Application

The application form should be filled out on-line at:

www.fjohss.eu

Should there be problems with the on-line application, fill out and return the attached application form by mail or e-mail to:

FJOH Summer School
DEN/CAD/SPRC, Bldg 230, CEA Cadarache,
13108 Saint-Paul-Lez-Durance, France

fjoh@cea.fr

Deadline for application: May 8, 2012

Registration fees: EURO 1800

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

Fees cover lectures, class notes, meals and accommodations from August 21 evening to 31, 2:00 p.m.

The fees do not cover travel expenses.

A very limited number of fellowships will be available for qualified candidates.

The fellowship recipients' registration fees will be EURO 900.

The FJOH School considers that the 2012 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.

Information

School dates

The school will start on August 21, 2012, 7:00 pm with a get-together-dinner at the Hotel NOVOTEL Pont-de-l'Arc and will end on August 31, 2:00 pm.

Partial participations are not accepted.

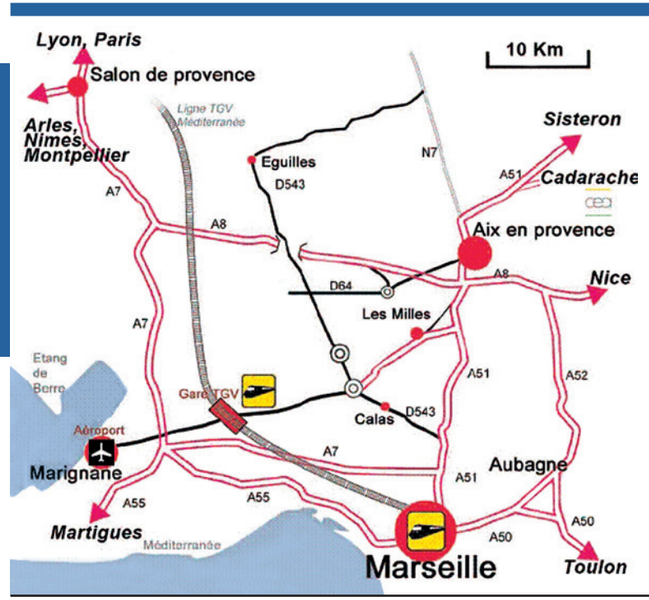
Information

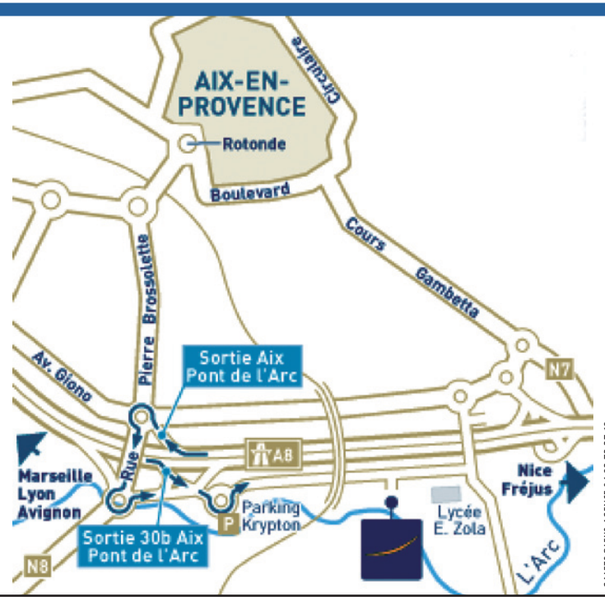
Venue

The School will be held at the Hotel NOVOTEL Pont-de-l'Arc, located in Aix-en-Provence, France, 30 km from the Marseille-Provence airport and 40 km from the CEA Cadarache Research Centre.

Bus transportation (free of charge) will be provided from Marseille airport, and from Aix-en-Provence TGV railway-station, on August 21 pm.

Return transportation will be provided on August 31 at 2 pm.





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For questions, please contact to mail: fjoh@cea.fr

Aix-en-Provence France
August 22 > 31

Deadline for application
May 8, 2012

For more information and for registration
www.fjohss.eu

Frédéric JOLIOT & Otto HAHN

SUMMER SCHOOL ON NUCLEAR REACTORS

"Physics, fuels and systems"

2012

Jointly organized by the *Commissariat à l'Energie Atomique* (France) and the Karlsruhe Institute of Technology (Germany)

Innovative Modular Nuclear Reactors:

Concept, Physics, and State-of-the-art Analysis Methods

Aix-en-Provence France August 22 > 31

Programme outline

Lecturers

Innovative Modular Nuclear Reactors
Concepts, Physics, and State-of-the-art Analysis Methods

1.	**Motivation for Innovative Modular Reactors and Technical Challenges**	**4 h**
1.1.	Status of Technology Development, Prospects and Challenges (2 h)	M. H. Subki (IAEA)
1.2.	Economics of Modular Reactors (2 h)	M. Ricotti (Polimi)
2.	**Modular Water-cooled Systems for Electricity Generation, Process Heat, Sea-water Desalination, Marine Propulsion, and Other Applications**	**10 h**
2.1.	Light-water-reactor concepts (2 h)	G.-M. Gautier (CEA)
2.2.	Marine Derivative Light Water Reactor Concepts: Barge-mounted and Seabed-based Plants (3 h)	V. Kuznetsov (Consultant)
2.3.	Core Neutronics and Thermo-hydraulics: Physics and Methods (2 h)	K. Hesketh (NNL)
2.4.	Fuel Forms and Performance (3 h)	K. Pasamehmetoglu (INL)
3.	**Gas-cooled Reactors for Power Production, Heat Generation, and High-temperature Applications**	**9 h**
3.1.	HTR Development and Status towards Cogeneration of Electricity and Heat (3 h)	E. Bogusch (AREVA)
3.2.	Gas-cooled Fast Concepts: Motivation and Challenges (2 h)	G. Rimpault (CEA)
3.3.	Graphite Core Physics and Calculation Methods (2 h)	M. Schikorr (KIT)
3.4.	Fuel Fabrication, Degradation and Performance Assessment (2 h)	M. Pouchon (PSI)
4.	**Small, Flexible, Quasi-autonomous, Liquid-metal-cooled Power Sources**	**9 h**
4.1.	Lead and Lead-bismuth Concepts (3 h)	Il Soon Hwang (Seoul Nat. Univ.)
4.2.	Sodium-cooled Concepts (2 h)	(tbd)
4.3.	Core Physics and Methods (2 h)	(tbd)
4.4.	Advanced Materials for Fuel Cladding in Sodium-cooled Fast Reactors (2 h)	M. Le Flem (CEA)
5.	**Modular, Multi-mission, Liquid-fuel Reactors**	**4 h**
5.1.	Physics and Various Concepts of Liquid-fuel reactors (2 h)	H. Sekimoto (TIT/UCB)
5.2.	Physics and State-of-the-art Analysis Methods (2 h)	W. Maschek (KIT)
	Seminar	**2 h**
	SMR Technical Merits and Challenges – A US Vision and Some Lessons Learned	P. Finck (INL)

Technical visits of CEA Cadarache R&D facilities

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Description

2012

This 18th session of the Frédéric Joliot/Otto Hahn (FJOH) Summer School on "Nuclear Reactors Physics, Fuels, and Systems" will be held in Aix-en-Provence, France, from **August 22 to August 31**, 2012. This session is dedicated to innovative modular nuclear reactors. The course programme addresses reactor concepts, their motivation, as well as their perceived advantages and limitations. The various lectures will describe the specific features of these reactors, the main underlying physical phenomena, state-of-the-art core and fuel modelling, as well as relevant analysis methods.

The FJOH-2012 participants will learn about the relative merits of innovative modular reactors based on different coolant technologies, not only for electricity generation, but also for sea-water desalination, marine propulsion, district heating, high-temperature and other applications. Different lecturers on the same topic are expected to provide complementary perspectives.

This 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. The venues of the FJOH School sessions alternate between Karlsruhe and Aix-en-Provence.

Beginning in 2004, the scope of the School was extended to include scientific issues related to nuclear fuels.

The School's aim is to address the challenges of reactor design and optimal fuel cycles, and to broaden the understanding of theory and experiments.

Lecturers are invited from internationally leading universities, research and development laboratories, and industry. The lectures are at a post-doctoral level. They are intended for junior as well as experienced scientists and engineers engaged in the broad field of nuclear sciences, engineering and technologies.

The programme of each School session is defined by the International FJOH Scientific Board (see below).

The Karlsruhe Institute of Technology and the Nuclear Energy Division of CEA jointly organize the FJOH Summer School.

The School is sponsored by the CEA Nuclear Energy Division (DEN), the Karlsruhe Institute of Technology (KIT) and the French Institute for Education and Training in Nuclear Science and Technology (INSTN).

FJOH Scientific Board members

Prof. Jan Blomgren Vattenfall, AB
Dr. Ron Cameron, OECD
Prof. Francisco Fernandez, CSN
Prof. Michel Giot, UCL
Prof. Waclaw Gudowski, RIT
Prof. Jan Leen Kloostermann, Univ. Delft
Dr. Rudy Konings, JRC/ITU & Univ. Delft
Dr. Alex Mueller, CNRS
Dr. Stefan Niessen, AREVA
Dr. Daniel Parrat, CEA
Prof. Horst-Michael Prasser, ETHZ
Prof. Piero Ravetto, Polito
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Prof. Vladimir Slugen, Slovak Univ. of Tech. & ENS
Dr. Walter Tromm, KIT
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