

## LA RÁBIDA, Huelva, Spain, September 11-17, 2022

Registration as from April 1 till May 15, 2022, through the Euroscool website  
[www.euroschoolonexoticbeams.be](http://www.euroschoolonexoticbeams.be)

### FIRST CIRCULAR

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. The aim of the EUROSCHOOL ON EXOTIC BEAMS is to introduce PhD students and young post-doctoral researchers to this field and, also to present recent experimental and theoretical advances. Each school consists of several lecture courses given by specialists in the field, starting from a basic level, but also including more advanced seminars. Students are invited to contribute to school by presenting a poster together with short oral presentations on their work .

The Euroscool 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 has travelled around and was organized in various 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). 2018 was the year to celebrate the 25<sup>th</sup> anniversary of the Euroscool. That's where we went back to where it all started 25 years ago, in Leuven, Belgium. In 2019 our hosting country was Denmark. In 2020, we chose Romania, but we had to cancel the Euroscool due to the COVID-19 pandemic. For 2021, since we know that the participation to schools is very important for PhD students and young researchers, we decided to organize an online Euroscool for the first time. This year, Spain will be our host country.

For the first time the Euroscool will be organized together with the International Scientific Meeting on Nuclear Physics-La Rábida. La Rábida Nuclear Physics summer school ([institucional.us.es/rabida](http://institucional.us.es/rabida)) has a long tradition with triennial editions from 1982 to 2003, organized by the University of Sevilla Nuclear Physics group and editions in 2009, 2012, 2015, and 2018 organized by members of the Nuclear Physics groups of the universities of Sevilla and Huelva under the common name of "International Scientific Meeting on Nuclear Physics". The venue in the majority of the editions has been the campus of the International University of Andalusia (UNIA) at La Rábida.

### SCHOOL BACKGROUND

More than 3000 different atomic nuclei have been synthesized in laboratories, but these represent only a fraction of all possible nuclear species that are expected to exist in nature. The shortest-lived nuclei far from stability are labeled exotic because they cannot be found naturally occurring on Earth, and they are also difficult to produce experimentally. Even though they occur at the femtometer scale, exotic nuclei 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 development of 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 school covers general topics on the physics of exotic nuclei, experimental and theoretical studies of nuclear structure and reaction dynamics and nuclear astrophysics. It will also include practical sessions. Students will also contribute with oral sessions and poster presentations.

### LECTURERS AND TOPICS

- Dr. Caterina Michelagnoli. "Advanced gamma-ray high resolution spectroscopy".
- Dr. Karl Johston. "Application of radioactive beams".
- Dr. Thomas Neff. "Exotic clusters in nuclei".
- Dr. Arnau Ríos. "Neutron stars".
- Dr. Denis Lacroix. "Quantum computing in Nuclear Physics".
- Dr. Eleonora Viezzer. "Nuclear fusion, ITER".

**A more detailed program with timing will follow in due course.**



### VENUE

The **2022** edition of the EUROSCHOOL ON EXOTIC BEAMS will take place in the province of Huelva, which is part of Andalucía, in the campus of the International University of Andalucía (UNIA) at La Rábida, <https://www.unia.es/es/sedes/la-rabida>. This campus is fully equipped for this kind of events, providing also a very pleasant and relaxed atmosphere that favours a close contact among the participants. It includes a library, access to computer services, and lecture rooms, as well as gardens and entertainment places. Board and lodging are comprised in the fee. La Rábida (province of Huelva, Spain) is within walking distance from the "Monasterio de Santa María de La Rábida", the Franciscan monastery where Columbus took refuge in 1490. It is also close (about half an hour) to the beach and to the Doñana National Park. It is situated about 12 km from Huelva center. From there you can easily reach the venue by bus. The closest international airport is Sevilla-San Pablo.

The Friary of La Rábida is a Franciscan friary in the southern Spanish town of Palos de la Frontera. The friary is located 13 km (8 mi) south of the city of Huelva, where the Tinto and Odiel rivers meet.

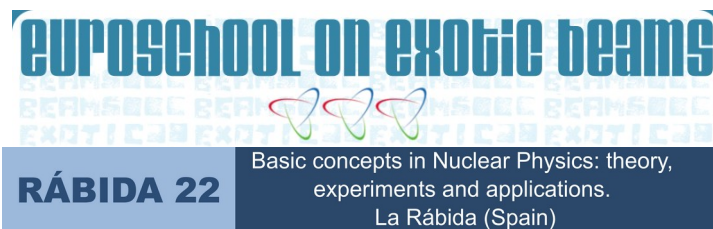
The Friary of La Rábida has been Franciscan property since the thirteenth century. It was founded in 1261; the evidence is a papal bull issued by Pope Benedict XIII in that year, allowing Friar Juan Rodríguez and his companions to establish a community on the coast of Andalucía. The first Christian building on the site was constructed over a pre-existing Almohad ribat that lends its name (rábida or rápita, meaning "watchtower" in Arabic) to the present monastery. The Franciscans have held great influence in the region ever since.

The buildings standing on the site today were erected in stages in the late fourteenth century and the early fifteenth century. The friary, and the church associated with it, display elements of Gothic and Moorish revival architecture; their walls are decorated with frescos by the twentieth-century Spanish artist, Daniel Vázquez Díaz (1882-1969). There is also a cloister and a museum, where numerous relics of the discovery of the Americas are displayed.

Christopher Columbus stayed at the friary two years before his famous first voyage, after learning that King Ferdinand and Queen Isabella had rejected his request for outfitting an expedition in search of the Indies. With the intervention of the guardian of La Rábida and the confessor to Isabella, Francisco Jiménez de Cisneros, he was able to have his proposal heard.

The friary was declared a Spanish National Monument in 1856.





## **REGISTRATION**

**As from April 1, 2022. The deadline for applications is May 15.**

A link to the online application form will be available from April 1 onwards at the Euroschool website [www.euroschoolonexoticbeams.be](http://www.euroschoolonexoticbeams.be)

and at website of La Rábida Summer School [institucional.us.es/rabida](http://institucional.us.es/rabida). In order to fulfill the goals of the School, the total number of participants has been limited to 60 and due to present COVID19 situation the meeting will be held in a hybrid modality, both on site and online. 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.

If you are selected, you will receive a confirmation about your acceptance to the School. With your personal token, you can always access your personal data. You will have to complete it and confirm your participation online.

For some of you it might be necessary to obtain a visa to enter the country. Please start with this procedure as soon as you have received the confirmation of your acceptance. Invitation letters can be obtained from the Euroschool secretary at [Euroschool@kuleuven.be](mailto:Euroschool@kuleuven.be).

## **REGISTRATION FEE**

Your registration will only become final after payment of the registration fee, which amounts to **250 Euro** per student. Payment instructions can be found on the Euroschool website and will also be mentioned in your acceptance email. This **fee includes** lodging in single rooms (bed linen and towels included) with breakfast, lunch and dinner during the whole school, coffee breaks, refreshments at the poster sessions, the welcome reception, and the excursion on Wednesday afternoon. All other expenses will have to be borne by yourself.

We will start the school with the welcome reception on Sunday evening, September 11, where you will receive your room key, conference bag with badge etc. Closing off the week will be on Saturday, September 17, after breakfast.

A limited number of travel grants are available after motivated request. Participants from developing countries have priority. To apply, please fill in the application form that is available on the website when you register.



**SCIENTIFIC COMMITTEE OF THE EUROSCHOOL (BOD):**

- Dolores Cortina-Gil, Universidad de Santiago de Compostela, Spain
- Sotirios Charisopoulos, IAEA, Vienna, Austria
- Hans O.U. Fynbo, Aarhus University, Denmark
- Anu Kankainen, University of Jyväskylä, Finland
- Elias Khan, IN2P3, Université Paris-Saclay, France
- Silvia M. Lenzi, University of Padova and INFN, Italy (chair)
- Gabriel Martinez Pinedo, GSI and TU Darmstadt
- Riccardo Raabe, KU Leuven, Belgium
- Calin Ur, ELI-NP, Romania
- Fabienne Vanalphen, KU Leuven, Belgium (secretary)

The email address of the School: [euroschool@kuleuven.be](mailto:euroschool@kuleuven.be)

**ORGANIZING COMMITTEE OF THE EUROSCHOOL/LA RÁBIDA SUMMER SCHOOL:**

- J.E. García-Ramos (co-chair) and F. Pérez-Bernal. Huelva University
- J.M. Arias, M.V. Andrés, J.A. Lay, A.M. Moro. Seville University
- D. Cortina (co-chair). Santiago de Compostela University (for the Euroschool Board of directors).
- Fabienne Vanalphen, KU Leuven, Belgium (secretary)

We look forward to meeting you in Spain!