

5th Winter School for PhD students on

FLUID MACHINES AND ENERGY SYSTEMS

March 25th – 29th, 2024
University of Pisa

The 5th Winter School for PhD students of fluid machines and energy systems promoted by AIMSEA (Italian Association of Fluid Machines and Energy Systems) will be held in Pisa (Italy) on **March 25th - 29th**. The main topic of the school will be **Renewable Energies, Energy Storage and Energy Transition**. In the last years, the share of renewable sources in the energy mix of several countries is increased with a steady pace. This led to a revolution in the way to conceive energy conversion and diffusion in comparison to a fossil fuel-based system. However, the transition to a future with a high penetration of renewables implies several criticalities from both the technical and economic point of views. The school will be the opportunity to discuss these topics, have an insight to new frontiers of engineering research and promote the cooperation between PhD Students. The focus of the conference will be **Fluid Machines (FM), Energy Systems (ES) and Sustainable Mobility (SM)**.

	Monday March 25th	Tuesday March 26th	Wednesday March 27th	Thursday March 28th	Friday March 29th
09:30					
10:00		Plenary 3 Prof. Barigozzi Room A	Plenary 4 Prof. Bollino Room A	Plenary 5 Prof. Ferrara Room A	Workgroup activity Presentation and discussion Room A
10:30		Coffee break	Coffee break	Coffee break	Coffee break
11:00	Opening Ceremony				
11:30	Plenary 1 Prof. Madlener Room A	TM-1 Prof. Igie Room A	ES-2 Dr. Bargiacchi Room A	SM-3 Prof. Fontanesi Room A	Workgroup activity Presentation and discussion Room A
12:00		ES-1 Prof. Taccani Room B	TM-3 Dr. Salvadori Room B	TM-4 Prof. Bianchi Room B	
12:30					
13:00	Lunch	Lunch	Lunch	Lunch	Lunch
13:30					
14:00	Plenary 2 Dr. Cosi Room A	TM-2 Prof. Pavesi Room A	ES-3 Prof. Valenti Room A	SM-4 Dr. Ferrera Room A	Closing Ceremony
14:30		SM-1 Prof. Cameretti Room B	SM-2 Prof. Postriotti Room B	ES-4 Prof. Comodi Room B	
15:00					
15:30	Coffee break	Coffee break	Coffee break	Coffee break	
16:00	Plenary 3 Dr. Pecorini Room A	Workgroup Self-learning activity	Workgroup Self-learning activity	Workgroup Self-learning activity	
16:30					
17:00					
17:30					
	Welcome reception	Social dinner			

Location: “Le Benedettine” Conference Center
Piazza S. Paolo a Ripa D'Arno, 16 – 56122 – Pisa

Keynotes

- **Prof. R. Madlener** RWTH Aachen University
Challenges and flexibility options for high shares of renewables
- **Dr. L. Cosi** Baker Hughes spa
The development of turbomachinery in the energy transition era
- **Dr. I. Pecorini** University of Pisa
Waste biorefinery to produce renewable energy: bioconversion process and circular bioeconomy
- **Prof. G. Barigozzi** University of Bergamo
Film cooling challenges for sustainable gas turbine engines
- **Prof. C. A. Bollino** University of Perugia
The fundamentals of the electricity market design
- **Prof. G. Ferrara** University of Florence
The future of the ICE ... is a future still possible?

Fluid machines

- **Prof. U. Igie** University of Cranfield
Compressor fouling in gas turbines: impact on blade aerodynamics and engine performance
- **Prof. G. Pavesi** University of Padova
Nature-Inspired Design
- **Dr. S. Salvadori** Politecnico di Torino
Unsteady Flows and Component Interaction in Turbomachinery
- **Prof. S. Bianchi** Airbus Group
Aeroelasticity of fan/intake system under real operating conditions

Energy systems

- **Prof. R. Taccani** University of Trieste
The potential of hydrogen in the decarbonization of hard to abate sectors
- **Dr. E. Bargiacchi** ETH Zurich
Life Cycle Sustainability Assessment of energy systems: lessons learnt for Hydrogen and Carbon Capture and Utilization technologies
- **Prof. G. Valenti** Politecnico di Milano
Liquid hydrogen technologies for mobility applications
- **Prof. G. Comodi** Politecnico delle Marche
Role of energy systems in enabling flexibility services and sector coupling in the energy transition

Sustainable mobility

- **Prof. M. C. Cameretti** University of Naples “Federico II”
The role of CFD modeling in the study of internal combustion engines powered by alternative fuels
- **Prof. L. Postriotti** University of Perugia
Methodologies for the experimental analysis of hydrogen injection systems for internal combustion engines
- **Prof. S. Fontanesi** University of Modena and Reggio Emilia
Hydrogen ICEs: hysteria, hypocrisy, hype or hope?
- **Dr. M. Ferrera** Dumarey Automotive Italia S.p.A.
Sustainable and flexible solutions for next generation of internal combustion engines

Fees and application:

- Applications must be submitted [here](#) before **Feb. 24th**. Required documents (in pdf form): identity document (passport in case of a foreign student), signed enrolment form, curriculum vitae, certification of PhD student status
- Once the application has been approved, a fee of € 500,00 is requested. The fee includes attendance, 1 welcome reception, 1 social dinner, 5 lunches and 8 coffee breaks

For additional information:

- Prof. Lorenzo Ferrari
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- Summer/Winter School Office
support.summerschool@unipi.it



Department of Energy, Systems,
Territory and Construction Engineering
University of Pisa

Suggested accommodations

RESIDENCE LE BENEDETTINE

Lungarno Sonnino 18, Pisa, Italia
Tel. 050 28 257 Fax 050 22 06 593

HOTEL LA PACE

Viale Gramsci, 14 (Galleria B) – 56125 Pisa
Tel. 050.29351-2 48863 Fax 050.502266

HOTEL ROMA

Via Bonanno, 111 – 56126 Pisa
Tel. 050.554488 Fax 050.550164

HOTEL VERDI

Piazza della Repubblica, 5 – 56125 Pisa
Tel. 050.598947 Fax 050.598944

HOTEL BOLOGNA

Via Mazzini, 57 – 56125 - Pisa
Tel. 050.502120 Fax 050.43070

HOTEL REPUBBLICA MARINARA

Via Matteucci, 81 – 56124 Pisa
Tel. 050.3870100 Fax 050.3870200

HOTEL ROYAL VICTORIA

Lungarno Pacinotti, 12 – 56126 Pisa
Tel. 050.940111 Fax 050.940180

GRAND HOTEL BONANNO

Via Carlo Francesco Gabba, 17 – 56122 Pisa
Tel. 050.524030 Fax 050.532072

How to reach Pisa:

- Train: The Pisa Central railway station is served by regional trains from Florence (approx. 1 hour), and by Regional, Frecciabianca and Interregional trains serving the Italian west coast from Genoa to Rome. (www.trenitalia.com)
- Car: Pisa can be easily accessible by car from Florence by using the A11 motorway from Firenze Nord exit on the A1, or by using the S.G.C. Firenze-Pisa-Livorno from the Firenze Scandicci exit on the A1. Along the A12 (Genova- Rosignano) there are two exits to reach Pisa (Pisa Nord e Pisa Centro).
- Airplane: Pisa Airport (<https://www.pisa-airport.com/>) or Florence Airport (www.aeroporto.firenze.it/).
- Bus: Flixbus offers several low-cost connections by coach to Pisa. (www.flixbus.it).

AIM
SEA

Associazione Italiana
delle Macchine a fluido
e dei Sistemi per
l'Energia e l'Ambiente



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Renewable Energies, Energy Storage and Energy Transition

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