Particle & Astroparticle Physics Autumn Programme

2nd edition, October 4th-8th, 2016

Introduction

In October 2016, the *Associazione Italiana Studenti di Fisica* (AISF, Italian Association of Physics Students) will hold the 2nd edition of the *Particle & Astroparticle Physics Autumn Programme,* in partnership with the International Association of Physics Students. This event will take place between the 4th and the 8th of October and will consist of scientific visits, lectures and presentations at the Frascati National Laboratory, the Gran Sasso National Laboratory and the Gran Sasso Science Institute.

The ***Frascati National Laboratory*** **(LNF)** is the central facility in Italy for research on particle physics. Its main specialisation is on constructing particle accelerators, starting already in the 1950s with world-leading electron synchrotrons and electron-positron colliders. The National Institute of Nuclear Physics (INFN) of which it is a component has historically been one of the key players in the development of CERN. Today, the LNF also focuses on applications of particle and accelerator physics.

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.

Programme

Participants will be expected to independently arrive in Rome on October 4th and meet the organisers between 15:00 and 18:00 at the hostel, whose name/position will be confirmed closer to the event dates. We expect to have dinner in the area surrounding our accommodation.

In the morning of the 5th, we will visit the INFN Frascati National Laboratory, where we expect to meet researchers working on the main themes of this Programme. In particular, we shall discuss aspects of neutrino, double-beta decay and dark matter experiments that will later be seen by students at the LNGS. In the afternoon, we will take a private coach to move to L'Aquila (expected journey duration: 2.5 hours). Our accommodation for the following nights will be the Federico II Hotel (http://www.hotelfedericosecondo.it/en/index.html).

On October 6th, we will have breakfast at the hotel and then take a private bus to enter the Gran Sasso National Laboratory. During the day, we will visit the research 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 October 7th, after breakfast at the hotel, we will move to the Gran Sasso Science Institute for some more talks related to theoretical work in connection to 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.

On October 8th, 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 **October 7th**, a set of student talks and a poster session will take place. **All students are eligible to apply to present their work**, providing their Curricula Vitae and an abstract of their proposed presentation. These documents will be taken into consideration by the Selection Committee, to be composed of LNGS and GSSI scientists. Students of all levels and specializations are eligible to apply. In the 1st edition of this event, mostly Master-level students applied to present their work.

A number of **5 students will be accepted to give talks and 5 more will be chosen for posters**. Either mode of presentation will provide a unique opportunity for participants to present their research and share their work not only with their peers, but also with LNGS and GSSI 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 event website. **Templates for abstracts and curriculum vitae will be made available on the event website.** Note that it is not required that participants use this, but any applicant will need to adhere to international standards for scientific and professional writing (not necessarily in LaTeX or MS/Open Office).

Please note that students will be able to register for a place even though they do not wish to give a talk; however, **all students submitting an abstract will be given preferential access to the 40 places available for this Programme.** One single abstract may be submitted for both a talk and a poster, explicitly specifying the purpose of application.

Talks should last approximately 15 minutes and are expected to be followed by 5 minutes of questions from the public. **The poster session is expected to last 90 minutes.** 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 and the two best student posters. All students wishing to give a talk will need to pay the standard registration fee.

Registration

A first round of registration for the event will be open on the AISF website (www.ai-sf.it/papap) between **July 1st (13:00, CET) and July 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 present a poster and 5 more will be able to give a talk. *Please notice that applicants do not need to be specialising in the field of particle 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 motivation text 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 €120 for each applicant. Such fee will cover the cost of accommodation in both L`Aquila and Rome, breakfasts at the Federico II Hotel, one buffet lunch at the LNGS, one lunch at the GSSI canteen, AISF-IAPS t-shirts, one travel ticket in the Rome/Frascati area, travel from Rome to L'Aquila (and *vice versa*), as well as travel from the Federico II Hotel to the LNGS. 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.
- Meals other than those officially offered in the Programme. When useful, the Organising Committee will always suggest places to eat.

AISF, 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 during the registration process on the event's website.

VISA applications to travel to Italy will be supported by the organisers, but can of course only be granted by an Italian Embassy. AISF will be able to send official invitations to embassies throughout the world to help participants to smoothly receive 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 Autumn Programme for this price only thanks to the wonderful support of the INFN Frascati National Laboratory, the Gran Sasso National Laboratory and the Gran Sasso Science Institute. The organising committee is extremely grateful to those who believed in AISF and its passion for constructing opportunities for physics students.

Contacts

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