Riccardo Mereu

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Education

University Degrees

April 2009 — **Doctoral Degree in Energy Engineering**
Department of Energy – Politecnico di Milano
Thesis title: Non Linear Eddy Viscosity RANS-based Models in the framework of complex flows
Supervisor: Prof. Fabio Inzoli
Keywords: Computational Fluid Dynamics (CFD), Turbulence, U-RANS, NLEVMs, IRIS project

April 2005 — **Master of Science in Mechanical Engineering** - score 110/110
University of Cagliari

October 2003 — **Bachelor of Science in Mechanical Engineering** – score 105/110
University of Cagliari

Other Education Experiences

Mar 2004 – Sep 2004 — **MSc Student - Erasmus Fellow**
Department of Mechanical Engineering - Instituto Superior Técnico (Portugal)
Main courses: Economy, Robotics, Combustion, Final project: “Experimental study of joint glue-welding connections for train coach assembly”

Other Qualifications

April 2018 — National Academic Qualification as Associate Professor Abilitazione Scientifica Nazionale (ASN) valida per funzioni di Professore di seconda fascia nel Settore Concorsuale 09/C2 (Fisica Tecnica e Ingegneria Nucleare) Validity: from 03-04-2018 to 03-04-2024

July 2005 — Qualification to practice Engineering profession

Professional and Academic Positions

Actual Position

Nov 2019 – present — **Senior Assistant Professor (full time, tenure-track)**
Department of Energy - Politecnico di Milano (Italy)
Research Project: “Modeling of thermo-fluid dynamic phenomena and thermal–economic–environmental analysis of energy systems for industrial application.”
Teaching Activity: Course of Bachelor Degree in Energy Engineering (5 CFU)
Main Activities: Numerical Modeling (LPM, CFD) for single and multiphase phenomena (turbulence, heat transfer, two-phase mixing) for low-carbon energy

plant and industrial applications. Renewable Energy Technology Modeling and Development
Research group: CFDLab@Energy

Past Positions

March 2018 – Nov 2019 **Assistant Professor (full time)**
Department of Energy - Politecnico di Milano (Italy)
Research Project: "Modeling of thermo-fluid dynamic phenomena and thermal–economic–environmental analysis of energy systems for industrial application."
Teaching Activity: Course of Bachelor Degree in Energy Engineering (5 CFU)
Main Activities: Numerical Modeling (LPM, CFD) for single and multiphase phenomena (turbulence, heat transfer, two-phase mixing) for low-carbon energy plant and industrial applications.
Research group: CFDLab@Energy

Jan 2012 – Jan 2018 **Research Associate (limited-term) – Assegnista di Ricerca**
Department of Energy - Politecnico di Milano (Italy)
Research Project: "Sviluppo di metodologie di calcolo numerico per la simulazione fluidodinamica di sistemi multifase di interesse industriale"
Main Activities: Experimental and Numerical Modeling (LPM, CFD) for single and multiphase phenomena (turbulence, heat transfer, condensation) for low-carbon energy plant and industrial applications.
Research group: CFDLab@Energy
Supervisor: Prof. Fabio Inzoli

Jan 2012 – Jan 2018 **Adjunct Professor – Docente a contratto**
Department of Energy - Politecnico di Milano (Italy)

May – Aug 2014 **Visiting Researcher – EU-EASED Fellow**
Laboratory of Advanced Nuclear Energy - Tokyo Institute of Technology (Japan)
Research Project: "CFD modeling of Steam Direct Contact Condensation (DCC) phenomenon"
Main Activities: Experimental facility design and CFD model development for DCC phenomenon analysis for industrial and BWR nuclear power plant applications.
Supervisor: Prof. Minoru Takahashi

Jul 2013 **Visiting Researcher**
Argonne National Laboratory (USA)
Research Project: "DNS4MODELING"
Supervisor: Dr. Paul Fisher

Sep 2010 – Dec 2011 **Post-Doc - Roberto Rocca Fellow**
Department of Nuclear Science and Engineering – MIT (USA)
Research Project: "Bubble"

Main Activities: Development of numerical CFD modelling approach for two-phase transport phenomena with mass transfer, i.e. nucleate boiling, for energy industry and BWR nuclear power plant applications.
Supervisor: Prof. Jacopo Buongiorno

May – Sep 2009 **Visiting Researcher**
Laboratory of Advanced Nuclear Energy - Tokyo Institute of Technology (Japan)
Research Project: "IRIS Project – LES4Jets"
Main Activities: CFD modelling of confined parallel jets via U-RANS and LES approach in the framework of IRIS modular nuclear power plant design.
Supervisor: Prof. Hisashi Ninokata

Jan 2009 – Aug 2010 **Research Associate (limited-term) – Assegnista di Ricerca**
Department of Energy - Politecnico di Milano (Italy)
Research Project: "Applicazione di modelli non lineari per lo studio della turbolenza ad una facility sperimentale costruita per riprodurre le principali caratteristiche fluidodinamiche del downcomer del reattore IRIS"
Main Activities: Development of Non Linear Eddy Viscosity Models for CFD modeling of turbulence in complex flows and comparison with experimental data from an in-house facility in the framework of IRIS modular nuclear power plant design.
Research group: CFDLab@Energy
Supervisor: Prof. Emanuela Colombo

Apr 2005 – July 2005 **Research Assistant**
Department of Mechanical Engineering – University of Cagliari (Italy)
Main Activities: CFD analysis of turbulent combustion phenomena for industrial combustion chamber design optimization.
Supervisor: Prof. Francesco Floris

Non-profit Activities

Jan 2012 – Present **Vice-President and Energy Engineer**
Engineering Without Borders - Milan (ISF-MI) **www.isf.polimi.it**
Non-profit association of scientific matrix, engaged in research, design, transfer technology and capacity building for sustainable development in the field of energy, the environment and social entrepreneurship. ISF-MI is a partner in international development cooperation projects financed by Italian and International Institutions and Organizations.

RESEARCH ACTIVITIES

Research Accomplishments

The research activities of last years, in collaboration with different research groups such as CFDLab@Energy of Politecnico di Milano, Prof. Minoru Takahashi Lab of TITech, Prof. Jacopo Buongiorno Lab of MIT, Prof. Hisashi Ninokata Lab of TITech have focused on some of the fundamental aspects of fluid dynamics and heat transfer. The main goal has been to improve the capability of computational fluid dynamics (CFD) to reproduce and model intrinsically complex phenomena such as **turbulence, natural and forced convective heat transfer** and

multiphase transport developing, validating and applying physics-based models for CFD to energy industry components and processes. These activities were carried out through the use of **experimental techniques** and numerical modelling tools (**Lumped Parameter Models** and **CFD approach**). From applicative point of view the main goal is to support the development of zero-CO2 energy conversion technologies. Along the years the research activities have been developed coherently with the level of development of the technologies (nuclear, wind turbines, fuel cells….), the requested modelling tools (finite volume, LPM models…) and numerical models (turbulence, heat transfer, multiphase flow models…). This approach has been furtherly developed coupling the detailed modelling approach (CFD) to the more general modelling one (LPM) in order to create a multi-scale modelling approach applicable to single components and energy systems.

Turbulence modeling development

This activity was started within the international consortium for the design of the IRIS modular nuclear power reactor in the period 2006-2009 through the development of non-linear eddy viscosity U-RANS models (NLEVM) for turbulent flows in complex geometries. The development and relative validation of the NLEVM were carried out by combining experimental techniques (experimental facility developed at the Department of Energy of Politecnico di Milano) and CFD modeling activities (linear and NLEVM U-RANS comparison) [C27, C28, C31, C33, C34, C35, R1, R2].

A second phase of the CFD modeling activities within the IRIS project has been focused on the application of Large Eddy Simulation (LES) approach for the analysis of turbulent flows with presence of instability, such as multiple parallel jets typical of nuclear power reactors and industrial applications. This activity was carried out in collaboration with the Prof. Hisashi Ninokata Lab of Tokyo Institute of Technology (TITech), starting from the period spent as a visiting researcher at TITech (May-September 2009) [J13, C26, CS2].

In the period 2013-2014, a further analysis of turbulent flows without and with heat transfer presence in typical industrial configurations, such as flows in pipe and incident flows on the bluff body has been carried out through LES modeling approach, also using LES models developed ad-hoc in the CFDLab@Energy research group [C17, C18, C21].

In the last years (2015-2019) research on turbulent modeling has focused on development and implementation of CFD modeling through force sources (Actuator Line Model), for modeling horizontal axis turbines and study of the energy performance of a wind energy field and related optimization and application of vortex generators to improve the performance of wind turbine blades [J1]. Furthermore, the U-RANS modeling approach has been applied to the profiles of vertical axis drag-driven wind turbines (Savonius VAWT), for the determination of the parameters of greatest influence in aerodynamic performance and relative optimization and for the study of the interaction between machines in a wind field. This activity has been carried out with the use of open source CFD code in collaboration with the Mechanical Department of Politecnico di Milano [J3, C13, C14, C30].

Convective heat transfer modeling for applied and fundamental research

Heat transfer modeling in forced and natural convection regime has been investigated in:

- a study based on turbulence and heat transfer modeling of corrugated ducts in forced convection regime, typical of compact heat exchangers. This study has been carried out in order to define a correlation for heat transfer evaluation in wavy cross-section geometries for optimization purposes [J11, C25];

- a CFD analysis of fluid dynamics and heat transfer of natural recirculation in the Borexino detector, a high purity liquid calorimetric scintillator, to determine the dynamic of the polonium inside it. This activity is part of the particle physics experiment program to study low-energy solar neutrinos (sub-MeV) located at the Gran Sasso National Laboratories (L'Aquila, Italy) and related international collaboration (Italy, States United, Germany, France, Poland and Russia; http://borex.lngs.infn.it/) [C3].

Multiphase and mass transfer modeling for energy industry applications

In energy industry and nuclear thermal-hydraulic field multiphase phenomena are among the most important and complex to be fully understood and modeled. In this framework, different phenomena such as boiling, condensation and molten liquid metal phenomena have been investigated in the period 2010-2017.

Modeling of fluid dynamics with multiphase transport phenomena and mass transfer (i.e. nucleate boiling) through ghost-fluid modeling and transport of the Volume of Fluid (VOF) interface for industrial and nuclear applications related to the control system of heat transfer in BWR reactors. This activity was carried out in collaboration with MIT (Prof. Jacopo Buongiorno) [C23, C24].

Break-up and solidification of liquid metal jets in water for energy and nuclear power reactors field, combining experimental techniques (experimental facility at TITech) and modeling activities (Multi-phase CFDs with interface transport approach, Volume of Fluid, VOF). This activity is carried out in collaboration with the Tokyo Institute of Technology (Prof. Minoru Takahashi) and the "Politechnica" University of Bucharest (Prof. Ilie Prisecaru) from 2015 [J6, C2, C4, C9, C11, C12].

Direct condensation of steam jets in water in stable (bubbling) and unstable (chugging) systems for the characterization and optimization of injection systems (sparger), combining experimental techniques (experimental facility at the TIT) and modeling activities (multiphase CFDs with two-fluid approach, Eulerian-Eulerian). This activity is carried out in collaboration with the Tokyo Institute of Technology (Prof. Minoru Takahashi) and the Institute of Applied Energy research institute, Tokyo, starting from the period spent as a visiting researcher at the TIT (May-August 2014) [J4, C1, C10].

As evolution of the multiscale modeling of ejector components a specific CFD analysis regarding the flash boiling in convergent-divergent nozzles has been started in 2016. Flashing flow is a phase change phenomenon, which occurs in high speed flow inside nozzles, because of the mechanical (i.e., the slip between the two-phases) and the thermal (i.e., boiling delay phenomenon) non-equilibrium effects. Flashing flow is of practical interest in industrial applications, such as high-speed flows in the primary nozzles of ejector, used in refrigeration systems [J2, C8, CS1].

Multi-scale modeling for energy industry and refrigeration applications

Modeling of subsonic and supersonic turbulent flow in ejectors in on and off-design conditions for applications in power production and refrigeration purposes has been started from 2013. Development of CFD and lumped parameter model (LPM) approaches, for the characterization of local phenomena and related efficiency has been carried out. The coupled approach aims to the optimization of the single component (via CFD) and its characterization at the system level (via LPM). This approach has led to the development of an integrated LPM-CFD model for variable efficiency ejector modeling in complex systems [J5, J8, J9, J10, C7, C16, C19].

Responsability Funded Research Projects

June 2019 – August 2019	Title: “valutazione delle caratteristiche termo-fluidodinamiche di essiccatori di tipo industriale ed ottimizzazione della distribuzione termica” Customer: Progetti Plant, P.I.: Ing. Riccardo Mereu – Politecnico di Milano Research contribution: CFD modelling of industrial dryer for ceramic components.
Sept 2018 – March 2019	Title: “Valutazione delle prestazioni energetiche del sistema eolico-fotovoltaico stand-alone progettato da GFM, implementazione e fornitura di tool di calcolo” Customer: GFM SpA, P.I.: Ing. Riccardo Mereu – Politecnico di Milano

	Research contribution: CFD modelling and Lumped Parameters model for wind and solar pv stand-alone systems.
Oct 2018 – Feb 2019	Title: “MODELLAZIONE NUMERICA DELLO SCAMBIO TERMICO IN APPLICAZIONI DI FISICA NUCLEARE, RELATIVE ALLO SCINTILLATORE DEL RIVELATORE BOREXINO” Customer: Istituto Nazionale Fisica Nucleare (INFN), P.I.: Ing. Riccardo Mereu – Politecnico di Milano Research contribution: CFD modelling of the heat transfer in nuclear physics – Application to the Borexino detector’s scintillator
April 2018 – July 2019	Title: “Simulazione dello scambio termico di un sistema BsG innovativo” Customer: Fondazione Politecnico, P.I.: Prof. Fabio Inzoli, Riccardo Mereu – Politecnico di Milano Research contribution: CFD modelling and analysis of electrical inverter for electric engine.
April 2018 – July 2018	Title: “Analisi alette non convenzionali per tubi di generatori di vapore a recupero” Customer: AC Boilers SpA, P.I.: Prof. Fabio Inzoli, Riccardo Mereu – Politecnico di Milano Research contribution: CFD modelling and analysis of conventional and non conventional fins for industrial heat exchangers.
Dec 2016 – Jan 2017	Title: “Sviluppo di un metodo per la definizione e valutazione di sistemi energetici attraverso un modello energetico-economico per l’approvvigionamento elettrico rurale applicato a progetti di sviluppo nel contesto di paesi emergenti” Customer: Department of Energy - Politecnico di Milano Research contribution: development of a design tool for hydroelectric-photovoltaic-diesel hybrid system for technical-economic generation system evaluation

Participation Funded Research Projects

Dec 2015 – Dec 2017	Title: “DR-PSA acid gas separation process for HP-HT conditions” Customer: Eni SpA, P.I.: Prof. Renato Rota – Politecnico di Milano Research contribution: definition of energy requirement, mass and footprint of DR-PSA, Amine, Membrane, Ionic Liquids acid gas separation process at application scale
Nov 2015 – Nov 2016	Title: “CFD study of the Nucor plant incident, sensitivity analysis for different scenarios” Customer: Tenova SpA, P.I.: Prof. Fabio Inzoli – Politecnico di Milano Research contribution: CFD modelling and analysis of the Nucor power plant explosion
Sep 2014 – Sep 2015	Title: “Piano di intervento 2015-17 per l’efficientamento della produzione del servizio idrico integrato dell’ATO di Lecco” Customer: Lario Reti Holding, P.I.: Prof. Marco Bocciolone – Politecnico di Milano Research contribution: identification of actions to improve the energy efficiency of the system

Participation Granted Research Projects

July 2018 – Present	Title: "Energia pulita e sviluppo sostenibile nella municipio di Kahale Libano (ESSK)" (Agenzia Italiana di Cooperazione e Sviluppo – AICS – AID 11478/VIDES/LIBANO). Target Countries: Libano. Grant Holder: VIDES NGO. Politecnico di Milano implementing partner. Grant: 1.500.000 euro (Polimi: 30.000 euro). Research contribution: - scientific committee member, - supervise the scientific content of the training courses offered by VIDES
July 2018 – Present	PRE-LEAP-RE: PREparing for a Long-Term Joint EUAU Research and Innovation Partnership on Renewable Energy, ref. call LC-SC3-JA-3-2018 Budget: 1.000.000,00 €; Grant holder: Commissariat a l'Energie Atomique et aux energies alternatives Partners: 16 international partners Scientific coordinator: Prof. Emanuela Colombo (Politecnico di Milano) Research contribution: support action in preparation of a Joint Programming. Proposal focused on designing technological and social innovation research pathways and a capacity building agenda in compliance with the Knowledge Triangle.
May 2018 – Present	Emerging African Innovation Leaders: G7 Exchange & Empowerment Program for enabling Innovation within the Next Production Revolution (Agenzia Italiana di Cooperazione e Sviluppo – AICS, AID 11346) Budget: 999.142,00 €; Grant holder: Politecnico di Milano Partners : Politecnico di Torino Scientific coordinator: Prof. Emanuela Colombo (Politecnico di Milano) Target countries: Tunisia, Niger, Nigeria, Kenya Research contribution: support action in providing lectures, seminars and advising to the project candidates.
Nov 2017 – May 2018	Title: "Wast Management Africa" - Comprehensive feasibility study for the closure of the informal dumpsite and construction of an integrated solid waste management facility in Ngong Town, Kenya. Grant Polimi: US$ 62.000. Research Contribution: replicability of the project in similar contexts, support on divulgation activities and related workshops.
April 2017 – May 2019	Title: "Promoting sustainable socio-economic development in the Green Economy in Albania" (Agenzia Italiana di Cooperazione e Sviluppo – AICS - AID 10946/VIDES/ALBANIA). Target Countries: Albania. Grant Holder: VIDES NGO. Politecnico di Milano implementing partner. Grant: 1.500.000 euro (Polimi: 40.000 euro). Research contribution: - scientific committee member, - supervise the scientific content of the training courses offered by VIDES, - analyse the energy needs of the Hospital of Lezhë to drive the installation of a new PV solar power plant
Jan 2014 – Dec 2015	Title: "ECHO/-SF/EDF/2012/01004 SET4Food: "Sustainable energy technologies for food utilization in refugee camps". Target Countries: Lebanon, Somalia, RCA e Colombia. Grant Holder: Coopi NGO. Politecnico di Milano implementing partner. Grant: 1.400.200 euro (Polimi: 308.320 euro). Research contribution: - scientific committee member, - development of appropriate technologies for cooking in domestic context (improved stoves) and local training on the use of Decision Support System developed within the project
Jan 2014 – Dec 2015	Title: "EuropeAid/132023/D/ACT/ACPTPS/FED/2013/320-173 (2013-2016- 42 months), ENERGISE - "Enlarged Network in Education and Research for a Growing Impact of Sustainable Energy engineering on local development". Target Countries: Kenya-Tanzania-Ethiopia. Grant holder: Politecnico di Milano. Partners: Technical

	University of Kenya, Technical University of Mombasa, Jimma University, Dar Es Salaam Institute of Technology. Research contribution: -Work Packages ER2 (Intensive courses), ER3 (Joint curricula development), ER4 (e-collaborative platform for networking) and ER5 (PPM UNIT with M&E activities)
Jan 2012 – Dec 2012	Title: "Industria 2015 Bando PII Efficienza energetica Programma n. EE00076" Grant Holder: Whirlpool Spa, Budget: 400.000 (Politecnico di Milano) Research Contribution: • Task 2.1.3.7 "Studio di un sistema di raffreddamento tramite heat pipes: caratterizzazione termica" • Task 2.1.3.8 "Forno - Analisi di nuove tecnologie di riscaldamento ed impatto sul consumo energetico - Studio di un sistema di raffreddamento tramite heat pipes: caratterizzazione termica"
Feb 2010 – Sep 2010	Title: "Industria 2015 Bando PII Efficienza energetica Programma n. EE00076" Grant Holder: Whirlpool Spa, Budget: 400.000 (Politecnico di Milano) Research Contribution: • Task 2.1.2.2 "Simulazione termica per analisi ponti termici e pozzi di calore" • Task 2.2.3.10 "Piano Cottura - Analisi di nuove tecnologie di riscaldamento ed impatto sul consumo energetico - Controllo termico della bobina ad induzione: ricerca e analisi di soluzioni innovative per il raffreddamento" • Task 2.2.4.3 "Simulazione termica, studio e caratterizzazione di bruciatori" • Task 3.1.2 "Fase di trasporto della potenza termica dagli elettrodomestici ad una unità centralizzata: uno studio di fattibilità"

Responsibility International Research Collaborations

Jan 2016 – present	- Member of the Borexino international collaboration for the Milan Polytechnic (http://borex.lngs.infn.it/), related to the particle physics experiment aimed at studying neutrinos low-energy solar panels (sub-MeV) inside the "Borexino" scintillator, located at Gran Sasso National Laboratories (L'Aquila, Italy). - Responsible for CFD modeling of fluid dynamics and heat transfer under the regime of natural convection of the "Borexino" high - purity liquid calorimetric scintillator. Determination of the operating conditions of the system and support for understanding of the polonium dynamic.

Participation International Research Collaborations

June 2019 – Present	Member of SEI platform, Africa-Europe High-Level Platform for Sustainable Energy Investments in Africa. Research contribution: support to the WP1 to define the main technologies and energy needs to develop specific business models
Jan 2006 – Sep 2010	Member of the CFD analysis work team within the international research consortium IRIS (International Reactor Innovative and Secure). The IRIS consortium is promoted by Westinghouse Electric Co. LLC. and includes: Polytechnic of Milan, Commissao Nacional de Engenaria Nuclear, Polytechnic of Turin, Tokyo Institute of Technology, University of Pisa, University of Illinois Urbana-Champaign. Within the CFD working group, design methodologies have been developed and applied of the IRIS reactor, which led to:

- development and application of advanced (non-linear) URANS numerical models for modelling of the reactor down-comer;
- application of numerical models URANS and LES for modeling of cooling jets of the reactor;
- definition and application of a quality control methodology in the CFD in the field industrial.

EDUCATIONAL ACTIVITIES

Academic Teaching

Sep 2017 – present	**Teaching Professor** Course: Innovative Technologies for Energy, 5 CFU, SSD: ING-IND/10 Undergraduate course in Energy Engineering, Politecnico di Milano Delivering ex-cathedra lessons and and hands-on exercises on energy resources and forecast, design and sizing of technologies based on renewable resources, environmental and economic aspects of renewable and fossil fuel resources
Sep 2018 – Dec 2018	**Teaching Assistant** Course: Thermodynamics and Heat Transfer, 8 CFU, SSD: ING-IND/10 Graduate course in Energy Engineering, Politecnico di Milano Lecturer: Prof. Fabio Inzoli Delivering ex-cathedra lessons - Student support and hands-on exercises
Sep 2017 – Jan 2018	**Teaching Assistant** Course: CFD for Energy Engineering, 8 CFU, SSD: ING-IND/10 Graduate course in Energy Engineering, Politecnico di Milano Lecturer: Prof. Fabio Inzoli Delivering ex-cathedra lessons - Student support and hands-on exercises
Sep 2012 – Sep 2017	**Teaching Professor** Course: Fundamentals of Energy Sciences, 5 CFU, SSD: ING-IND/10 Undergraduate course in Energy Engineering, Politecnico di Milano Delivering ex-cathedra lessons and hands-on exercises on energy resources and forecast, technological, environmental and economic aspects of renewable and fossil fuel resources
Mar 2010 – Sep 2010	**Teaching Assistant** Course: Fundamentals of Energy Sciences, 5 CFU, SSD: ING-IND/10 Undergraduate course in Energy Engineering, Politecnico di Milano Lecturer: Prof. Emanuela Colombo Delivering ex-cathedra lessons - Student support and hands-on exercises
Sep 2008 – May 2009	**Teaching Assistant** Course: CFD for Energy Engineering, 10 CFU, SSD: ING-IND/10 PhD course in Energy Engineering, Politecnico di Milano Lecturer: Prof. Fabio Inzoli Delivering ex-cathedra lessons - Student support and hands-on exercises
Sep 2006 – Sep 2010	**Teaching Assistant** Course: Computational Fluid Dynamics, 8 CFU, SSD: ING-IND/10 Graduate course in Energy Engineering, Politecnico di Milano Lecturer: Prof. Emanuela Colombo – Prof. Fabio Inzoli Delivering ex-cathedra lessons - Student support and hands-on exercises
Mar 2006 – Sep 2007	**Teaching Assistant** Course: Thermodynamics and Heat Transfer, 8 CFU, SSD: ING-IND/10 Undergraduate course in Energy / Environmental Engineering, Politecnico di Milano Lecturer: Prof. Emanuela Colombo – Prof. Fabio Inzoli

Delivering ex-cathedra lessons - Student support and hands-on exercises

Lecturer and Course Evaluation

Academic Year	Course Title	# Students Registered	# Survey Responses	Evaluation	Instructor Evaluation	Course Evaluation	Scale
2018-19	Innovative Technologies for Energy	26	19	High	3.2	3.1	4
2017-18	Innovative Technologies for Energy	44	41	High	3.5	3.4	4
2016-17	Fundamentals of Energy Sciences	24	22	High	3.50	3.45	4
2015-16	Fundamentals of Energy Sciences	16	15	High	3.79	3.20	4
2014-15	Fundamentals of Energy Sciences	28	28	High	3.28	3.29	4
2013-14	Fundamentals of Energy Sciences	36	33	Average	3.17	3.00	4
2012-13	Fundamentals of Energy Sciences	54	Not provided	Not provided	Not provided	Not provided	4

Other Educational Contributions

Masters

May 2019

Teacher
Lecture: Mass, Momentum and Energy Balance, 5h
Master: Master di II livello in Tunnel Engineering – Edizione 2, Poliedra – Politecnico di Milano
Delivering ex-cathedra lessons

April 2019

Teacher
Lecture: Global energy challenge and access to energy, 3h
Master: Master RIDEF 2.0 – Reinventare l'energia a.a. 2019-20 – XV edizione – Politecnico di Milano
Delivering ex-cathedra lessons

May 2017

Teacher
Lecture: Combustion, 3h
Master II level: Master di II livello in Tunnel Engineering – Edizione 1, Poliedra – Politecnico di Milano

	Delivering ex-cathedra lessons
Nov 2015	**Teacher** Course: Decision Support System (DSS) tool and guidelines for energy access in refugees' camps, 10h Intensive Course for EU project Set4Food, University of Cartagena (Colombia) Delivering ex-cathedra lessons and hands-on exercises

International Summer Schools

July 2018	**Teacher** Short Course: The Global Scenario and its role for a Sustainable Development, 8h Summer School in Saint Petersburg Polytechnic University, funded by Erasmus+ program for Teaching Staff Mobility KA107 call 2016 Delivering ex-cathedra lessons
July 2015	**Teacher** Course: Energy: the global scenario and its role for a sustainable development, 36h Undergraduate Summer School in Engineering, University UniAndes (Colombia) Delivering ex-cathedra lessons and hands-on exercises
July 2009 – July 2014	**Teacher** Course: Appropriate technologies for development projects in energy field, 20h Undergraduate Summer School in Engineering, University UniAndes (Colombia) Delivering ex-cathedra lessons

International Short Courses

March 2015	**Teacher** Course: An Introduction to CFD and Open-Source: OpenFOAM code, 30h Intensive Course for EU project ENERGISE in Engineering, Jimma University (Ethiopia) Delivering ex-cathedra lessons and hands-on exercises
Oct 2012	**Teacher** Lecture: Technology trends: Solar Photovoltaic, thermal and thermodynamics, 10h Course: Training Course on Options and best practices for renewable energy technologies for productive uses in the Mediterranean region, UNIDO (Tunisia) Delivering ex-cathedra lessons and hands-on exercises
Oct 2011	**Co-teacher** E-learning course: Solar Thermal Technology, 20h ICS-UNIDO web platform registered members, ICS-UNIDO – Politecnico di Milano Co-responsible for course contents and digital support material

PhD Theses Supervisor

Apr 2015 – Dec 2016	**External Supervisor (Visiting PhD)** Candidate: Radu Secareanu Thesis: "Water Leak Sealing of Damaged Reactors by Liquid Metal" PhD Candidate in Nuclear Engineering at University Politehnica Bucharest (Romania) Academic Supervisor Prof. Dr. Ing. Ilie Prisecaru
Jan 2016 – Dec 2016	**External Supervisor (Visiting PhD)**

Candidate: David Bravo
Thesis: “Precision Background Stability and Response Calibration in Borexino: Prospects for Wideband, Precision Solar Neutrino Spectroscopy and BSM Neutrino Oscillometry Through a Deeper Detector Understanding”
PhD Candidate in Physics at Virginia Tech University (USA)
Academic Supervisor Prof. Bruce Vogelaar

BSc – MSc Supervisor/Opponent

July 2013 – Present	Advisor of 12 Master Science and 20 Bachelor theses in Aerospace, Energy and Mechanical Engineering. Reviewer and Opponent of 14 MSc thesis in Aerospace, Energy and Mechanical Engineering
Jan 2017 – Present	Permanent member of the Graduation Commission in Energy Engineering

PUBLICATION AND EDITORIAL ACTIVITIES

International Journals (WoS-Scopus)

J1. **Mereu R.**, Passoni S., Inzoli F. (2019) Scale-resolving CFD modeling of a thick wind turbine airfoil with application of vortex generators: Validation and sensitivity analyses. ENERGY – in press https://doi.org/10.1016/j.energy.2019.115969

J2. Quang, D.L., **Mereu R.**, Besagni G., Dossena V., Inzoli F. (2019) Numerical modelling of flashing flow phase change in convergent-divergent nozzle: A sensitivity analysis. Journal of Physics: Conference Series, Volume 1224, Issue 1, 20 May 2019, Article number 012010 doi: 10.1088/1742-6596/1224/1/012010

J3. Dang Le Q., **Mereu R.**, Besagni G., Dossena V., Inzoli F. (2018). Computational Fluid Dynamics Modeling of Flashing Flow in Convergent-Divergent Nozzle. Journal of Fluids Engineering, Transactions of the ASME, vol. 140(10), article number 101102

J4. Messaggi M., Canzi P., **Mereu R.**, Baricci A., Inzoli F., Casalegno A., Zago M. (2018). Analysis of flow field design on vanadium redox flow battery performance: Development of 3D computational fluid dynamic model and experimental validation. APPLIED ENERGY, vol. 228, p. 1057-1070, doi: 10.1016/j.apenergy.2018.06.148

J5. Bravo-Berguño D., **Mereu R.**, Cavalcante P., (...), Calaprice F., Inzoli F. (2018). The Borexino Thermal Monitoring & Management System and simulations of the fluid-dynamics of the Borexino detector under asymmetrical, changing boundary conditions. NUCLEAR INSTRUMENTS AND METHODS IN PHYSICS RESEARCH, SECTION A: ACCELERATORS, SPECTROMETERS, DETECTORS AND ASSOCIATED EQUIPMENT, vol. 885, p. 38-53, doi: 10.1016/j.nima.2017.12.047

J6. Baricci A., **Mereu R.**, Messaggi M., Zago M., Inzoli F., Casalegno A. (2017). Application of computational fluid dynamics to the analysis of geometrical features in PEM fuel cells flow fields with the aid of impedance spectroscopy. APPLIED ENERGY, vol. 205, p. 670-682, ISSN: 0306-2619, doi: 10.1016/j.apenergy.2017.08.017

J7. Ferrari G., Federici D., Schito P., Inzoli F., **Mereu R** (2017). CFD study of Savonius wind turbine: 3D model validation and parametric analysis. RENEWABLE ENERGY, vol. 105, p. 722-734, ISSN: 0960-1481, doi: 10.1016/j.renene.2016.12.077

J8. **Mereu R**., Federici D., Ferrari G., Schito P., Inzoli F. (2017). Parametric numerical study of Savonius wind turbine interaction in a linear array. RENEWABLE ENERGY, vol. 113, p. 1320-1332, ISSN: 0960-1481, doi: 10.1016/j.renene.2017.06.094

J9. Gregu G., Takahashi M., Pellegrini M., **Mereu R.** (2017). Experimental study on steam chugging phenomenon in a vertical sparger. INTERNATIONAL JOURNAL OF MULTIPHASE FLOW, vol. 88, p. 87-98, ISSN: 0301-9322, doi: 10.1016/j.ijmultiphaseflow.2016.09.020

J10. Besagni G., **Mereu R**., Inzoli F., Chiesa P. (2017). Application of an integrated lumped parameter-CFD approach to evaluate the ejector-driven anode recirculation in a PEM fuel cell system. APPLIED THERMAL ENGINEERING, vol. 121, p. 628-651, ISSN: 1359-4311, doi: 10.1016/j.applthermaleng.2017.04.111

J11. Secareanu R., **Mereu R.**, Takahashi M., Inzoli F., Prisecaru I. (2016). Experimental and numerical study of freezing and flow characteristics of Wood’s Metal injection in a water pool. APPLIED THERMAL ENGINEERING, vol. 103, p. 1261-1277, ISSN: 1359-4311, doi: http://dx.doi.org/10.1016/j.applthermaleng.2016.04.136

J12. Mandelli S., Barbieri J., **Mereu R.**, Colombo E. (2016). Off-grid systems for rural electrification in developing countries: Definitions, classification and a comprehensive literature review. RENEWABLE & SUSTAINABLE ENERGY REVIEWS, vol. 58, p. 1621-1646, ISSN: 1364-0321, doi: 10.1016/j.rser.2015.12.338

J13. Besagni G., **Mereu R.**, Inzoli F. (2016). Ejector refrigeration: A comprehensive review. RENEWABLE & SUSTAINABLE ENERGY REVIEWS, vol. 53, p. 373-407, ISSN: 1364-0321, doi: 10.1016/j.rser.2015.08.059

J14. Besagni G., **Mereu R.**, Di Leo G., Inzoli F. (2015). A study of working fluids for heat driven ejector refrigeration using lumped parameter models. INTERNATIONAL JOURNAL OF REFRIGERATION, vol. 58, p. 154-171, ISSN: 0140-7007, doi: 10.1016/j.ijrefrig.2015.06.015

J15. Besagni G., **Mereu R.**, Chiesa P., Inzoli F. (2015). An Integrated Lumped Parameter-CFD approach for off-design ejector performance evaluation. ENERGY CONVERSION AND MANAGEMENT, vol. 105, p. 697-715, ISSN: 0196-8904, doi: 10.1016/j.enconman.2015.08.029

J16. **Mereu R.**, Colombo E., Inzoli F. (2013). Numerical analysis of fluid dynamics and thermal characteristics inside a wavy channel. INTERNATIONAL JOURNAL OF NUMERICAL METHODS FOR HEAT & FLUID FLOW, vol. 23, p. 1049-1062, ISSN: 0961-5539

J17. Colombo E., Inzoli F., **Mereu R.** (2012). A methodology for qualifying industrial CFD: The Q3 approach and the role of a protocol. COMPUTERS & FLUIDS, vol. 54, p. 56-66, ISSN: 0045-7930, doi: 10.1016/j.compfluid.2011.10.003

J18. Merzari E., Ninokata H., **Mereu R.**, Colombo E., Inzoli F. (2011). URANS SIMULATION OF CONFINED PARALLEL JET MIXING. NUCLEAR TECHNOLOGY, vol. 175, p. 538-552, ISSN: 0029-5450

J19. Ramírez M.C., Bengo I., **Mereu R.**, Bejarano A.X., Silva J. C. (2010). Participative Methodology for Local Development: The Contribution of Engineers Without Borders from Italy and Colombia: Towards the Improvement of Water Quality in Vulnerable Communities. SYSTEMIC PRACTICE AND ACTION RESEARCH, vol. 23, p. 1-22, ISSN: 1094-429X, doi: 10.1007/s11213-010-9175-3

Proceedings of International-National Peer-Reviewed Conferences

Full Papers

C1. Q. Dang Le, **R. Mereu**, G. Besagni, V. Dossena, F. Inzoli, Numerical modelling of flashing flow phase change in convergent-divergent nozzle: A sensitivity analysis, 36TH UIT HEAT TRANSFER CONFERENCE, June 25-27, 2018, Catania, Italy

C2. G. Starnella, F. Inzoli, **R. Mereu**, Experimental image process and analytical model of direct contact condensation in chugging regime, NURETH17, September 3 - 8, 2017, Xi'an, China

C3. G. Dalle Mulle, F. Inzoli, **R. Mereu**, Numerical study of fluid characteristics and freezing of liquid metal injection in a water pool, NURETH17, September 3 - 8, 2017, Xi'an, China

C4. D. Bravo, **R. Mereu**, Thermal Management and Modeling for Precision Measurements in Borexino's SOX and Solar Neutrino Spectroscopy Programs, XV International Conference on Topics in Astroparticle and Underground Physics (TAUP 2017), July 24 – 28, 2017, Sudbury, ON, Canada

C5. G. Dalle Mulle, F. Inzoli, **R. Mereu**, CFD Modeling of Molten Metal Injection in Water Pool, 8th European Review Meeting on Severe Accident Research (ERMSAR conference), May 16-18, 2017, Warsaw (Poland)

C6. A. Baricci, **R. Mereu**, M. Messaggi, M. Zago, F. Inzoli, A. Casalegno, Modelling analysis of flow field geometrical features in polymer electrolyte fuel cells porous media, 7th International Conference on Fundamentals & Development of Fuel Cells, January 31-February 2, 2017, Stuttgart (Germany)

C7. A. Baricci, **R. Mereu**, M. Messaggi, M. Zago, F. Inzoli, A. Casalegno, Modelling analysis of mass transport in polymer electrolyte fuel cells porous media with the aid of computational fluid dynamics, 5th International Conference on Micro and Nano Flows, September 11-14, 2016, Milan (Italy)

C8. G. Besagni, **R. Mereu**, F. Inzoli, Numerical investigation of R-134a ejector, 1° International Conference of Cryogenics and Refrigeration Technology, June 22-25, 2016, Bucharest (Romania)

C9. Q. Dang Le, **R. Mereu**, G. Besagni, V. Dossena, F. Inzoli, Simulation of R718 flash boiling flow inside motive nozzle of ejector, 1° International Conference of Cryogenics and Refrigeration Technology, June 22-25, 2016, Bucharest (Romania)

C10. R. Secareanu, **R. Mereu**, F. Inzoli, I. Prisecaru, Validation of a numerical approach for the simulation of liquid metal jet breakup in water pool, International Conference on Multiphase Flow ICMF 2016, May 22-27, 2016, Florence (Italy)

C11. G. Gregu, M. Takahashi, **R. Mereu**, M. Pellegrini, Experimental Study on Chugging Phenomena in Direct Contact Condensation of Steam Jet with Subcooled Water, 2016 Annual Meeting of AESJ, March 26-28, 2016, Tohoku (Japan)

C12. R. Secareanu, **R. Mereu**, F. Inzoli, I. Prisecaru, Validation of a numerical approach for wood's metal injection in water, International symposium for nuclear energy (SIEN2015), October 19-21, 2015, Bucharest (Romania)

C13. R. Secareanu, I. Prisecaru, M. Takahashi, **R. Mereu**, Breakup and Solidification Behaviour of Liquid Metal Jet in Water Environment, 24th International Conference Nuclear Energy for New Europe, September 14-17, 2015, Portoroz (Slovenia)

C14. D. Federici, G. Ferrari, **R. Mereu**, P. Schito, F. Inzoli, Complete 2D analysis and overlap optimization of semicircular two-bucket Savonius wind rotor, Third Symposium on OpenFOAM in Wind Energy, June 15-17, 2015, Milan (Italy)

C15. D. Federici, G. Ferrari, **R. Mereu**, P. Schito, F. Inzoli, Parametric study of aspect ratio of a two bucket Savonius wind turbine, Third Symposium on OpenFOAM in Wind Energy, June 15-17, 2015, Milan (Italy)

C16. **R. Mereu**, T.D. Amati, L. Mattarolo, I. Bengo, C. Di Benedetto, Solar Water Heating system co-design and Do-It-Yourself approach for appropriate technology diffusion: the Médina Training Centre case study, Tech4Dev International Conference, June 4-6, 2014, Lausanne (Switzerland)

C17. G. Besagni, **R. Mereu**, E. Colombo, P. Chiesa, D. Maddiotto, The influence of operating conditions and working fluids over ejector efficiencies: a CFD stud, 32nd UIT Heat Transfer Conference, June 23-25, 2014, Pisa (Italy)

C18. **R. Mereu**, P. Lampitella, F. Inzoli, Preliminary Fluid Dynamic Analysis of Turbulent Flat and Ribbed Square Duct via CFD Approach, 4th Joint US-European Fluids Engineering Division Summer Meeting ASME, August 3-7, 2014, Chicago (USA)

C19. P. Lampitella, **R. Mereu**, E. Colombo, F. Inzoli, Large Eddy Simulation of the Flow and Heat Transfer in a Matrix of Cubes, 4th Joint US-European Fluids Engineering Division Summer Meeting ASME, August 3-7, 2014, Chicago (USA)

C20. G. Besagni, **R. Mereu**, E. Colombo, CFD Study of Ejector Efficiencies, ASME 2014 12th Biennial Conference on Engineering Systems Design and Analysis, June 25-27, 2014, Copenhagen (Denmark)

C21. F. Mapelli, **R. Mereu**, J. Barbieri, E. Colombo, CFD Feasibility analysis of an improved cook-stove (ICS) for electricity production, 31st UIT Heat Transfer Conference, June 25-27, 2013, Como (Italy)

C22. S. Viaro, P. Lampitella, **R. Mereu**, E. Colombo, F. Inzoli, Large eddy simulation of a turbulent pipe flow: a sensitivity analysis on computational parameters, 30th UIT Heat Transfer Conference, June 25-27, 2012, Bologna (Italy)

C23. F. Inzoli, E. Colombo, C. Basilico, **R. Mereu**, CFD modeling of wind load on PV panels on flat roofs, 30th UIT Heat Transfer Conference, June 25-27, 2012, Bologna (Italy)

C24. G. Guédon, **R. Mereu**, F. Inzoli, E. Colombo, J. Buongiorno, Implementation of a Ghost Fluid Method in a Tree-Based Adaptive Volume Of Fluid Solver for Two-Phase Heat and Mass Transfer, ECI 8th International Conference on Boiling and Condensation Heat Transfer, June 3-7 2012, Lausanne (Switzerland)

C25. **R. Mereu**, G. Guédon, F. Inzoli, E. Colombo, J. Buongiorno, Validation of a Ghost Fluid Method in a Tree-Based Adaptive Volume Of Fluid Solver for Two-Phase Heat and Mass Transfer, ECI 8th International Conference on Boiling and Condensation Heat Transfer, June 3-7 2012, Lausanne (Switzerland)

C26. **R. Mereu**, E. Colombo, F. Inzoli, Numerical study of a compact wavy heat exchanger, ASME-JSME-KSME Joint Fluids Engineering Conference 2011, July 24-29, 2011, Hamamatsu (Japan)

C27. **R. Mereu**, E. Colombo, F. Inzoli, E. Merzari, H. Ninonaka, Numerical study of parallel jet interaction, ASME-ATI-UIT 2010 Conference on Thermal and Environmental Issues in Energy Systems, May 16-19, 2010, Sorrento (Italy)

C28. **R. Mereu**, E. Colombo, F. Inzoli, Non linear eddy viscosity model applied to u-bend industrial geometry, ASME 2009 International Mechanical Engineering Congress & Exposition, November 13-19, 2009, Lake Buena Vista (USA)

C29. **R. Mereu**, E. Colombo, F. Inzoli, S. Orsini, S. Reoletti, Turbulence Modeling for the IRIS Reactor: Implementation and Validation of Non Linear Eddy Viscosity Model, 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH), September 27 – October 2, 2009, Kanazawa (Japan)

C30. **R. Mereu**, E. Colombo, F. Inzoli, A. Niro, First numerical results on forced-convection heat transfer inside a wavy channel, First International Conference on Computational Methods for Thermal Problems ThermaComp2009, September 8-10, 2009, Napoli (Italy)

C31. **R. Mereu**, L. Carpinelli, E. Colombo, F. Inzoli, S. Orsini, S. Reoletti, M. Rota, CFD for supporting renewable technology study: flow field analysis around flanged diffusers for small-type wind turbine, XXVII Congresso Nazionale UIT sulla Trasmissione del Calore, June 22-24, 2009, Reggio Emilia (Italy)

C32. E. Colombo, F. Inzoli, **R. Mereu**, Modelling validation for nlevm needs experimental facilities for supporting the design of innovative components, XXVI Congresso Nazionale sulla Trasmissione del Calore, June 23-25, 2008, Palermo (Italy)

C33. E. Colombo, F. Inzoli, L. Marocco, **R. Mereu**, Flow field and temperature prediction in a HRSG with post-combustion, XXVI Congresso Nazionale sulla Trasmissione del Calore, June 23-25, 2008, Palermo (Italy)

C34. E. Colombo, F. Inzoli, **R. Mereu**, Capability of Non Linear Eddy Viscosity Model in predicting complex flow, 6th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, June 30-July 2, 2008, Pretoria (South Africa)

C35. **R. Mereu**, E. Colombo, F. Inzoli, Implementation and Validation of NLEVM in the CFD commercial code, 7th Asian Computational Fluid Dynamics (ACFD7), November 26-30, 2007, Bangalore (India)

C36. E. Colombo, D. Fortini, F. Inzoli, **R. Mereu**, Implementation and validation of NLEVM in a CFD commercial code, XXV Congresso Nazionale UIT sulla Trasmissione del calore, June 18-20, 2007, Trieste (Italy)

C37. E. Colombo, F. Floris, F. Inzoli, **R. Mereu**, Modellazione numerica dell'evaporazione e condensazione in un dissalatore ad energia solare, XXIV Congresso Nazionale sulla Trasmissione del Calore, June 21-23, 2006, Napoli (Italy)

C38. F. Floris, G. Mink, L. Orvath, **R. Mereu**, Performance Testing and CFD Analysis of a New Design Multi-Effect Solar Still for Salt Water Distillation, International Congress on Energy and Environment, October 25-27 2006, Opatija (Croatia)

Summary Papers

CS1. Q. Dang Le, **R. Mereu**, G. Besagni, V. Dossena, F. Inzoli, Numerical study of saturation steam/water mixture flow and flashing initial sub-cooled water flow inside throttling devices, 1st Cryogenic Safety seminar at CERN, September 21-23, 2016, Geneva (Switzerland)

CS2. **R. Mereu**, E. Colombo, F. Inzoli, E. Merzari, H. Ninonaka, Large Eddy Simulation of Confined Parallel Jets, ANS Winter Meeting, November 15-19, 2009, Washington DC (USA)

CS3. E. Colombo, F. Floris, F. Inzoli, **R. Mereu**, Modellazione CFD di un dissalatore ad energia solare e confronto con I dati sperimentali, FLUENT FORUM 2005, 11 ottobre 2005, Milano (Italia)

Book Chapters

B1. **R. Mereu**. T. Amati, L. Mattarolo, I. Bengo, C. di Benedetto, O. Pin, Solar Water Heating System Codesign and Do-It-Yourself Approach for Appropriate Technology Diffusion: The Médina Case Study (Dakar, Senegal), Technologies for Development. What is Essential?, Springer International Publishing, 2015, pp. 91-100

B2. E. Colombo, F. Inzoli, **R. Mereu**, Ciclo e gestione del progetto per la qualità e l'affidabilità nella CFD: i protocolli di analisi, Fondamenti di Termofluidodinamica Computazionale, ed. SGE, 2014, pp. 407-450

B3. S. Mandelli, **R. Mereu**, Distributed Generation for access to electricity: "off-main-grid" systems from home-based to Microgrid, Renewable Energy for Unleashing Sustainable Development, Springer International Publishing, 2013, pp. 75-97

B4. E. Colombo**, R. Mereu**, Senegal and more. Energy without borders and global poverty, The international gateway. Projects and partnerships, ed. Olivares, 2010, pp. 23-27

Internal Memoranda and Progress Reports

R1. E. Colombo, F. Inzoli, **R. Mereu** (2010), Calcoli CFD del comportamento fluido-dinamico del fondo vessel del reattore IRIS con dati sperimentali a supporto, Report RdS/2010/76 - *CERSE-POLIMI RL 1133/2010*

R2. E. Colombo, F. Inzoli, M. Ricotti, **R. Mereu** (2009), Analisi fluidodinamica del downcomer di IRIS, implementazione di modelli di turbolenza e messa a punto di protocolli di accuratezza per analisi CFD, Report RSE/2009/75

Conference Presentations

P1. "Computational Fluid Dynamics approach for wind energy applications", International Conference " International Conference on Innovative Applied Energy (IAPE2019)", March 14-15, 2019, Oxford (UK)

P2. NURETH17, September 3 - 8, 2017, Xi'an, China, contribution: Experimental image process and analytical model of direct contact condensation in chugging regime

P3. NURETH17, September 3 - 8, 2017, Xi'an, China, contribution: Numerical study of fluid characteristics and freezing of liquid metal injection in a water pool

P4. 8th European Review Meeting on Severe Accident Research (ERMSAR conference), May 16-18, 2017, Warsaw (Poland), contribution: CFD Modeling of Molten Metal Injection in Water Pool

P5. 1° International Conference of Cryogenics and Refrigeration Technology, June 22-25, 2016, Bucharest (Romania), contribution: Numerical investigation of R-134a ejector

P6. International Conference on Multiphase Flow ICMF 2016, May 22-27, 2016, Florence (Italy), contribution: Validation of a numerical approach for the simulation of liquid metal jet breakup in water pool

P7. 4th Joint US-European Fluids Engineering Division Summer Meeting ASME, August 3-7, 2014, Chicago (USA), contribution: Preliminary Fluid Dynamic Analysis of Turbulent Flat and Ribbed Square Duct via CFD Approach

P8. 4th Joint US-European Fluids Engineering Division Summer Meeting ASME, August 3-7, 2014, Chicago (USA), contribution: Large Eddy Simulation of the Flow and Heat Transfer in a Matrix of Cubes

P9. 31st UIT Heat Transfer Conference, June 25-27, 2013, Como (Italy), contribution: CFD Feasibility analysis of an improved cook-stove (ICS) for electricity production

P10. 30th UIT Heat Transfer Conference, June 25-27, 2012, Bologna (Italy), contribution: Large eddy simulation of a turbulent pipe flow: a sensitivity analysis on computational parameters

P11. 30th UIT Heat Transfer Conference, June 25-27, 2012, Bologna (Italy), contribution: CFD modeling of wind load on PV panels on flat roofs

P12. ECI 8th International Conference on Boiling and Condensation Heat Transfer, June 3-7 2012, Lausanne (Switzerland), contribution: Validation of a Ghost Fluid Method in a Tree-Based Adaptive Volume Of Fluid Solver for Two-Phase Heat and Mass Transfer

P13. ASME 2009 International Mechanical Engineering Congress & Exposition, November 13-19, 2009, Lake Buena Vista (USA), contribution: Non linear eddy viscosity model applied to u-bend industrial geometry

P14. 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH), September 27 – October 2, 2009, Kanazawa (Japan), contribution: Turbulence Modeling for the IRIS Reactor: Implementation and Validation of Non Linear Eddy Viscosity Model

P15. First International Conference on Computational Methods for Thermal Problems ThermaComp2009, September 8-10, 2009, Napoli (Italy), contribution: First numerical results on forced-convection heat transfer inside a wavy channel

P16. XXVI Congresso Nazionale sulla Trasmissione del Calore, June 23-25, 2008, Palermo (Italy), contribution: Modelling validation for nlevm needs experimental facilities for supporting the design of innovative components

P17. 7th Asian Computational Fluid Dynamics (ACFD7), November 26-30, 2007, Bangalore (India), contribution: Implementation and Validation of NLEVM in the CFD commercial code

P18. XXV Congresso Nazionale UIT sulla Trasmissione del calore, June 18-20, 2007, Trieste (Italy), contribution: Implementation and validation of NLEVM in a CFD commercial code

P19. XXIV Congresso Nazionale sulla Trasmissione del Calore, June 21-23, 2006, Napoli (Italy), contribution: Modellazione numerica dell'evaporazione e condensazione in un dissalatore ad energia solare

Invited Lectures

L1. "Computational Fluid Dynamics approach for wind energy applications", International Conference " International Conference on Innovative Applied Energy (IAPE2019)", March 14-15, 2019, Oxford (UK)

L2. "Experimental and numerical approaches for steam Direct Contact Condensation (DCC) Analysis", International Meeting " EASED Closure Meeting", March 15-16, 2017, Madrid (Spain)

L3. "Energia tra competitività, sicurezza degli approvvigionamenti e sostenibilità: che ruolo per il mercato?", Representative of Department of Energy – Politecnico di Milano, Workshop "Edison Energy Day" at Edison Spa, November 28, 2014, Milano (Italy)

L4. "Energia e sviluppo: l'uso delle tecnologie appropriate nei contesti di cooperazione internazionale", Seminar CIVICAS for Graduate student of Engineering (1 CFU), University of Trento, May 15, 2013, Trento (Italy)

L5. "Renewable technologies in the energy Italian system: Production and R&D", Representative of Politecnico di Milano, Conference of Organización Latinoamericana de Gobiernos Intermedios de América Latina y El Caribe – OLAGI, November 8, 2012, Cordoba (Argentina)

L6. "Las energías renovables como motor para el desarrollo en países empobrecidos", International Conference "Energy4Life", March 15-16, 2012, Madrid (Spain)

L7. "From Color to Computational Fluid Dynamics, from Technological to Social Perspectives in Energy Engineering: some Lessons Learned around the World", Polimi Alumnus for Politecnico di Milano, PhD graduation, September 30, 2011, Milano (Italy)

Journal Editorial Board Member

Dec 2015 – present
Associate Editor – Member of Editorial Board
International Journal: ASME - Journal of Fluids Engineering (Scopus)
https://journaltool.asme.org/home/Mastheads.cfm?JournalID=9

Oct 2016 – Nov 2017
Guest Editor – VSI: MNF2016
International Journal: Elsevier - Applied Thermal Engineering (Scopus)
http://www.sciencedirect.com/science/journal/13594311/vsi/10NZ4Z5WC3W

Oct 2016 – Nov 2017
Guest Editor – Special Issue: MNF 2016-Micro/Nanofluids
International Journal: open access MDPI - Fluids

Sep 2014 – Sep 2015
Guest Editor
International Journal: ASME - Journal of Fluids Engineering (Scopus)

Conference Organizing Committee Member

Sep 2016
Member of Organizing Committee - Session Chairman
International Conference: Micro and Nano Flows (MNF2016), September 11-14, 2016, Milano (Italy)
http://mnf2016.com/org.aspx

June 2015
Member of Organizing Committee - Session Chairman
International Conference: Third Symposium on OpenFOAM® in Wind Energy (SOWE), June 15-17, 2015, Milano (Italy)

June 2014	**Member of Organizing Committee - Session Chairman** International Conference: ASME "ESDA Conference 2014 Biennial 12th Conference on Engineering Systems Design and Analysis", June 25-27, 2014, Copenhagen (Denmark)

AWARDS

June 2017	**Selected EU-EASED Fellow** among best research contributions for the EASED Closure Meeting, June 15-16, 2017, Madrid (Spain)
Sep 2011	**Selected Polimi Alumnus** as speaker to the PHD graduation ceremony of Politecnico di Milano, Sep 30, 2011, Milano (Italy)

AFFILIATIONS

Jan 2016 - present	**Member** of American Society of Mechanical Engineers – **ASME** Affiliation number **101372271**

RICCARDO MEREU

Riccardo Mereu

In compliance with the Italian legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.