



UNIVERSITÀ
DEGLI STUDI
DI TRIESTE



Dipartimento di
Ingegneria
e Architettura

Summer school on energy

Giacomo
Ciamician

4th – 8th June 2023

Hotel Kreuzbergpass
Sesto/Alta Pusteria (BZ) Italy

BOARD

Maurizio Fermeglia

Francesco Grimaccia

Vanni Lughì

Alessandro Massi Pavan

The school on energy “Giacomo Ciamician”, founded in 2010 under the leadership of the University of Trieste, is a meeting place, where participants learn the fundamentals of the main energy technologies, and become aware of the complex technological, economical, and social issues that make energy such a formidable challenge, but also a source of many new opportunities.

We look for dynamic people, willing to take on the upcoming challenges and opportunities at the global scale. The main target of the school are students nearing the end of their educational path, in particular master and doctoral students, as well as young professionals or young entrepreneurs. However, diversity is a value for the School, and applicants at all career stages are encouraged to apply.

The School is a five-day residential course, and covers the following topics:

Energy: a global societal challenge

In a series of lectures by internationally renowned scientists, we describe the **current state of the energy system**, its relationship with other global issues, and the key data, trends and indicators; we then identify the system’s weak points from the technical, economical, and social perspective, and outline some of the possible solutions and **future scenarios** – including that of the **hydrogen economy**.

The integration of electrical systems, storage, and transport

As the energy balance shifts towards an increase in the use of electricity, the recent and upcoming evolution of the electricity dispatching and distribution systems is described, and the corresponding enabling technologies are presented – including the key role of **smart-grids** and **storage** technologies, and their relation to the impending **electrification of the transport sector**.

Technologies for the energy transition

This series of lectures provides an overview of some of the main **renewable energy** sources: hydropower, wind power, geothermal, biomasses. A special focus will be dedicated to the technology and economics of **solar photovoltaic** energy as one of the key renewable energy technologies and a model case study. A critical review of some controversial emerging and re-emerging technologies will also be given, such as biofuels, nuclear power, carbon capture and storage. The role of **energy efficiency** and energy savings is also presented in a series of practical cases demonstrated at different levels of the energy supply chain.

Frontiers in energy research and special topics

Internationally renowned scientists present their frontier research on energy topics and their vision; industry experts present their experience and outlook for the future of energy.



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