



# VIU PhD academy energy and society - THE case OF FUSION

**Energy and Society - The case of fusion**

**June 10-15, 2024**

**Venice International University  
Isola di San Servolo, Venice**

# VIU International PhD Academy

## Energy and Society.

### The case of fusion

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Scientific Coordinator:

Piero Martin

University of Padova

Balancing our energy needs with concerns for climate change, strategic dependence on fossil fuel suppliers and energy poverty is one of the key challenges for the world.

As global economies move towards lower carbon energy futures, there is emphasis on developing new technologies. The challenge of transitioning to a more sustainable, resilient, and equitable energy future requires to address questions on how to create a better energy future for us all. Finding the routes to a sustainable and ethical energy future is therefore a multi-disciplinary task, where synergy among science, humanities, economics, social and political sciences is essential.

These connections are not often addressed in the training of the future players in the energy arena.

This course aims at providing fellows from various disciplines - scientists, engineers, economists, sociologists, political scientists, diplomats, journalists, communicators - with a training opportunity, which merges science with society and delivers a grand view on the future of energy. This project connects conversations about development of energy technology, with wider ethical implications that consider energy social, environmental, and geopolitical impacts.

We will use as a **case study controlled thermonuclear fusion**. The energy transition and the implications of the war in Ukraine on the world's energy supply markets have stimulated a lot of talk in recent months about nuclear energy and fusion.

Scientists expect that fusion will become a key component of the global energy mix in the second half of this century, and a crucial player in a net-zero scenario. This confidence is mirrored in growing investments in this form of energy from private capital markets. In 2022, private investments in fusion research have reached about \$4.7 billions.

Key questions addressed during the Academy:

- For an energy source dependent on high-tech technology and infrastructure, how could it be made available widely and equitably between countries and areas of various economic and technical capacities?
- How can we minimize the risks of developing new geopolitical dependencies?

- How can we design a market structure able to manage simultaneous supply from different energy sources, including fusion?
- Environmental risks associated with fusion energy are small, but how are those risks evaluated and who and how would manage them?
- Energy transition will require significant changes in our approach to energy, which need public acceptance. How do we effectively communicate with society on energy?
- How much fusion will help solving the energy poverty issue?

This PhD Academy will be led by:

- University of Bordeaux
- University of Milano Bicocca
- University of Ljubljana
- University of Padova

#### Faculty

University of Padova

Piero Martin, Paolo Giardullo, Lidia Piron, Giuseppe Zollino, Francesco Gnesotti

University of Bordeaux

Dimitri Batani

University of Ljubljana

Tomaž Gyergyek

University of Milano Bicocca

Alice Bellagamba, Giuseppe Gorini, Lucia Visconti Parisio

Ca' Foscari University of Venice

Shaul Bassi, Davide Zanchettin

Venice International University

Alessandra Fornetti, Ilda Mannino

#### Guest Speakers

Marinella Davide, EU Joint Research Center, Ispra

Marco Motta, RAI Radiotelevisione Italiana

Emilka Skrzypek, Centre for Energy Ethics,

University of St. Andrews, UK

Cheickh M.F. Kebe, Ecole Polytechnique

Superieure, Dakar, Senegal

#### Methodology and topics

The academy brings together expertise from hard sciences, economics, sociology, environmental sciences, and political sciences.

The Academy is organized in the following main blocks:

- Energy, fusion, and environment science
- History of energy
- Financial, economic, and technical implications of energy scenarios
- Energy ethics and poverty
- Energy, communication, and society
- Energy, arts, and humanities

#### Learning outcomes for participants

The participants will be exposed to a grand view of the interaction between energy and society, starting from a case study which is now very popular in the public debate.

The added value of this course is the transversal approach, which cuts across many aspects of the energy issue.

On a fundamental topic for humanity, participants will broaden their views out of the technical borders of their disciplines.

The courses include the following **transversal skills**:

- Ethics in science and energy
- Science communication
- Knowledge and technology transfer
- Networking

A "Science Tour" led by Piero Martin, a scientist living in Venice, will be organized: Venice is in fact famous for its artistic and cultural heritage, but less is known about the strong relationships of the city with science history.

#### A Roundtable on the Future of Fusion Energy

with the participation of eminent international experts will be organized as closing event on June 15, with the support and scientific contribution of Eni.

*Main sponsor*



### Who can apply?

This international PhD Academy is offered to PhD students, post-docs, and junior researchers, in the fields of hard sciences, engineering, social studies, economics, political sciences, diplomatic studies, psychology, philosophy, and literature.

### Fees & Grant Support

Students from the VIU member institutions will pay no participation fees. Grant support is also available to support, partially or fully, the costs of international travel and accommodation.

The participation fee for students of non-member institutions is Euro 1.200 incl. VAT. The fee is inclusive of tuition, course materials, accommodation, lunches, social events and taxes.

Students from non-member institutions are not eligible for VIU grant support.

VIU Alumni are eligible for a reduced fee.

Selected participants will be asked to present a poster.

**The program is available on the VIU website**

### Applications closed on February 29, 2024

Applicants must submit the (1) application form, (2) a letter of motivation – which should include a short bio and a brief description of the candidate's research project, (3) PhD thesis/research abstract (4) a curriculum vitae and (5) a photo.

For further information: [phdacademy@univiu.org](mailto:phdacademy@univiu.org)

### VIU International PhD Academies

Venice International University is a consortium of 23 institutions, representing 15 countries throughout the world. The mission of VIU is to foster cooperation among VIU member institutions while facilitating the exchange of knowledge and ideas, by developing, promoting and organizing joint academic, research and training/capacity-building program. Students from non-member universities may participate in selected academic programs. The academic programs at VIU are distinguished by a markedly interdisciplinary approach to the topics, and by the international perspectives that the participants contribute to the discussions. The

VIU campus is on the island of San Servolo in Venice, Italy.

Venice International University holds two/three International PhD Academies each year. They are intensive training opportunities open to PhD candidates from the member universities of VIU.

A PhD is the highest diploma awarded by universities in the world, and PhDs are naturally expected to take on major responsibilities in their professional life. Apart from the disciplinary scientific skills acquired during doctoral study and research, it is the ability to respond to the requirements of creativity, innovation and project management, that produce the significant added value of a doctoral degree. Whether they will work within or outside academia, PhDs must be able to develop a forward-looking vision of the challenges they have to face. The interdisciplinary approach of all VIU activities is adopted also in the PhD Academy, where the participants have the opportunity to meet their peers from all over the world, and to tackle transversal topics.

[www.univiu.org/study/phd-academy](http://www.univiu.org/study/phd-academy)

### Location



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