

Particle & Astroparticle Physics Programme

2nd edition, September 20th-25th, 2016

Introduction

In September 2016, the *Associazione Italiana Studenti di Fisica* (AISF, Italian Association of Physics Students) will hold the 2nd edition of the *Particle & Astroparticle Physics Programme*, in partnership with the International Association of Physics Students. This event will take place between the 20th and the 25th of September and will consist of scientific visits, lectures and presentations at the Gran Sasso National Laboratory, the Gran Sasso Science Institute and the ENEA Frascati research centre, in Italy.



The **Gran Sasso National Laboratory (LNGS)** is a world-class facility for particle and astroparticle physics. It is located beneath more than a thousand meters of rock, inside the Gran Sasso mountain, which screens it from cosmic rays and other influencing factors. The LNGS host experimental and theoretical researchers whose studies explore the deepest questions of cosmic history. Many universities and institutes across the globe participate in the experiments that take place here.

The **Gran Sasso Science Institute (GSSI)** is an international PhD school and a centre for advanced studies in physics, mathematics, computer science and social sciences. The Institute has only been recently formed with the purpose of integrating education and research in a lively interdisciplinary environment. Its vicinity with the LNGS offers a unique opportunity to work and collaborate with the international community working on astroparticle physics in the underground laboratory.

The **Italian National agency for new technologies, Energy and sustainable economic development (ENEA)** research organisation is one of the largest in Italy. It is a member of the EUROfusion Consortium, which aims at coordinating research on nuclear fusion energy for European countries. ENEA has one of its major centres in Frascati, near Rome, where it hosts facilities focusing on superconductivity, inertial confinement fusion (with the ABC laser) and magnetic confinement fusion (with the Frascati Tokamak Upgrade).

Programme

Participants will be expected to independently arrive in Rome on September 20th and meet the organisers between 15:00 and 18:00 at the hostel, whose name/position will be confirmed soon. We expect to have dinner in the area surrounding our accommodation, taking the opportunity to walk around some of the tourist attractions of Rome.

In the morning of the 21th, we will visit the ENEA Frascati research centre. We plan on travelling by public transport (with our luggage) to Frascati, which is located just outside of Rome. There, we expect to visit facilities specialised in nuclear fusion, superconductivity and laser physics. Participants will be able to speak to scientists and ask about any aspect of their work. In the late afternoon, we will take a private bus to move to L'Aquila (expected journey duration: 2.5 hours). Our accommodation for the following nights, kindly offered by the LNGS and the GSSI, will be the Federico II Hotel (<http://www.hotelfedericosecondo.it/en/index.html>).

On September 22nd, we will have breakfast at the hotel and then take a private bus to enter the Gran Sasso Tunnel and the Gran Sasso National Laboratory. During the day, we will visit the centre and hear about the research done by several groups at LNGS. We will also go underground to visit the laboratory and talk to physicists and engineers working there. We will have lunch at the LNGS together with local scientists. At the end of the activities, we will return to the Federico II Hotel and explore the city of L'Aquila. Participants will be able to independently buy their dinner in the city centre.

On September 23rd, after breakfast at the hotel, we will move to the Gran Sasso Science Institute for some more talks on work related to theoretical work in connection to the LNGS experiments. This will complete our overview of the laboratory's activities and its opportunities for students. In the afternoon, a number of (previously selected) participants will present their research projects in the form of talks and posters, not necessarily in the field of particle and astroparticle physics. LNGS and GSSI scientists will join us for this afternoon and will participate in open discussions which might arise. At the end of talks and poster presentations, we will move back to the hotel, have dinner and spend a last night in L'Aquila.

In the morning of the 24th, the group will split into two: one will travel to *Campo Imperatore*, a resort on the Gran Sasso mountain, the other will spend a free day in L'Aquila. The group going to Campo Imperatore will be guided on an easy trek to the Duca degli Abruzzi Hut, where students will be able to choose whether to continue the walk or relax at the hut. Those wishing to go further will be guided also to the Garibaldi Hut. Everyone will meet back in L'Aquila in the evening.

On September 25th, we will take a bus from the hotel to Rome. We will first travel to the Leonardo da Vinci Airport (*Roma Fiumicino*) and leave those participants wishing to start their journey back. The rest of the group will continue with the same bus to the Termini Train Station (one of the main links in the city) in the middle of the morning, so that students may leave by train at any point in the afternoon/evening, depending on their most convenient journey times. For those wishing to stay a little longer, the AISF will offer a free tour of Rome guided by volunteers. Participants can expect to have a quick look at the Coliseum, the Imperial Roman Forum, the Vatican City and the Pantheon. The tour of the city is expected to end at approximately 17:00.

Student Talks

On **September 23rd**, a set of student talks will take place. **All students are eligible to apply to give a talk**, providing their Curricula Vitae and an abstract of their proposed presentation. These documents will be taken into consideration by the Selecting Committee, to be composed of LNGS and GSSI scientists. Students of all levels and specializations are eligible to apply.

A number of **5 students will be accepted to give talks**. Such talks will provide a unique opportunity for participants to present their research and share their work not only with their peers, but also with the LNGS researchers. A description of the project to be discussed will need to be presented in the form of an abstract, following the guidelines that will be published on the AISF website. Please notice that students will be able to register for a place even though they do not wish to give a talk; however, preference for places will be given to anyone wishing to present his/her own work.

Talks should last approximately 15 minutes and are expected to be followed by 5 minutes of questions from the public. Such structure is similar to the one used for the International Conference of Physics Students (ICPS) and the Italian Conference of Physics Students (CISF). Prizes will be awarded for the two best student talks. All students wishing to give a talk will need to pay the standard registration fee.

Student Posters

Students will also be able to submit an abstract for a poster, including their Curriculum Vitae in their application. As for the talks, all students submitting an abstract will be given preferential access to the 40 places available for this Spring Programme. Prizes will be awarded for the two best student posters. Students will be able to apply to both give a talk and present a poster. Selection for either of these options does not preclude selection for the other. One single abstract may be submitted for both a talk and a poster, explicitly specifying the purpose of application.

Registration

A first round of registration for the event will be open on the AISF website (www.ai-sf.it) between **June 1st (13:00, CET) and June 10th (13:00, CET)**. *All participants will need to fill in the registration form; they will then be invited by email to send their abstracts and CVs to the Organising Committee. **Preference will be given to students presenting abstracts (for either a talk or a poster)**, even though only 5 applicants will eventually be able to give a talk (whilst the number of posters may be larger). Please notice that applicants do not need to be specialising in the field of nuclear physics, but can be from any discipline of Physics.*

Observer places, i.e. those for students who choose not to present scientific contributions, will be awarded based on short motivations to be submitted during the registration process. We suggest that all applicants take such texts (of approximately 100 words) seriously, as they will be the main ground for selection, other than scientific contributions. The registration form will also ask for basic personal details and preferences regarding food, travel etc.

Participation fees are fixed at €100 for each applicant. Such fee will cover the cost of accommodation in both L'Aquila and Rome, breakfast at the Federico II Hotel, 2 lunches at the LNGS, IAPS clothing, a day-trip to the Campo Imperatore resort, travel from Rome to L'Aquila (and viceversa), as well as travel from the Federico II Hotel to the Gran Sasso (and viceversa) during the days of our visits. Please notice that participation fees do not cover the following:

- Journeys to/from Rome at arrival and departure. These will need to be arranged independently.
- Insurance.
- Public transport from Frascati to the centre of Rome and in Rome.
- Meals other than those officially offered in the Programme. In particular, participants will need to pay for all their dinners, their breakfast in Rome, lunch at the ENEA Frascati centre and any extra expenses that they might wish to make. The Organising Committee will always suggest places to eat, according to students' needs.

IAPS and the Organising Committee will not take responsibility over the actions of participants and, by taking part, all students agree to the conditions specified by the Organising Committee during the registration process.

VISA applications to travel to Italy will be supported by the organisers. AISF will be able to send official invitations to embassies throughout the world to help participants receiving the required documents. If you require such type of support, please email the organisers 10 days after receiving confirmation of your participation at the latest.



We are able to offer the Particle & Astroparticle Physics Programme for this price only thanks for the wonderful support of the Gran Sasso National Laboratory, the Gran Sasso Science Institute, the ENEA Agency and the European Physical Society. Their interest in this project has been extremely important since the beginning and is a key feature of this event.

Contacts

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