EUROSCHOOL
ON EXOTIC BEAMS

Registration as from March 1 till May 15, 2024, through the Euroschool website

www.euroschoolonexoticbeams.be

FIRST CIRCULAR

Euroschool on Exotic Beams 25-31 August 2024, Jyväskylä, Finland



PRESENTATION

The production and use of energetic radioactive beams is a rapidly developing field in nuclear physics. Pioneering experiments are taking place; dedicated new facilities are being built and commissioned; theoretical predictions are refined. The aim of the EUROSCHOOL ON EXOTIC BEAMS is to introduce PhD students and young post-doctoral researchers to this field and to present recent experimental and theoretical advances.

The Euroschool is an annual event initially funded by the EU and now supported by several funding agencies and large research facilities in Europe. The school started off based at Leuven, Belgium in 1993. Since 2000 it became an itinerant event and it is organized in different European cities (Jyväskylä - 2001, Les Houches – 2002, Valencia - 2003, Surrey - 2004, Mainz - 2005, Trento - 2006, Houlgate – 2007, Piaski – 2008, Leuven – 2009, Santiago de Compostela – 2010, Jyväskylä – 2011, Athens – 2012, Dubna – 2013, Padova – 2014, Dubrovnik – 2015, Mainz – 2016, Cabourg - 2017, Leuven – 2018, Aarhus – 2019, La Rabida - 2022, Sinaia – 2023). This year the school will be held in Jyväskylä, Finland, 25-31 August 2024.

Each edition of the Euroschool consists of lecture courses given by specialists in the field, starting from a basic level, but also including more advanced topics. Students are invited to contribute to the school by presenting a poster about their own research work and by being actively involved in the school's practical sessions.

SCHOOL BACKGROUND

More than 3000 atomic nuclei have been synthesized in laboratories but these represent only a fraction of all possible nuclear species that are expected to exist. The shortest-lived nuclei far from stability are called exotic because they cannot be found naturally occurring on Earth, and they are also difficult to be produced experimentally. Even though they occur at the femtometer scale, exotic nuclei do not only provide answers to fundamental scientific questions on the origin of the elements, but they are also relevant for macroscopic applications in many areas: low-carbon energy generation; medical diagnosis and treatment; analysis for environmental, engineering, biomedical, geological and cultural studies; etc. The structure of nuclei far from stability can be investigated by using radioactive ion beams (RIBs). The first generation of RIB facilities has already opened new possibilities to probe exotic nuclei. Future advances and access to new regions of the nuclear chart necessitate the advent of new RIB research infrastructure. Key questions addressed by experimental programs also require developing advanced theoretical methods, often coupled to innovative and high-performance computer simulation techniques that also find applications in other areas of science.

The 31st edition of the school will cover general topics on the physics of exotic nuclei, experimental and theoretical studies for nuclear structure and astrophysics as well as interdisciplinary applications. The students will get a chance to visit JYFL Accelerator Laboratory and participate in hands-on exercises. Participants are strongly encouraged to present their own research activity in a poster.

LECTURES

- Helena May Albers – Decay spectroscopy of exotic nuclei
- Erik Brücken – Detector technologies and applications
- Andreas Ekström – Ab-initio in nuclear theory
- Ann-Cecilie Larsen – Gamma-strength functions and level densities for nuclear structure and astrophysics
- Iain Moore – Laser spectroscopy for nuclear ground-state properties

Special topics:

- Kari Peräjärvi – Radioisotope research and measurements for Safety, Security and Safeguards
- Tomasz Malkiewicz – High-performance computing with the LUMI supercomputer

A detailed program will follow in due course.

VENUE

The **2024** edition of the EUROSCHOOL ON EXOTIC BEAMS will take place at the Department of Physics, University of Jyväskylä, Jyväskylä, Finland. The Department is located next to the beautiful lake Jyväsjärvi in the Ylistönrinne campus area of the University of Jyväskylä. The JYFL Accelerator Laboratory is located

on the ground floor of the Department of Physics and the students will get a chance to visit the laboratory. The accommodation is arranged at Hotel Alba (https://www.hotellialba.fi/en/) close to the Department of Physics. The walking distance to the Jyväskylä city centre is around 2 km.

Jyväskylä is located around 270 km north from Helsinki in a beautiful lake district, see https://visitjyvaskyla.fi/en/ for more touristic information. The University of Jyväskylä was established in 1863 and has around 2,800 staff members and over 14,300 students. Compared to the population of around 150,000 in Jyväskylä, the students and student-life are an essential part of the city, making Jyväskylä an ideal place to organize the Euroschool on Exotic Beams 2024.

REGISTRATION

As from March 1, 2024. The deadline for applications is May 15, 2024

A link to the online application form will be available from March 1st at the Euroschool website www.euroschoolonexoticbeams.be

In order to fulfill the goals of the School, the total number of participants has been limited to 60. Participants will be selected from the pool of applications by the Board of Directors (BoD). Our target participants are mainly PhD students and young post-doctoral researchers.

Selected participants will receive a confirmation by the beginning of June. With the personal token, the participants will have to fill the personal data and confirm the participation online.

Some students might need to obtain a visa to enter the country and therefore it is important to start with this procedure as soon as the confirmation of acceptance is received. Invitation letters can be obtained from the Euroschool secretary (euroschool@kuleuven.be).

A limited number of travel grants will be available after motivated request. Please fill in the application form that is available on the website at the registration.

REGISTRATION FEE

Registrations will only be confirmed after payment of the registration fee, which amounts to **300 Euro** per student. This **fee includes** lodging in double rooms at hotel Alba with breakfast, lunches at the University, coffee breaks, refreshment at the poster session, the welcome reception, and the excursion including the social dinner. Local students from the University of Jyväskylä will pay a reduced fee of **150 Euro**, which does not include accommodation.

All participants are expected to arrive in Jyväskylä on Sunday, 25th August 2024. The programme will finish on Friday evening 31st August 2024. The participants are expected to arrange their own travels. Information on how to travel to Jyväskylä can be found on the school website at https://indico.fys.kuleuven.be/event/84.

BOARD OF DIRECTORS OF THE EUROSCHOOL:

- Dolores Cortina-Gil, Universidad de Santiago de Compostela, Spain
- Hans O.U. Fynbo, Aarhus University, Denmark
- Anu Kankainen, University of Jyväskylä, Finland
- Silvia M. Lenzi, University of Padova and INFN, Italy
- Gabriel Martinez–Pinedo – GSI and TU Darmstadt, Germany
- Caterina Michelagnoli, ILL, France
- Zsolt Podolyak, University of Surrey, United Kingdom
- Riccardo Raabe, KU Leuven, Belgium (chair)
- Calin A. Ur, ELI–NP/IFIN-HH, Bucharest, Romania
- Annemie Debruyne, KU Leuven, Belgium (secretary)

The email address of the School is euroschool@kuleuven.be

We look forward to meeting you in Jyväskylä!