

Application



The target participants are junior as well as experienced scientists and engineers in the broad field of nuclear sciences, engineering and technologies.

The application form should be filled out online at: <http://www.fjohss.eu>

Should there be any problem with the online registration, please contact: fjoh@cea.fr

Deadline for application: May 23rd, 2022

Full Registration fees: €2200

Information for payment of the fees will be provided after review of the applications.

The fees cover: lectures, class notes, meals and accommodations at Hotel Novotel Pont-de l'Arc from August 23rd evening to September 2nd, 2:00 pm.

The fees do not cover travel expenses.

A small number of **fellowships** will be available for qualified candidates. A fellowship covers the amount of €1100, the same amount of €1100 having to be financed by the applicant or his/her employer. These fellowships are primarily intended for candidates from developing countries. Requests should be motivated.

All applicants are required to provide a short curriculum vitae, which will be used for selection purposes.

The FJOH School considers that the 2022 programme corresponds approximately to **3-4 ECTS credits** of post graduate-level course work in Nuclear Engineering.

Selection by the FJOH School organizers is final.

Partial participations are not accepted.

August 24th > September 2nd, 2022

Information

Key dates

May 23rd, 2022: Application deadline

June 10th, 2022: Notification to applicants

August 23rd, 2022, 7:00 pm: Welcome to participants with a get-together dinner at the Hotel Novotel Pont-de-l'Arc

August 24th, 2022, 9:00 am: Start of the school's lectures

September 2nd, 2022: End of school

Location

Aix-en-Provence, FRANCE



For more information, please visit our web site:

www.fjohss.eu

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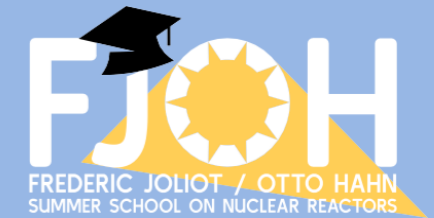
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- Pr. Gert Van den Eynde** (SCK-CEN, Belgium)
- Dr. Nicolas Waeckel** (EdF, France)

2022



“Physics, Fuels and Systems”

Nuclear Power in the Energy Transition

Jointly organized by the Commissariat à l'Énergie Atomique et aux Énergies Alternatives (France) and the Karlsruhe Institute of Technology (Germany)

August 24th > September 2nd, 2022



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Questions? Please contact: the FJOH Secretariat at fjoh@cea.fr



Nuclear Power in the Energy Transition



Lectures

33 h

1. Introduction

1.1 The energy transition drivers..... **S. Qvist** (Qvist Consulting)

2. Energy Scenario Planning Methods

2.1 Scenario planning and decision making methods in the energy industry, including the implications of climate-energy policies..... **H. Krijnen** (NavIncerta)

2.2 Advanced nuclear systems at a country scale: electronuclear scenario study, analysis and prospects..... **G. Martin** (CEA)

3. Power Plants and Grid Stability

3.1 How to keep a power grid stable?..... *To be defined*

3.2 From thermodynamics to electromagnetism to stable electricity production **V. Mazauric** (Schneider Electric)

3.3 Balancing renewable electricity production and flexibility..... **G. Vignal** (RTE)

4. Flexible Operation of Nuclear Reactors

4.1 NPP Flexibility as seen from utilities: the EDF experience..... **P. Paulin** (EDF)

4.2 Reactor load following: challenges for fuel and materials..... **J. Zhang** (Tractebel-Engie)

4.3 Advanced reactors for new applications **T. Abram** (Manchester Univ)

5. Nuclear Power to X: Hydrogen Production, Process Heat, Synthetic Fuels

5.1 Hydrogen production from nuclear..... **T. Jordan** (KIT)

5.2 Expanding the use of nuclear to heat production..... **H. Tuomisto** (Fortum)

5.3 Nuclear batteries: a new way in energy..... **J. Buongiorno** (MIT)

5.4 A zero-carbon nuclear synthetic-fuel system..... **E. Ingersoll** (Synergetic)

Seminar

3 h

The hard reality of carbon neutrality **J.-P. Calvet/M. Lavier**
(members of The Shifters association)

Group Activities

6 h

Technical visit of CEA facilities

The main objective of the FJOH-2022 edition is to help the school participants broaden their knowledge of the nuclear power assets in the Energy Transition.

The FJOH-2022 participants will learn about:

- The global factors driving the energy transition;
- The scenario planning method used by nuclear and non-nuclear companies, organisations or states to make strategic decisions;
- The conditions for keeping an interconnected power grid stable while balancing variable demand and supply;
- How current nuclear reactors achieve flexible operation, what the constraints and limitations are, and how future reactor systems could do better;
- The expanded use of nuclear power for providing decarbonized hydrogen, process heat, synthetic fuels, and other services.

As always with FJOH, the lectures will concentrate on the underlying scientific and technical aspects of the various systems discussed, backed with facts and figures, with nuclear as a focal point. By the end of the course, the participants should be able to explain how nuclear power can play a central role in various integrated low-carbon energy systems.

FJOH-2022 includes plenary lectures, group discussions, seminars, and technical visits. The invited speakers are internationally recognized experts from leading universities, research and development laboratories and industry.

The FJOH-2022 participants will have the opportunity, as part of group activities, to practice their freshly-acquired knowledge and to reflect upon open-ended questions in group activities. Time for these group activities is set aside in the School schedule.

The 27th session of the Frédéric Joliot/Otto Hahn (FJOH) Summer School on “Nuclear Reactors Physics, Fuels, and Systems”, will be dedicated to “Nuclear Power in the Energy Transition”. It will be held in Aix-en-Provence from **August 24th to September 2nd, 2022**.

FJOH summer school is an advanced post-graduate-level course aimed at junior as well as experienced scientists and engineers engaged in the broad field of nuclear sciences, engineering and technologies.

Lecturers are invited from internationally leading universities and industry. The School format encourages informal discussions and the exchange of knowledge between lecturers and participants.

The Frédéric Joliot / Otto Hahn Summer School course represents the continuation of the Frédéric Joliot Summer Schools on “Modern Reactor Physics and the Modelling of Complex Systems”, which was created by CEA in 1995 to promote knowledge in the field of reactor physics, in a broad sense, and the international exchange of teachers, scientists, engineers and researchers. Beginning in 2004, the scope of the School was extended to include scientific issues related to nuclear fuels. The venues of the FJOH School sessions alternate between Karlsruhe and Aix-en-Provence.

The program of each School session is defined by the International FJOH Scientific Board.

FJOH is jointly organized by the CEA Energy Division (France) and the Karlsruhe Institute of Technology (KIT, Germany).