



6th AIGE/IIETA international conference and 15th AIGE conference



REGIONE
MARCHES



CINECA

Ancona, Italy
July 8-9, 2021

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CONFERENCE PROGRAM

Thursday, July 8th

09:00 – 09:30 Registration – Building 5, Room 155/10

09:30 – 10:00 Opening Ceremony, Room 155/10

10:00 – 10:40 **Keynote Lecture**, Room 155/10

A Flash in History and Current Challenges for Nuclear Technology
Prof. Francesco Saverio D'Auria, University of Pisa

10:40 – 11:00 *Coffee break*

11:00 – 13:00 **Round Table**, Room 155/10

New strategies for sustainable mobility and energy planning during pandemics

13:15 – 14:30 *Lunch*

Session 1 Thermodynamics and Heat Transfer – Room “Mario Giordano”

Chair: prof. Dario Ambrosini, University of L'Aquila

14:30 – 14:50 Multi-scale numerical modelling for predicting thermo-physical properties of phase-change nanocomposites for cooling energy storage.

Alessandro Ribezzo, Matteo Fasano, Luca Bergamasco, Luigi Mongibello, Eliodoro Chiavazzo

14:50 – 15:10 Novel Simplified Approach for the Thermal Characterisation of Triple Tube Heat Exchangers.

Pamela Vocale, Matteo Malavasi, Luca Cattani, Fabio Bozzoli, Sara Rainieri

15:10 – 15:30 Silanes and Siloxanes thermal conductivity in the liquid phase: a critical review and an improved prediction method.

Giovanni Latini, Giorgio Passerini

15:30 – 15:50 Thermal behaviour of a cylindrical Li-Ion battery: a IR thermography approach.

Luca Giammichele, Valerio D'Alessandro, Matteo Falone, Renato Ricci

15:50 – 16:10 Combined multi-physics and machine learning approach to forecast SEI decomposition in LIBs.

Paolo De Angelis, Vitaliy Yurkiv, Pietro Asinari, Farzad Mashayek

Session 2 Energy Conversion and Management – I, Room A7/8

Chair: prof. Adriana Greco, University of Napoli “Federico II”

- 14:30 – 14:50 Experimental assessment of an air-to-water heat pump driven by a Demand Response strategy.
Gianluca Coccia, Alice Mugnini, Lorenzo Romanucci, Fabio Polonara, Alessia Arteconi
- 14:50 – 15:10 Thermal Characterization of Different Insulating Materials via Experimental Analysis in a Guarded Hot Box.
Tullio de Rubeis, Giovanni Pasqualoni, Domenica Paoletti, Dario Ambrosini
- 15:10 – 15:30 Definition of probability that energy production differs from demand, a statistical approach.
Federico Rossi, Alberto Maria Gambelli, Andrea Presciutti
- 15:30 – 15:50 Preliminary Numerical Investigation on the optimization of a single bunch of elastocaloric elements to be employed in an experimental device.
Luca Cirillo, Adriana Rosaria Farina, Adriana Greco, Claudia Masselli
- 15:50 – 16:10 Biorefinery via catalytic upgraded fast pyrolysis of biomass.
Ferruccio Trifirò
- 16:20 – 16:35 *Coffee break*

Session 3 Renewable Energy - Room A7/8

Chair: prof. Stefano Piva, University Ferrara

- 16:35 – 16:55 A Calculation Model to Estimate the Electrical Performance of a Photovoltaic Panel.
Mario A. Cucumo, Vittorio Ferraro, Dimitrios Kaliakatsos, Francesco Nicoletti, Albino Gigliotti
- 16:55 – 17:15 Correction procedures for temperature and irradiance of photovoltaic modules: determination of series resistance and temperature coefficients by means of an indoor solar flash test device.
Silvia Luciani, Gianluca Coccia, Sebastiano Tomassetti, Mariano Pierantozzi, Giovanni Di Nicola
- 17:15 – 17:35 Constant-volume vapor-liquid equilibrium for thermal energy storage: proposal of a new storage system for Concentrated Solar Power plants.
Abdullah Bamoshmoosh, Gianluca Valenti

17:35 – 17:55 Increasing the Sustainability of a Fruits and Vegetables Market in South of Italy through Combined Solar Power Production and Byproducts Valorization.

Simone Pedrazzi, Enrico Morini, Marika Nasti, Simone Pizzileo, Alberto Muscio, Paolo Tartarini

17:55 – 18:15 Opportunity for revamping/repowering of a large photovoltaic plant, a case study in Sicily.

Stefano Aneli, Arena Roberta, Antonio Gagliano, Guido Sciuto

Session 4 Effects of the pandemics on energy systems - Room “Mario Giordano”

Chair: prof. Renato Ricci, Marche Polytechnic University

16:35 – 16:55 The Lockdown and Smart Working Effects on Electric Energy Consumption: the Analysis for a Group of Employees.

Samuele Branchetti, Carlo Petrovich, Giuseppe Nigliaccio, Fabrizio Paolucci

16:55 – 17:15 Ventilation system operation to minimize the COVID-19 airborne transmission in schools.

Luca Stabile, Antonio Pacitto, Giorgio Buonanno, Marco Dell’Isola

17:15 – 17:35 A multiscale approach for modelling saliva droplets airborne transport in relation to SARS-CoV-2 transmission

Valerio D’Alessandro, Matteo Falone, Luca Giammichele, Renato Ricci

18:00 – 19:00 **AIGE Board Meeting** - Room “Mario Giordano”

19:00 Bus departure from Faculty of Engineering

20:00 Bus departure from Hotels

21:00 **Gala Dinner – Ristorante “Da Dario”, Porto Recanati (MC)**

Friday, July 9th

9:30 – 10:00 Registration – Building 3, Hall

09:30 – 11:30 **Poster session** – Room “Mario Giordano”

Interpretation of Manufacturing Sustainability-Assessment through Hybrid Exergetic and Life-Cycle Metrics.

Valeria Selicati, Nicola Cardinale

Thermoeconomic analysis of Alessandria district: A case study for an engineering thermodynamic indicator for sustainability.

Giulia Grisolia, Umberto Lucia

Composite Thermal Control Systems with Phase Change Material in Metal Foam for Lithium Batteries Cooling.

Bernardo Buonomo, Oronzio Manca, Ferdinando Menale, Francesco Moriello, Sergio Nardini

Entropy Generation Analysis on Heat Exchanger in Aluminum Foam.

Bernardo Buonomo, Anna di Pasqua, Oronzio Manca, Sergio Nappo

Analysis of the Urban Heat Island in Rome (Italy): extent and effects on the building energy performance simulations.

Gabriele Battista, Luca Evangelisti, Marta Roncone, Roberto De Lieto Vollaro

Transient Simulation of a Whey Drying Plant Assisted by Solar Energy.

Bernardo Buonomo, Vincenzo Ceraso, Oronzio Manca, Sergio Nardini, Renato Elpidio Plomitallo, Silvio Vigna

Influence of Climatic Conditions on Dynamic Performance of Solar Hybrid Heating and Cooling Systems Integrating Seasonal Borehole Thermal Energy Storages: Application to School Buildings in the Campania Region of Italy.

Antonio Rosato, Antonio Ciervo, Renata Concetta Vigliotti, Roxana Adina Toma, Rossana Pellegrino, Giovanni Ciampi, Michelangelo Scorpio, Sergio Sibilio

Analysis of Turbulent Plume Fires.

Francesco S. Ciani, Paolo Bonfiglio, Stefano Piva

11:30 – 11:45 *Coffee break*

11:45 – 12:30 **Keynote Lecture**, Room “Mario Giordano”

Heat Pipes for Aeronautic and Aerospace Applications

Prof. Fabio Bozzoli, University of Parma

12:30 – 13:00 **Plenary Talk, Room “Mario Giordano”**

New challenges in HPC and how to access to resources in Italy and Europe

Dr. Massimiliano Guarrasi, CINECA

13:15 – 14:30 *Lunch*

Session 5 Energy in Buildings and Environment - Room A7/8

Chair: prof. Fabio Polonara, Marche Polytechnic University

14:30 – 14:50 Selecting insulating materials for building envelope: a life cycle approach

Sonia Longo, Maurizio Cellura, Maria Anna Cusenza, Francesco Guarino, Ilaria Marotta

14:50 – 15:10 Microclimatic and ventilation conditions in existing healthcare facilities. A study in the waiting room-testing centre of a Florentine historic hospital.

Carla Balocco, Gerardo Lorenzo Petrone

15:10 – 15:30 Hygrothermal analysis of CLT-based retrofit strategy of existing wall assemblies according to EN 13788 Standard.

Vincenzo Costanzo, Gianpiero Evola, Antonio Gagliano, Luigi Marletta, Francesco Nocera

15:30 – 15:50 CFD Modelling of Naturally Ventilated Double Skin Façades: Comparisons among 2D and 3D Models.

Camilla Lops, Nicola Germano, Sabino Matera, Valerio D’Alessandro, Sergio Montelpare

15:50 – 16:10 Use of an outdoor swimming pool as seasonal heat source in heat pump application.

Giuseppe Emmi, Alessia Natali, Silvia Cesari, Patrizio Fausti, Michele Bottarelli

16:10 – 16:30 Improving the passive energy performance of the buildings’ envelope in the Southern European area: a study on the integration of a tensile material.

Giovanni Ciampi, Yorgos Spanodimitriou, Niloufar Mokhtaru, Michelangelo Scorpio, Antonio Rosato, Manuela Almeida, Sergio Sibilio

16:30 – 16:50 Numerical analysis of the performance of an innovative daylighting system named Modified Double Light Pipe.

Paolo Zazzini, Alessandro Di Crescenzo, R. Giammichele

16:50 – 17:10 How to improve the liveability in cities: the effect of urban morphology and greening on outdoor thermal comfort.
Guglielmina Mutani, Valeria Todeschi, Simone Beltramino

Session 6 Energy Conversion and Management – II - Room “Mario Giordano”

Chair: prof. Giorgio Pagliarini, University of Parma

14:30 – 14:50 Variable-load heat pumps: impact of the design and control parameters on the actual operation conditions.
Alice Mugnini, Gianluca Coccia, Fabio Polonara, Alessia Arteconi

14:50 – 15:10 On the effect of complex permeability and thermal material properties for 3D-CFD simulation of PEM fuel cells.
Alessandro d’Adamo, Giuseppe Corda, Stefano Fontanesi, Massimo Borghi

15:10 – 15:30 CFD-based Safety Assessment of a Novel Concept of a CNG Ship.
Andrea Greppi, Luca Battaglia, Alberto Clarich, Rosario Russo, Zhongli Wen, Enrico Nobile

15:30 – 15:50 Toward the First Italian Elastocaloric Device: Projecting and Developing Steps.
Luca Cirillo, Adriana Rosaria Farina, Adriana Greco, Claudia Masselli, Federico Scarpa, Luca Antonio Tagliafico

15:50 – 16:10 Application of the ITS-UCD Model for the Assessment of CO₂ Compression and Transport Costs for the Simeri Crichi - Botricello1 Route in a Theoretical CCS Retrofit Project of the Simeri Crichi Thermal Power Plant.
Luca Rosati, Angelo Spena, Fedora Quattrocchi

16:10 – 16:30 A methodology for assessing environmental benefits from LNG transition: the case of Regione Sardegna.
Davide Borrelli, Francesco Devia, Corrado Schenone, Federico Silenzi, Federico Sollai, Luca A. Tagliafico

16:30 – 16:50 Design, assembly and testing of a mobile laboratory based on a VTOL scale motorglider.
Marco Ottaviani, Luca Giammichele, Renato Ricci

16:50 – 17:10 The evaluation of energy efficiency policies in the building sector: a regional analysis based on the Stochastic Frontier Approach and on the Energy Environmental Kuznets Curve (EKC) and policy implications.
Pietro Falconi

USEFUL INFORMATION

The conference will take place in the Polytechnic University of Marche.

- **REGISTRATION DESKS**
Building 5 – Day 1
Building 3, Hall - Day 2
Conference badges and kit will be consigned at the registration.
- **CONFERENCE ROOMS**
Building 5, room 155/10
Building 3, room “Mario Giordano”
Blocco Aule Sud, room A7/8
- **POSTER SESSION**
Building 3, room “Mario Giordano”
- **LUNCHESES**
Blocco Aule Sud, Aula Polifunzionale - Day 1
Complesso Belluschi, Aula Polifunzionale – Day 2



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