

4th International School on Numerical Modelling for Applied Superconductivity

June 17th-21st 2024, Barcelona, Spain



SCHOOL PROGRAMME OUTLINE

Monday 17 June 2024
Introduction to applications
Introduction to numerical methods
Introduction to numerical methods – computer practice
Tuesday 18 June 2024
Electromagnetics (Electrical machines)
Electromagnetics (Electrical machines) – computer practice
Student poster session
Electromagnetics (Fusion) – computer practice
Wednesday 19 June 2024
Design of superconducting electrical machines
Design of superconducting electrical machines – computer practice
Enjoy Barcelona !!!
Thursday 20 June 2024
Dynamic modelling and AC loss calculation in rotating machines (Electrical machines)
Computer practice on AC loss calculation in rotating machines (Electrical machines)
Thermo-hydraulics and quench in Cable in Conduit Conductors (Fusion magnets)
Computer practice on quench in Cable in Conduit Conductors (Fusion magnets)
Friday 21 June 2024
Mechanics (Fundamentals) General introduction for both fusion and electrical machines
Mechanics (Fusion magnets mechanics) - computer practice

School Information

Venue

The school will be held at the Fusion For Energy (F4E) Headquarters in Barcelona.

Principal Lecturers

- Mark Ainslie (King's College London, United Kingdom)
- Bernardo Bordini (CERN, Switzerland)
- Luca Bottura (CERN, Switzerland)
- Christophe Geuzaine (University of Liège, Belgium)
- Yingzhen Liu (University of Harbin, China)
- José Lorenzo (Fusion for Energy, Barcelona, Spain)
- Alfredo Portone (Fusion for Energy, Barcelona, Spain)
- Luigi Reccia (Fusion for Energy, Barcelona, Spain)
- Thomas Reis (Oswald Elektromotoren, Germany)
- Pietro Testoni (Fusion for Energy, Barcelona, Spain)
- Frederic Trillaud (Universidad Nacional Autonoma de Mexico, Mexico)
- Fabio Villone (Università di Napoli 'Federico II', Italy)

Course Contents

We are inviting a combination of outstanding and renowned international experts in the field of applied superconductivity. These researchers will deliver lectures on important aspects of applied superconductivity which will be centred around and illustrated by few examples of application of interest for the community. *The course lectures will be followed by hands-on practice and computer-based exercises. The aim of these exercises will be to equip students with the main concepts and methodologies for developing a numerical model of superconducting devices. By the end of the school, the students will have acquired knowledge of numerical modelling techniques for different physical aspects of superconducting applications.*

Posters Competition and Award

Students are asked to prepare a poster (A0 vertical maximum size) on their current research. During the poster competition, students will have exactly 2 minutes to present it to the jury. The poster competition will take place on Tuesday 18th afternoon. All students are invited to let their poster visible for the whole week to share their research with other participants and teachers. Awards will be presented to the best posters. Everyone is very much encouraged to participate!

Certificate of Attendance

At the end of the course (Friday afternoon), Students who attended all sessions during the week will receive a certificate of attendance.

Final Exam

On Friday afternoon, Students will be asked to sit a multiple-choice test.

For more information contact us at the school mailbox isonumas4@f4e.europa.eu

Application Information

Eligibility

The targeted basin of participants is PhD students, Master students may be accepted too, and more senior researchers from both academic and industrial institutions are also allowed to attend. The organizers will have the right of selecting the most suited applicants. Participant number is limited to 40 students.

Application Requirements and Submission

Applicants shall send (1) a motivation letter, (2) a recommendation letter from the home academic institution to the school mailbox isonumas4@f4e.europa.eu by specifying in the subject first name and last name.

Registration fee and Payment

Registration fee is 300 Euro per student. The fee includes coffee breaks, lunches, social dinner, and social activities on Wednesday afternoon. Accommodation and travel costs are borne by the participants. Payment of the registration fee shall be executed only after student admission has been communicated by the School's Director. Payment of the registration fee shall be made by bank transfer to the School's bank account that will be communicated upon student admission. If you have financial concerns that impact your ability to attend the school, please contact us at isonumas4@f4e.europa.eu detailing your situation. Financial support can be considered on a case-by-case basis.

Requirement for participants

On practical side virtual computers with required software preinstalled, will be provided. Students must come with their own laptop needed to connect to provided virtual computers with a Microsoft Remote Desktop Connection (RDC). No software installation is needed on the laptops except RDC which is normally installed on Windows and available on Mac. Students who do not have a laptop should mention it in the application form, so that arrangements can be made to provide laptops for the duration of the school.

Important dates

- March 18th: students' application mailbox open.
- May 3rd: students' application mailbox close.
- May 10th: students will be informed about their application decision.
- May 31st: deadline for receiving the application fee.
- June 17th-21st: summer School in Barcelona.

For more information contact us at the school mailbox isonumas4@f4e.europa.eu or visit our website <https://www.fusionforenergy.europa.eu/ISONUMAS4/>