Politecnico di Torino

Department of Energy "G.Ferraris"

PhD Days

ENERGETICS

December 3 and 4, 2025

Follow the international workshop on:
https://tinyurl.com/4e7sj58x

ABOUT

During the Phd Days our Energetics PhD students will have the chance to present and discuss their research activities.
Furthermore the workshop "**Energy in the age of AI: modeling materials and systems for a sustainable transition**" will provide a unique opportunity to gain insights from four distinguished international experts who have made significant contributions to the field of decarbonization.

PROF. MASSIMO SANTARELLI

Graphics: Mariapia Martino

03.12.25

Aula Magna
Corso Duca degli Abruzzi, 24 - Torino

38°, 39° & 40° CYCLE PHD RESEARCH ACTIVITY PRESENTATION

Chairperson: Prof. Massimo SANTARELLI

09.00 - 13.00

09:00	Prof. Massimo SANTARELLI Introduction
09:15	Area **“Sustainable nuclear energy”** Moderator: M. Zucchetti, Research presentation and Q&A
11:00	Coffee Break
11:30	Area **“Sustainable propulsion and energy systems”** Moderator: D. Chiaramonti Research presentation and Q&A”
13:00	Prof. Massimo SANTARELLI Wrap Up & Conclusions Morning Session
13:15	Lunch

03.12.25

Aula Magna
Corso Duca degli Abruzzi, 24 - Torino

38°, 39° & 40° CYCLE PHD RESEARCH ACTIVITY PRESENTATION

Chairperson: Prof. Massimo SANTARELLI

14.00 - 18.00

14:00	Prof. Massimo SANTARELLI Introduction
14:15	Area **“Building physics and energy systems in future buildings and communities”** Moderator: A. Capozzoli Research presentation and Q&A
15:30	Coffee Break
16:00	Area **“Industrial energy systems, technologies and materials for the energy transition”** Moderator: V. Verda Research presentation and Q&A
18:00	Prof. Massimo SANTARELLI Wrap Up & Conclusions

04.12.25

INTERNATIONAL WORKSHOP
04.12.2025

ENERGY IN THE AGE OF AI: MODELING MATERIALS AND SYSTEMS FOR A SUSTAINABLE TRANSITION

Salone d'Onore
Castello del Valentino - Morning

9.00	Prof. Alberto TENCONI - Head of Energy Department "Galileo Ferraris" Welcome Greetings Prof. Massimo SANTARELLI - PhD Coordinator and Workshop Chairman
	Moderator: P. Asinari
9.30	**Prof. Antonio GARCIA**, CMT-Thermal Engines, Universidad Politecnica de Valencia (Spain)
10.15	**Prof. Piero BARALDI**, Dipartimento Energia, Politecnico di Milano (Italy)
11.00	Coffee Break - Sala delle Colonne
11.30	**Dr. Annalisa CARDELLINI**, University of Applied Sciences and Arts of Southern Switzerland (Switzerland)
12.15	**Prof. Massimo FIORENTINI**, Department of Civil and Architectural Engineering, Aarhus University (Denmark)
13.00	**FINAL PANEL and Q&A**
13.15	Lunch - Sala delle Colonne

04.12.25

INTERNATIONAL WORKSHOP
04.12.2025

INTERNATIONAL RELATIONS OF THE PHD IN ENERGY

Salone d'Onore
Castello del Valentino - Afternoon

14.00 Prof. Massimo SANTARELLI & Prof. Roberto ZANINO - Introduction to the 2nd Part of the Workshop

14.15 **Prof. Roberto ZANINO** - Energy Department "Galileo Ferraris", Politecnico di Torino (Italy) & **Prof. Prof. Renato Machado Monaro** - University of São Paulo (Brazil) - "The Magalhaes Network and its role in the internationalization of PhD"

14.45 **Dr. Ilaria LUCENTINI** - Universitat Politècnica de Catalunya, (Spain) - "The MSCA UNITE!Energy"

15.15 Coffee Break - Sala delle Colonne

15.30 **Dr. Evren UNSAL** - GSNL-PTX/I/ Energy Transition Center Amsterdam (The Netherlands) - "SHELL policy of collaboration with Academia in the PhD domain"

16.00 **Dr. Stefano MEZZAVILLA** - SNAM Research (Italy) - "SNAM initiative Call4Fellows and policy of collaboration with Academia in the PhD domain"

16.30 Prof. Massimo SANTARELLI & Prof. Roberto ZANINO - **Wrap Up & Conclusion pf the workshop**

16.45 **Closure**

SPEAKERS' BIOGRAPHY

Prof. Antonio GARCIA

Full Professor and Senior Researcher at the Universitat Politècnica de Valencia (Spain)

As a Full Professor and Senior Researcher at the Universitat Politècnica de Valencia,my research has focused on combustion optimization, Low-TemperatureCombustion topics, fleet hybridization assessment, and batteries technology overthe past 20 years. These days, my major role involves mitigating and understandingthe thermal runaway phenomenon in LIBs. I lead a group of 15 individuals, includingPh.D.'s, professors, postdocs, and technicians, who collaborate with researchlaboratories, OEMs, and oil companies from the EU, USA, and Asia. Our collectiveefforts have resulted in the publication of more than 130 peer-reviewed articles, withan Scopus H-index of 46, and the supervision of over 20 projects. In recognition ofmy contributions, I was awarded the Forest R. McFarland in SAE Detroit in 2018 andSAE Fellow in 2024. I also serve as the Spanish representative on the InternationalEnergy Agency for Combustion TCP and as Editor-in-Chief for two Elsevier journals: e-prime (Advances in Electrical Engineering, Electronics, and Energy Engineering) and Transportation in Engineering.

Prof. Piero BARALDI

Dipartimento di Energia - Politecnico di Milano (Italy)

Piero Baraldi received the MSc and the PhD degrees in nuclear engineering from Politecnico di Milano in 2002 and 2006, respectively. He is currently full professor of Nuclear Engineering at the Department of Energy of Politecnico di Milano (Italy). His main research efforts are currently devoted to the development of methods and techniques for system health monitoring, fault diagnostics, prognostics and maintenance for industrial systems. He is also interested in methodologies for rationally handling the uncertainty and ambiguity in the information. He has been invited keynote lecturer at plenary sessions of six international conferences. He has been functioning as Technical Programme Chair of the 2013 Prognostics and System Health Management Conference (PHM-2013), Milano (Italy), 2013, of the ESREL2020PSAM15 Conference, Venice (Italy), 2020, and of the ESREL2023 Conference, Southampton (United Kingdom), 2023. He is associate editor of the 'Journal of Risk and Reliability'. He has been treasurer of the European Safety and Reliability Association (ESRA) from 2014 to 2018 and he is co-chairman of the ESRA Technical Committee on "Prognostics and System Health Management". He is co-author of 2 books and more than 240 papers on international journals and proceedings of international conferences.

Prof. Massimo FIORENTINI

Associate Professor in the Department of Civil and Architectural Engineering at Aarhus University, Denmark

Massimo Fiorentini is an Associate Professor in the Department of Civil and Architectural Engineering at Aarhus University, Denmark. He earned his Bachelor's and Master's degrees in Mechanical Engineering from Politecnico di Milano and completed his PhD at the Sustainable Buildings Research Centre, University of Wollongong, Australia. His research focuses on designing, modelling, and controlling energy systems for buildings and urban districts to improve efficiency and sustainability. This includes developing advanced methodologies for indoor environmental control and integrated energy management, with particular emphasis on innovative sensing strategies, control architectures, occupant behaviour, and predictive, data-driven algorithms. Furthermore, he investigates the optimization of multi-energy systems - especially those incorporating seasonal thermal energy storage - to develop decision-support tools that identify the most effective energy system designs.

Prof. Renato Machado Monaro

University of São Paulo, Brazil

Renato Machado Monaro graduated (2007) in Electrical Engineering from the São Carlos School of Engineering – University of São Paulo, São Carlos, Brazil. He obtained a Ph.D. in 2013 from the same institution. In 2021 he obtained the title of professor at the Polytechnic School of the University of São Paulo. He is currently an associate professor at the Polytechnic School of the University of São Paulo. He is one of the founders and members of the research group at the Advanced Electric Grids Laboratory – LGrid. It operates in the area of renewable energy sources (wind and solar), analyzing their integration into the electrical grid and their operation in isolated systems. In recent years, he has dedicated himself to the study of offshore electrical systems, especially power generation systems for oil exploration platforms and ship electrical systems, with the aim of reducing greenhouse gas emissions through the integration of renewable energy sources and storage systems.

Dr. Annalisa CARDELLINI

University of Applied Sciences and Arts of Southern Switzerland, Switzerland

Annalisa Cardellini is a computational materials scientist with a Ph.D. in Energy Engineering from Politecnico di Torino, completed under the supervision of Prof. Pietro Asinari and Prof. Eliodoro Chiavazzo. Her research integrates multiscale molecular modelling, enhanced sampling and data-driven techniques to unravel the dynamic behavior of complex soft matter systems. Over the years, Dr. Cardellini has investigated the aggregation and interfacial properties of coated nanoparticles, developing strong expertise in modeling surface-active agents within Prof. Daniel Blankschtein's group at Massachusetts Institute of Technology (MIT). During her postdoctoral work with Prof. Monica Olvera de la Cruz (Northwestern University) and Prof. Giovanni M. Pavan (Politecnico di Torino), she further expanded her skills in simulating polymeric networks and the architecture of supramolecular polymers, including their structural and dynamic behavior. Currently based at SUPSI (University of Applied Sciences and Arts of Southern Switzerland), she applies her expertise to drive the materials design for energy, environmental, and biomedical technologies.

Dr. Ilaria LUCENTINI

Project Manager, Unite!Energy Doctoral Network, UPC, Spain

Environmental engineer with a PhD in chemical process engineering focused on hydrogen production from ammonia. Following a postdoctoral period at the ALBA Synchrotron, dedicated to the application of advanced characterization techniques to green hydrogen production and battery materials, currently working on the management of a research project (Unite!Energy) involving hydrogen-based technologies for energy storage.

Prof. Roberto ZANINO

Department of Energy “Galileo Ferraris”, Politecnico di Torino, The Magalhães Network President, Italy

Roberto Zanino, PhD, is a Professor of nuclear engineering at the Dipartimento Energia of Politecnico di Torino (PoliTo), where he leads the Nuclear Engineering Modeling (NEMO) group http://www.nemo.polito.it/ . In 2022 he received the Doctorat honoris causa from Universite' Grenoble-Alpes.
In the 80's and 90's, Prof. Zanino spent long periods as a visiting scientist at Scuola Normale Superiore in Pisa, Italy, at the Max-Planck Institut fuer Plasmaphysik in Garching, Germany, and at the MIT Plasma Science and Fusion Center in Cambridge (MA) USA.
Prof. Zanino has served in various management positions at PoliTo, where he was the Director of Alta Scuola Politecnica http://www.asp-poli.it, the Head of graduate studies in Energy Engineering and the Vice Rector for European Relations, and he is now the Rector's Senior Advisor for International University Networks and the European University Alliance Unite!. Roberto is also a member of the Board of Directors of CESAER https://www.cesaer.org/ , a member of the Steering Committee (Key Liaison Officer) of the European University Alliance Unite! https://www.unite-university.eu/ , the President of the EU-LAC University network Magalhaes https://www.magalhaes-network.org/ and the Secretary General of the CLUSTER University network https://cluster.org/ . Prof. Zanino is the author or coauthor of 250+ papers in international journals, devoted mainly to computational modeling in different fields of relevance for nuclear fusion (mostly superconducting magnets and cryogenics), nuclear fission and concentrated solar power. According to the Scopus database his h-index is 38. He contributes to several courses at PoliTo, including: Thermal fluid dynamics and Elements of nuclear engineering, at the BSc level; Nuclear fusion reactor engineering and Solar thermal systems, at the MSc level. He is also the Vice President of the Italian university consortium for nuclear technologies (CIRTEN) http://www.cirten.it/ and was a member of the EURATOM Scientific and Technical Committee for the 2019-2023 mandate. Prof. Zanino was named a senior member of the Institute of Electrical and Electronic Engineers (IEEE). He also is a member of the American Nuclear Society (ANS), of the American Society of Mechanical Engineers (ASME) and of the International Solar Energy Society (ISES). For ASME, he serves as a member of the VV30 subcommittee, working on Verification&Validation issues in nuclear applications. He was visiting full Professor of Nuclear Engineering at the Peter the Great St. Petersburg Polytechnic University, and is an International Faculty Affiliate to the University of Illinois at Chicago, Department of Mechanical and Industrial Engineering.

Dr. Evren UNSAL

Technology & Research Partnerships || Executive Editor at Shell, ETCA Shell, The Netherlands

Evren Unsal is with Shell Global Solutions International B.V., Netherlands. She is Academic Partnerships Manager from Sep 2021 . Liaising Shell's R&D partnerships with academia, industry and governmental bodiesin the European Union region to maintain effective, productive, and harmoniousrelationships.·Developing and managing relationships with key research and technology partners ·Erasmus+ program coordinator in Shell·LEAR (Legal Entity Appointed Representative) representing Shell in European UnionFunded Research Programs Orchestrating Shell internship network at Energy Transition Campus Amsterdam(ETCA)

Dr. Stefano MEZZAVILLA
Snam SpA Milano , Italy

Stefano Mezzavilla earned a PhD in Chemistry from the Max Planck Institute für Kohlenforschung in 2015 and subsequently held postdoctoral positions at DTU and Imperial College London, focusing on the study of electrochemical processes involving hydrogen, CO2, and bio-derived molecules. From 2021 to 2024 he served as Chemistry Lead and Head of Technology at RFC Power, an Imperial College spinoff developing an innovative electrochemical long-duration energy storage technology. Since 2025, he has served as R&D and Innovation Manager at Snam S.p.A., collaborating with universities, startups, and other stakeholders to develop decarbonization solutions for hard-to-abate sectors, as well as advancing CO_2 CCUS and hydrogen technologies.

Politecnico di Torino

Department of Energy
"G.Ferraris"

PhD. ENERGETICS

Follow the international workshop on:
https://tinyurl.com/4e7sj58x