3)(08)-03 propeller noise in take-off condition - Caridi D., De Gennaro M., De Nicola C.	
17,30 – 17,50	Heat transfer characterization of packed bed regenerators by means of an inverse technique - Tagliafico G., Scarpa F., Tagliafico L. A.	The software system for mathematical modelling and optimization of thermal systems - Maximov A. S., Kler A. M., Stepanova E. L.	Intrinsic exergy analysis of 2D transonic compressor passage - Stanciu D., Dobrovicescu A., Petre C.	
17,50 – 18,10		Primary energies substitution in Italy - Orlandelli C. M., Vestrucci P.	An experimental study of fluid behaviour in a channel flow past two triangular blockages: comparison of tandem and staggered arrangement - Manay E., Gunes S., Akcadirci E., Ozceyhan V., Comakli O.	

POSTER PRESENTATIONS

MONDAY, MAY 17, 2010: 9,30 - 13,00

POSTER	PAPER	AUTHORS
# 1-1	Flow condensation pressure drop characteristics of R410A-oil mixture inside 5 mm and 4 mm O.D. horizontal microfin tubes	Gao Y., Zheng Y., Ding G., Huang X., Hu H.
# 1-2	Optimal thermal conductance allocation in finite time energy conversion and refrigeration cycles and cascades	Ait-Ali M. A.
# 1-3	Numerical analysis of an active magnetic regenerative refrigeration cycle with a Gd-Dy multi-layer regenerator	Aprea C., Greco A., Maiorino A., Tura A.
# 1-4	CO₂ and R410A comparison: two-phase flow visualizations and flow boiling measurements at medium (0.50) reduced pressure	Mastrullo R., Mauro A. W., Thome J. R., Vanoli G. P.
# 1-5	Development of small-diameter tube heat exchanger: circuit design and performance simulation	Ding W. K., Fan J. F., Tao W. Q., Zheng W., Gao F., Song K.
# 1-6	Development of small-diameter tube heat exchanger: fin design and performance research	Fan J. F., Ding W. K., Tao W. Q., Zheng W., Gao F., Song K.
# 1-7	Design and test of a new instrument to characterize borehole heat exchangers	Martos J., Montero Á., Torres J., Soret J., Martínez G.
# 1-8	Numerical modeling of cross-flow heat exchanger for air-conditioning purposes in preliminary study	Barański J., Gliński M., Jaskólski M.
# 1-9	A heat loss model for oil tanks	Colombo L., De Antonellis S., Confalonieri C.
# 1-10	Prediction of shape memory alloy (S.M.A.) cooling by a Peltier cell	Granito M., Lecce L.
# 1-11	Comparison between two different heat flux sensors for high enthalpy supersonic flows	Esposito A., Caso V., De Iorio B., De Rosa F.
# 1-12	Comparison between different cooling systems for photovoltaic concentrator modules equipped with single junction and multi-junction solar cells	Fucci R., Cancro C., Contento G., Graditi G., Privato C., Sarno A.
# 1-13	Layout and optical configuration of the ELIOSLAB project solar furnace	Contento G., Cancro C., Privato C.

MONDAY, MAY 17, 2010: 15,30 - 18,30

# 2-1	Optimizing energy consumption in sewage treatment plant	Maher D., Jamel C.
# 2-2	Metrological analysis of a residential cogenerative module based on solid oxide fuel cells	Arpino F., Dell'Isola M., Massarotti N., Maugeri D., Mauro A.
# 2-3	Performance assessment of a microturbine-based cogenerative plant	Armanasco F., Colombo L., Guilizzoni M.
# 2-4	Renewable energy production from wet landfill system as an alternative to thermal waste to energy plant: real case analysis	Di Maria F., Micale C.
# 2-5	Combined cycle power regulation problems in a liberalized market: experimental and energetic analysis, thermo-dynamic simulation	Gimelli A., Quaglia E., Cacciapuoti L.
# 2-6	Internal heat recuperation in vapor compression and hybrid desiccant air conditioning systems	Jaskólski M. F.
# 2-7	Control strategies applied to a residential CHP system based on PEMFC technology	Galloni E., Minutillo M., Perna A.

# 2-8	Evaporative cooling system to control indoor conditions in summer	Bronzino E., Isetti C., Nannei E., Orlandini B.
# 2-9	Dynamic simulation and parametric optimization of a solar heating and cooling system for different Italian climates	Calise F., Dentice d'Accadia M., Vanoli L.
# 2-10	Analysis of energy consumption in administrative buildings	Grigoniene J., Masiulis A.
# 2-11	Latent heat cold storage in building structures	Ostry M., Charvat P.
# 2-12	Energy assessment of an eco-friendly house - A case study	Sreepathi L. K., Mamatha P. N.

TUESDAY, MAY 18, 2010, 9,30 - 13,00

# 3-1	Thermodynamic theory of power limits in thermal, chemical and electrochemical systems	Sieniutycz S., Poświata A.
# 3-2	Employing micro-turbine components in low-range organic Rankine cycle power plants	Cioffi M., Pontecorvo A., Tuccillo R.
# 3-3	Effect of hydrogen addition on methane/air autoignition under HCCI engine combustion mode	Boumeddane B.
# 3-4	Numerical modeling of exhaust gas recycle in a turbocharged spark-ignition engine	Fontana G., Galloni E., Palmaccio R.
# 3-5	Thermo-fluid-dynamic simulated analysis of a device for light duty Diesel engine exhaust gas after-treatment system	Buono D., Di Napoli G., Senatore A.
# 3-6	Perspectives for efficiency increase of combined cycle plants based on the use of supercritical HRSG	Franco A.
# 3-7	Calculation of maximum average heat transfer coefficient, the average wall shear stress and drag forces for heat transfer enhancement in laminar boundary layer flow	Mobinipouya M. R.
# 3-8	RANS modelling of a new turbulent energy equation with variable and fluctuating thermal conductivity	Gori F., Boghi A.
# 3-9	CFD modelling of turbulent flow and heat transfer in a static mixer large eddy simulation	Jaworski Z., Murasiewicz H., Zakrzewska B.
# 3-10	Numerical investigation of water forced convection in channels with transverse ribs	Manca O., Nardini S., Ricci D.
# 3-11	Numerical analysis of radiation effects in a metallic foam by means of the radiation conductivity model	Andreozzi A., Ariemma A., Bianco N., Manca O., Naso V., Salzano L.
# 3-12	Convection versus radiation into furnaces heat transfer enhancement	Minea A. A., Manca O., Bianco N.
# 3-13	Numerical investigation on the effective pipe-to-concrete thermal resistance inside the energy piles	Morrone B., Cante G., Mandolini A.

TUESDAY, MAY 18, 2010: 14,30 - 18,00

# 4-1	The experimental and numerical investigation of the solidification of a porous ceramic casting	Kavicka F., Sekanina B., Stransky K., Stetina J., Franek Z., Dobrovska J.
# 4-2	Condensation of ethylene glycol on pin-fin tubes: effect of circumferential pin spacing and thickness	Ali H. M., Briggs A.
# 4-3	A simple model for parallel plate latent heat storage performance prediction	Ismail K. A. R., Salinas C. T., Dos Reis Moraes R. I., De Morais Lino F. A.

# 4-4	Numerical and experimental investigation of the film cooling effectiveness in a novel trench configuration	Kroess B., Pfitzner M.
# 4-5	Investigation on the dynamic behaviour of a wall with a layer of solid-liquid phase change material	Casano G., Mattarelli A., Piva S.
# 4-6	Bulk condensation of supersaturated vapor: simulation by direct numerical solution of kinetic equation	Kortsenshteyn N. M., Yastrebov A. K.
# 4-7	The effect of the flow direction inside the header on two-phase flow distribution in parallel vertical channels	Marchitto A., Fossa M., Guglielmini G.
# 4-8	Simulation of coal combustion in a laboratory-scale pulverized coal-fired burner	Chernetsky M. J., Dekterev A. A.
# 4-9	Pesticide manufacturing liquid waste combustion in a fluidized bed of inert particles	Arsenijevic Z., Grbavcic Z., Grbic B., Radic N., Garic-Grulovic R., Djuris M.
# 4-10	Numerical study of the behavior of the flames under rotation	Palacios G. Y., Parra T., Castro F.
#4-11	Experimental and numerical characterization of the fuel jet in LPP combustor	Amoresano A., Cameretti M. C., Tuccillo R.,
# 4-12	Assessment of thermal-economic feasibility of future nuclear HTGR reactors for electricity and heat production	Fernández-Pérez Á., Linares J. I., Herranz L. E.
# 4-13	On the improved current pulse method for the thermal diffusive characterization of lithiated ceramic pebble beds	D'Aleo F., Di Maio P. A., Vella G.

WEDNESDAY, MAY, 19, 2010: 9,30 - 13,00

# 5-1	CFD simulation of multiphase flow in a process of flue gas desulphurization	Katolicky J., Jicha M.
# 5-2	Metrological compatibility of four diaphragm gas meter calibrations	Cascetta F., Cignolo G., Comazzi M., Musto M., Rotondo G.,
# 5-3	Convective heat transfer in a gas solar receiver for high temperature applications	Andreozzi A., Bianco N., Manca O., Masullo G., Matrone A., Nardini S., Naso V., Tamburrino S.
# 5-4	Bare panels for the exergy exploitation of ambient (air vapour content) humidity with solar assisted heat pumps	Tagliafico L. A., Scarpa F., Valsuani F., Tagliafico G.
# 5-5	An experimental set up for dynamic multi-control investigation on vapour compression heat pumps	Tagliafico L. A., Scarpa F., Valsuani F.
# 5-6	Life cycle assessment analysis of a solar concentration plant for the micro-CHP	Cucumo M., Ferraro V., Marinelli V., Cucumo S., Grieco L.
# 5-7	Solar flux modeling of the site of the gulf of Tunis	El Ouederni A.R., Ben Salah M., Ben Nasrallah S., Aloui F.
# 5-8	Effects of 90 degree jet inlet on heat transfer from staggered pin fin arrays	Ganmol P., Chyu M. K., Chi X., Shih T. I-p., Alvin M. A.
# 5-9	Heat transfer measurements in swirling impinging jets	Ianiro A., Cardone G.
# 5-10	Enhancement of heat transfer on a cylinder by the turbulence of a slot jet: preliminary results	Gori F., Petracchi I.
# 5-11	The influence of chemical composition of steels on the numerical simulation of a concasting process	Stetina J., Kavicka F., Mauder T.
# 5-12	Theoretical and numerical predictions of the thermal conductivity of thermal protection systems	Gori F., Corasaniti S., Worek W. M., Minkowycz W. J.